APPENDIX F

Biological Resources Technical Report

RIDGECREST SOLAR POWER PROJECT

BIOLOGICAL RESOURCES TECHNICAL REPORT

KERN COUNTY, CALIFORNIA

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September 2009

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EXECUTIVE SUMMARY

EDAW AECOM (EDAW) performed a biological resources investigation for Solar Millennium, LLC, the Applicant for the proposed Ridgecrest Solar Power Project (also referred to as "the Project" or "RSPP"). The Project is proposed on public lands managed by the Bureau of Land Management (BLM) in Kern County, California; the Applicant has submitted an application to BLM for a right-of-way (ROW) grant. The RSPP will be a 250-megawatt (MW) solar thermal electricity-generating facility using parabolic trough technology. The biological resources investigation was conducted within a 9,312-acre Biological Resources Survey Area (BRSA). The BRSA includes the 1,738-acre disturbance area plus a 1-mile buffer area around the disturbance area (7,574 acres) in order to comply with regulatory requirements. The 1,738-acre disturbance area encompasses the entire 1,440-acre facility footprint (area within the facilities fence line of the RSPP site), as well as all additional proposed areas of disturbance outside of the fence (e.g., rerouted washes, etc.). The disturbance area for the purposes of this report is 1,738 acres because it does not include the proposed water line. The proposed water line route is in the planning stages and has not been surveyed for biological resources yet. The water line route and other minor adjustments to the site plan, estimated at up to an additional 15 acres of disturbance, have not yet been surveyed. As soon as Project designs are finalized, the proposed water line route and additional 15 acres will be surveyed (anticipated spring 2010) and results will be provided during the post-AFC submittal portions of the combined CEC/BLM RSPP review process.

This Biological Resources Technical Report (BRTR) was prepared to support an Application for Certification (AFC) submitted to the California Energy Commission (CEC), which must license all thermal power plants over 50 MW in California. Because the Project is proposed on Federal land, compliance with the National Environmental Policy Act (NEPA) also is required. The Project is also subject to provisions of the California Environmental Quality Act (CEQA), and the CEC licensing process is considered a CEQA-equivalent process. The CEC and BLM are conducting a joint review of the RSPP through a combined CEQA/NEPA document, and thus this BRTR also supports BLM's NEPA compliance. Finally, this BRTR will also support Project permitting from State and Federal biological resources agencies (e.g., U.S. Fish and Wildlife Service [USFWS] and the California Department of Fish and Game [CDFG]). A major focus of the biological investigation was potential impacts on 24 special-status species that were identified as having the potential to occur on or near the BRSA. The 24 species with potential to occur on or near the BRSA are listed below:

Federal or State Listed (Endangered Species Act [ESA] or California Endangered Species Act [CESA])

- Red Rock tarplant (*Deinandra arida*, syn. *Hemizonia a.*) – CESA rare, California Native Plant Society (CNPS) List 1B.2, West Mojave Plan (WEMO)
- Mojave tarplant (*Deinandra mohavensis*, syn. *Hemizonia m.*) – CESA endangered, CNPS List 1B.3, WEMO
- Desert tortoise (DT) (*Gopherus agassizii*) – ESA and CESA threatened, WEMO
- Mohave ground squirrel (MGS) *(Spermophilus mohavensis*) – CESA threatened, WEMO

CDFG Species of Special Concern (SSC), CDFG Protected Fur-bearing Animal, BLM Sensitive or CNPS List 1A, 1B, or 2

- Alkali mariposa lily (*Calochortus striatus*) – CNPS List 1B.2, BLM Sensitive, WEMO
- Brown fox sedge (*Carex vulpinoidea*) – CNPS List 2.2
- Muir's tarplant (*Carlquistia muirii*, syn. *Raillardiopsis m.*) – CNPS List 1B.3, BLM Sensitive
- Gilman's goldenbush (*Ericameria gilmanii*) – CNPS List 1B.3
- Hall's daisy (*Erigeron aequifolius*) – CNPS List 1B.3, BLM Sensitive, WEMO
- Red Rock poppy (*Eschscholzia minutiflora* ssp. *twisselmannii*) – CNPS List 1B.2, BLM Sensitive
- Creamy blazing star (*Mentzelia tridentata*) – CNPS List 1B.3, BLM Sensitive
- Sweet-smelling monardella (*Monardella beneolens*) – CNPS List 1B.3, BLM Sensitive, WEMO
- Charlotte's phacelia (*Phacelia nashiana*) – CNPS List 1B.2, BLM Sensitive, WEMO
- Nine-mile canyon phacelia (*Phacelia novenmillensis*) – CNPS List 1B.2, BLM Sensitive, WEMO
- Latimer's woodland gilia (*Saltugilia latimeri*) – CNPS List 1B.2
- Northern harrier (*Circus cyaneus*) – CDFG SSC, WEMO
- Western burrowing owl (WBO; *Athene cunicularia hypugaea*) – CDFG SSC, BLM Sensitive, WEMO
- Bendire's thrasher (*Toxostoma bendirei*) – CDFG SSC, BLM Sensitive, WEMO
- Le Conte's thrasher (*Toxostoma lecontei*) – BLM Sensitive, WEMO
- Loggerhead shrike (*Lanius ludovicianus*) – CDFG SSC, WEMO
- American badger (*Taxidea taxus*) – CDFG SSC
- Desert kit fox (*Vulpes macrotis arsipus*) – protected fur-bearing mammal (PFM) (California Code of Regulations)
- Nelson's bighorn sheep (*Ovis canadensis nelsonii)* – BLM Sensitive, WEMO
- Pallid bat (*Antrozous pallidus)* – CDFG SSC, BLM Sensitive

The Project site is not located in DT critical habitat, nor is it located within any of the four DT Desert Wildlife Management Areas (DWMAs) designated for DT conservation under the WEMO. A total of 844 acres of the Project disturbance area (south of Brown Road) occur within the MGS Conservation Area, a Wildlife Habitat Management Area designated by the WEMO (BLM 2005). The site is not located within any other WEMO designated conservation areas.

During spring 2009, surveys were conducted in the BRSA to map vegetation communities and waters of the State, and to determine the presence or absence of special-status plant and wildlife species. These surveys were conducted in accordance with applicable regulations and in accordance with established survey protocols for various special-status species. The fieldwork included vegetation mapping, delineation of potential jurisdictional waters, focused rare plant surveys, protocol surveys for DT and WBO, a habitat assessment for MGS, avian point count surveys, and a general wildlife inventory.

Four vegetation communities and other land cover types were mapped within the BRSA: Mojave Desert wash scrub, unvegetated ephemeral dry wash, Mojave creosote bush scrub, and developed land. The majority of the BRSA is composed of Mojave creosote bush scrub. Developed areas within the BRSA consist of roadways and residential lots. Mojave Desert wash scrub, unvegetated ephemeral dry wash are considered sensitive vegetation communities by CDFG. Significant project impacts to sensitive vegetation communities would be mitigated to less-than-significant levels.

Jurisdictional waters delineations indicate that there are unlikely to be waters on the site considered jurisdictional by the U.S. Army Corps of Engineers (USACE). The USACE has not yet made this official determination, although the process is underway to obtain USACE concurrence. However, the washes on the Project site are considered State jurisdictional waters subject to CDFG jurisdiction. There are approximately 16.6 acres of State jurisdictional waters within the disturbance area. Significant Project-related impacts to State waters would be mitigated to less-than-significant levels.

No Federal or State-listed plant species were detected within the BRSA during spring 2009 surveys, therefore, no impacts to special-status plants would occur as a result of the Project. Additionally, no other special-status plant species were detected within the BRSA. One BLM-targeted cactus species, the cottontop cactus (*Echinocactus polycephalus var. polycephalus*), was detected in the central-eastern portion of the BRSA, just inside the disturbance area.

A total of 50 DTs, a Federal and State-listed threatened species, were observed in the BRSA during spring 2009 Project surveys, 40 of which were observed in the Project disturbance area. Based on survey results, 69 adult DT are estimated to occur in the disturbance area, equivalent to a density of approximately 0.040 DT per acre. With implementation of avoidance, minimization, and mitigation measures, potentially significant Project impacts to DT would be reduced to less-than-significant levels.

No MGS, a State-listed threatened species, were observed within the BRSA during Project surveys; however, 1725.6 acres of suitable and 234.7 acres of high-quality MGS habitat occur within the disturbance area. MGS are expected to occur in the Project disturbance area. With implementation of avoidance, minimization, and mitigation measures, potentially significant project impacts to MGS would be reduced to less-than-significant levels.

Eight non-listed special-status wildlife species were documented in the BRSA during Project surveys: WBO, loggerhead shrike, Le Conte's thrasher, yellow warbler (*Dendroica petechia*), Vaux's swift (*Chaetura vauxi*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), American badger, and desert kit fox. However, three of these species—yellow warbler, yellow-headed blackbird, and Vaux's swift—were detected during their migration and are not expected to regularly occur in the BRSA. The following detections of non-listed special-status species were recorded in the BRSA during spring 2009 Project surveys: one WBO pair, and four additional individuals were detected within the disturbance area, and an additional WBO pair was detected in the buffer; three loggerhead shrikes were detected within the disturbance area, and one additional individual in the buffer; one pair and one individual Le Conte's thrasher were detected within the disturbance area, and none were detected in the buffer; one American badger digging was observed in the buffer north of the disturbance area, and no evidence of badger was detected in the disturbance area; and 75 kit fox burrows (including 4 occupied burrows), were detected within the disturbance area, as well as 44 kit fox burrows (4 occupied) in the buffer. Potentially significant project impacts to non-listed special-status species would be mitigated to below a level of significance.

No potentially important wildlife movement corridors and habitat linkages (identified in the WEMO) occur within or adjacent to the BRSA. Movement between local populations of DT and MGS is assumed to occur in the Project vicinity; but, because these are resident (nonmigratory) species, most movement by DT and MGS is expected to occur primarily within their home ranges both within and adjacent to the BRSA.

No USFWS-designated critical habitat for any plant or wildlife species exists within the Project disturbance area or 1-mile buffer. Each of the cumulative projects will be required to mitigate their own biological impacts. However, the stress on species whose habitats are shrinking due to development activities will continue.

In addition to the CEC license and BLM ROW grant, authorization will be required from CDFG for impacts to jurisdictional waters of the State. The proposed Project will also comply with relevant portions of the CFGC and will consult with CDFG on potential effects to CESA listed species (e.g., DT). The proposed Project did not identify Federal waters under the regulatory administration of the U.S. Army Corps of Engineers (USACE) within the portion of the BRSA where ground disturbing activities are proposed (i.e., disturbance area). Therefore, it is not anticipated that the proposed Project will require a CWA Section 404 permit. The confirmation of the absence of jurisdictional waters of the U.S. occurring within the disturbance area will be based upon the USACE's Jurisdictional Determination (JD) process. Potential jurisdictional waters of the State (e.g., ephemeral washes and Mojave Desert wash scrub) under the regulatory administration of CDFG were identified within the disturbance area and a CFGC Section 1600 et seq. Lake and Streambed Alteration Agreement application will need to be prepared. Consultation with USFWS will be necessary under Section 7 of the ESA for impacts to DT, a Federal listed species, and will involve preparation of a Biological Assessment. USFWS will then issue a Biological Opinion for the proposed Project.

The Project's water line route has not yet been finalized. For this reason, this document does not describe the affected environment or potential impacts from the Project water line. When the Project design is finalized, the necessary biological studies and surveys for the water line will be conducted, documented, and submitted to the regulatory agencies.

In addition, several portions of the disturbance area, totaling approximately 288 acres, are no longer a part of the proposed Project and have been removed from the disturbance area. These 288 acres were included in the spring 2009 surveys and results are reported in the technical reports attached to this BRTR to add to the body of available scientific data. Also, as a result of the changes to the proposed disturbance area, approximately 15 acres have not yet been surveyed. Surveys for the additional 15 acres will be completed following final Project design (anticipated spring 2010) and results will be provided during the post-AFC submittal portions of the combined CEC/BLM RSPP review process.

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CHAPTER 1
INTRODUCTION

EDAW AECOM (EDAW) performed biological resources studies for Solar Millennium, LLC, the Applicant for the proposed Ridgecrest Solar Power Project (also referred to as "the Project" or "RSPP"). The Project is proposed on public lands managed by the Bureau of Land Management (BLM) in Kern County, California and the Applicant has submitted an application to BLM for a right-of-way (ROW) grant. The RSPP will be a 250- megawatt (MW) solar thermal electricity-generating facility using parabolic trough technology. The Biological Resources Study Area (BRSA) for this report covers the approximately 1,738 acres that would be disturbed by RSPP construction and operation (i.e., the disturbance area), which includes the approximately 1,440-acre solar facility footprint (i.e., the area inside the facility fence line, including the solar fields, office and maintenance buildings, laydown area, drainage channels, bioremediation area, leach fields, and corridors for the transmission line and roads) plus areas outside of the fence line that would be disturbed by the Project. The BRSA also includes a 1-mile buffer around the disturbance area (7,574 acres), for a total BRSA of approximately 9,312 acres. The disturbance area for the purposes of this report is 1,738 because it does not include the proposed water line. The proposed water line route is in the planning stages and has not been surveyed for biological resources yet.

This Biological Resources Technical Report (BRTR) was prepared to support an Application for Certification (AFC) to be submitted to the California Energy Commission (CEC), which must license all thermal power plants over 50 MW in California. Because the Project is proposed on Federal land, compliance with the National Environmental Policy Act (NEPA) also is required. The Project is also subject to provisions of the California Environmental Quality Act (CEQA), and the CEC licensing process is considered a CEQA-equivalent process. The CEC and BLM are conducting a joint review of the RSPP through a combined CEQA/NEPA document, and thus this BRTR also supports BLM's NEPA compliance. Finally, this BRTR will also support Project permitting from State and Federal biological resources agencies (e.g., U.S. Fish and Wildlife Service [USFWS] and the California Department of Fish and Game [CDFG]).

The BRTR describes existing biological conditions in the BRSA. It also analyzes how the RSPP could potentially impact threatened, endangered, or special-status species or vegetation communities.

1.1 PROJECT LOCATION

The proposed RSPP is located approximately 5 miles southwest of Ridgecrest, approximately 6 miles southeast of Inyokern, and less than 1 mile southwest of U.S. Highway 395 in eastern Kern County, California (Figure 1 [All figures referred to herein are included in Attachment 1]). The disturbance area is composed of a large, contiguous area consisting of approximately 1,738 acres of undeveloped land administered by BLM.

1.2 SITE AND PROJECT DESCRIPTION

1.2.1 Site Description

The solar energy facilities and associated construction and operation activities for the RSPP will occur within the 1,738-acre disturbance area (Figure 2). Topography within the BRSA is generally flat with elevations ranging from approximately 2,580 feet in the north to 2,800 feet in the south. The RSPP site is located on an alluvial fan that slopes northward from the El Paso Mountains to the southwest; it consists primarily of undeveloped open space. The most notable topographic features include an ephemeral drainage passing generally from south to north, and a series of rock outcrops located in the eastern portion of the site near the intersection of Brown Road and U.S. Highway 395.

The RSPP site is located on Federal land managed by BLM that is entirely within the West Mojave Plan (WEMO) area. The Project disturbance area is located in areas designated under the WEMO as BLM Multiple Use Class "Limited" or "Unclassified." Public lands designated as Multiple Use Class Limited are "managed to provide for generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished." Prior to project implementation, a CDCA (California Desert Conservation Area Plan) multiple use classification (MUC) amendment to reclassify lands in the Project site will be required. Historic and current uses of the site (both approved and unapproved) include grazing allotments, off-road vehicle use, target practice, and trash dumping. The El Paso Mountains Wilderness Area is located to the southwest of the Project site, just beyond the 1-mile buffer. The China Lake Naval Air Weapons Station occurs approximately 6 miles to the north and over 15 miles to the east.

1.2.2 Project Description

Solar Millennium (the Applicant) is proposing to construct a commercial solar thermal electric power-generating project. The RSPP would be located in the high northern Mojave Desert in northeastern Kern County, California, approximately 5 miles southwest of Ridgecrest, California. The Project would be located on a 3,920-acre ROW owned by the Federal government and leased by the Applicant from BLM. The Project facility footprint would occupy a total of approximately 1,440 acres of the ROW. In addition to solar fields and a main power-generating facility (power block), the site would include a main office building and parking lot, a main warehouse with laydown area, onsite access roads, a tie-in switchyard, and a bioremediation area (Figure 3).

The Project would have a nominal output of 250 MW. The Project would utilize solar parabolic trough technology to generate electricity. With this technology, arrays of parabolic mirrors collect heat energy from the sun and refocus the radiation on a receiver tube located at the focal point of the parabola. A heat transfer fluid (HTF) is heated to high temperature (750° F) as it circulates through the receiver tubes. The heated HTF is then piped through a series of heat exchangers where it releases its stored heat to generate high-pressure steam. The steam is then fed to a traditional steam turbine generator where electricity is produced.

The Project would include two solar fields, each occupying roughly 700 acres and composed of piping loops arranged in parallel groups connected to supply and return header piping. The power block would be located south of Brown Road, just north of the southern solar field. The power block would be composed of its own administration, control, warehouse, maintenance, and lab buildings; an HTF pumping and freeze protection system; steam generator; propane-fired auxiliary boiler; one steam turbine generator; an air-cooled condenser (ACC); generator step-up transformer, transmission lines, and related electrical system; and auxiliary equipment (i.e., water treatment system, diesel-powered emergency generator, and firewater system). A new 12-inch-diameter, approximately 5-mile-long water pipeline would be installed within the Brown Road and China Lake Boulevard ROWs to connect the Project with the Indian Wells Valley Water District (IWVWD) supply. A new 230-kilovolt (kV) transmission line from the turbine generator to a new nearby switchyard would interconnect with Southern California Edison's (SCE) existing 230-kV Inyokern/Kramer Junction transmission line passing west of the Project site. The transmission line would be approximately 0.5 mile long and is entirely located within the facility footprint.

Access to the site would be provided by a new 700-foot-long, 24-foot-wide paved access road from Brown Road, located approximately 2.25 miles west of the intersection of Brown Road with U.S. Highway 395. Only a small portion of the overall facility footprint would be paved, primarily the site access road, the service road to the power block, and portions of the power block. The remaining portions of the power block would be gravel surfaced. In total, the area of the power block area would be approximately 18 acres, with approximately 6 acres of paved area. The solar field would remain unpaved and without a gravel surface in order to prevent rock damage from mirror wash vehicle traffic. A dust suppression coating would be used on the dirt roadways within and around the solar field. The Project solar field and support facilities perimeter would be secured with chain-link metal-fabric security fencing. Along the north and south sides of the facility, the fence would be 8 feet tall, with 1-foot barbed wire or razor wire on top. Wind fencing, 30-feet tall and composed of A-frames and wire mesh, would be installed along the east and west sides of each solar field. Controlled access gates would be located at the site entrance.

Pending receipt of necessary permits and approvals, Project construction is scheduled to begin in late 2010 and continue into 2013. Project construction is expected to occur over a total of 28 months. Project construction would require an average of 405 employees, with manpower requirements peaking at approximately 633 workers in Month 11 of construction. Temporary construction laydown and parking areas would be located within the facility footprint.

The existing topographic conditions of the proposed site show an average slope of approximately 2 percent toward the northwest in the area north of Brown Road and toward the north in the area south of Brown Road. Cross slopes vary from nearly flat to as much as 4 percent. Steeper slopes occur at transitions into washes. The general stormwater flow pattern in the vicinity of the facility footprint is from the higher elevations in the mountains located approximately 6 miles south of the site northward to China Lake, which is a depression in the Indian Wells Valley with no identifiable outlet.

The development of the site would include intercepting offsite storm flows at the Project boundaries, channelizing and rerouting the flows around the perimeter of the site, and then returning the flows to natural channels on the north and west sides of the facility footprint. Onsite runoff from the solar fields would be collected in a series of swales and small channels, which would direct the flow to the primary channels on the footprint perimeter. The power block area would have its own detention/water quality basin within the block, which would outfall to the nearest downstream channel. The detention basin will be approximately 1 acre in size, and is not expected to regularly retain standing water; only occasionally (after rain events) would the

detention basin potentially hold water for anywhere from 1 to at most 10 to 15 days. The channels and detention basin would be designed to meet Kern County requirements. The RSPP would employ a comprehensive system of management controls, including site-specific best management practices (BMPs), to minimize storm water contact with contaminants.

The facility footprint would be graded generally following the existing contours of the site in order to minimize the amount of disturbance and to allow a balanced distribution of material. The preliminary site grading plan is designed to be balanced; no import or export of soil is expected for general earthwork. The grading plan does not currently allow for any soil shrinkage or other losses. When the geotechnical investigation report is available for the site, the grading plan will be adjusted to account for losses in elevation that could occur. Engineered fill would be provided as required for equipment and structure foundations if recommended by the geotechnical report. Additionally, granular material may need to be imported for use as road base and possible use below foundations. Mass grading of the site would begin at the beginning of the construction period and last over a period of approximately 24 months. The total earth movement required is estimated to be 7.5 million cubic yards.

Commercial operation is expected to begin in mid-2013. While electrical power is to be generated only during daylight hours, the RSPP would be staffed 24 hours a day, 7 days a week. A total estimated workforce of 84 full-time employees would be needed to staff the Project. The projected operating lifespan of the Project is 30 years.

The RSPP would generate electric power solely via solar energy. Propane would be used to fire an auxiliary boiler overnight to support start-up operations until the HTF system was up to operating temperature, at which time the generation of electricity could commence. A second propane-fired heater would be used as needed, mostly during the winter, to prevent freezing of the HTF. The propane for the boilers would be supplied via regular truck deliveries and stored in an 18,000-gallon, aboveground tank located within the power block.

The HTF to be used for the Project is a synthetic hydrocarbon liquid mixture of diphenyl ether and biphenyl. The HTF is not classified as a hazardous material by the U.S. Department of Transportation (USDOT) and is not listed under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) regulations. However, it is regulated as a hazardous material by the State of California. Visual inspection throughout the solar field on a daily basis would detect small HTF leaks potentially occurring at ball joints or other connections. Such leaks would be corrected via minor repairs. The configuration of the looped system, which allows different sections of the loops to be isolated, would facilitate the repair of small leaks.

Larger leaks would be detected by remote pressure sensing equipment, and remote operating valves would allow for isolation of large areas of the loops in the solar field in the case of a major leak.

HTF-contaminated soil[1] from the two solar fields would be treated in an onsite land treatment unit (LTU) where soil contaminated with HTF would be bioremediated, or land farmed.. The LTU would be designed in accordance with Lahontan Regional Water Quality Control Board (RWQCB) requirements. The LTU would utilize indigenous bacteria to metabolize hydrocarbons contained in nonhazardous HTF-contaminated soil. Multiple high-density polyethylene (HDPE) liners and leachate collection and removal systems would be included in the LTU. A combination of nutrients, water, and aeration would facilitate bacterial activity. The soil would remain in the LTU until concentrations were reduced to an average concentration of less than 100 milligrams per kilogram (mg/kg) HTF. The bacteria would typically restore contaminated soil within 2 to 4 months.

As discussed in the footnote below, the California DTSC has determined for a similar thermal solar power plant that soil contaminated with up to 10,000 mg/kg of HTF is classified as a nonhazardous waste. However, the DTSC (2009) has further indicated that site-specific data will be required to provide a classification of HTF-contaminated soil. Initially, in addition to sampling for HTF, samples will be analyzed for ignitability and toxicity using appropriate State and Federal methods to verify generator knowledge and characterize the waste as hazardous or nonhazardous. These data will be obtained to provide site-specific information and verify the classification of the material.

Thermal power plants require cooling, which typically involves large quantities of cooling water. The RSPP would utilize ACCs in a process commonly referred to as “dry cooling,” which would dramatically reduce the amount of water needed by the facility compared to a “wet cooled” facility. Water would be used principally for solar mirror washing, feedwater makeup, firewater supply, onsite domestic use, makeup water for ancillary equipment, heat rejection, and dust control. Total consumption for the facility is estimated at approximately 150 acre-feet per year (afy); this water would be supplied by the IWVWD via a new approximately 5-mile-long pipeline and stored in a 1.5-million-gallon potable water storage tank. Water received from IWVWD would meet the requirements of the California Department of Health Services for potable water supplies and would not require further treatment for this purpose. Power cycle

[1] A letter from the California Department of Toxic Substance Control (DTSC) dated April 4, 1995, classified HTF-contaminated soil as nonhazardous to humans or wildlife, pursuant to CCR 66260.200(f) specifically for KJC Operating Company facility.

makeup, mirror washing water, and ancillary equipment heat rejection would, however, require onsite treatment for reduction of dissolved solids. Treatment would involve desalination by a membrane process such as reverse osmosis or electrodialysis reversal.

To facilitate dust and contaminant removal, treated water would be used to spray clean the solar mirrors on a periodic basis, determined by a reflectivity monitoring program. This operation would generally be done at night and would involve a water truck spraying treated water on the mirrors in a drive-by fashion. Solar mirror washing would use approximately 53 afy. Mirror washing equipment would utilize brushes to reduce the amount of water required. It is expected that the mirrors would be washed weekly in winter and twice weekly from mid- spring through mid-fall. Rinse water from the washing operation would be expected to evaporate on the mirror surface with no appreciable runoff.

Sanitary wastewater would be collected for treatment in septic tanks and disposed via leach fields. Based on an estimated maximum of 2,700 gpd of sanitary wastewater, a total leach field area of approximately 5,500 square feet would be required, spread out among three locations. The leach fields would consist of buried perforated pipes. The power generation cycle would not produce cooling tower blowdown because the plant would be dry cooled. It is anticipated that all of the power cycle makeup water would be recycled and reused as feed to the water treatment system.

The Project's lighting system would provide operations and maintenance personnel with illumination in normal and emergency conditions. The Project's lighting system would provide the minimum illumination required to ensure safety and security objectives, and lighting would be located and oriented to minimize illumination in areas not pertinent to safety and security. Where practicable, lights would be shielded and down-directed to illuminate only the needed area, which would avoid illuminating adjacent undeveloped areas when the lights are located near the perimeter of the site. Lights used for a particular operation would be extinguished once that operation has been completed unless required for ongoing safety or security purposes. The minimum number of lights necessary to provide safety and security will be installed in the power block. All lights will be installed within the perimeter fence of the Project.

Whenever practicable, construction activities would be limited to daytime hours, thereby minimizing nighttime noise disturbance. Similarly, the plant's electrical generating facilities would operate during daylight hours, and nighttime noise from operations would be minimal. Noise from the propose-fired auxiliary boiler would typically only occur during a short time at dawn when the boiler is in operation. Construction and operational noise emissions would

comply with applicable laws, ordinances, regulations, and standards (LORS) thresholds for sensitive wildlife receptors.

1.2.3 Federally Designated Management Areas

According to the WEMO, the portion of the RSPP disturbance area south of Brown Road overlaps with the Mohave Ground Squirrel (MGS) Conservation Area; this area of overlap totals approximately 844 acres. The Project disturbance area does not occur within any other WEMO designated Conservation Areas or Areas of Critical Environmental Concern (ACECs), including the four designated Desert Tortoise (DT) Desert Wildlife Management Areas (DWMAs). The closest DWMA, the Fremont-Kramer DWMA, is located approximately 7 miles southeast of the BRSA. The Project disturbance area occurs entirely within the DT Western Mojave recovery unit (USFWS 2008) but does not fall within any designated DT critical habitat; the nearest DT critical habitat is over 7 miles south of the BRSA.

CHAPTER 2
METHODOLOGY

This section describes the methodologies, protocols, and limitations for the various biological resources surveys conducted for the RSPP during spring 2009.

2.1 DATABASE RESEARCH

For the purposes of this report, species are considered to have special-status if they meet at least one of the following criteria:

- Covered under the Federal or California Endangered Species Act (ESA and CESA, respectively);
- CDFG species of special concern (SSC) (CDFG 2009a);
- CDFG fully protected species (CDFG 2009a);
- BLM sensitive species (BLM Sensitive) (BLM 2009);
- Covered as a State protected fur-bearing mammal (PFM) (Title 14 CCR Section 460); or
- Listed by the California Native Plant Society (CNPS) as List 1A (presumed extinct in California); 1B (rare, threatened, and endangered in California and elsewhere); or 2 (rare, threatened, or endangered in California, but more common elsewhere) (CNPS 2009). CNPS List 1A, 1B, and 2 species are considered special-status plant species if they fall within any of these categories as defined in the Native Plant Protection Act (NPPA) (California Fish and Game Code [CFGC] Section 1901) or the CESA (CFGC Sections 2050 through 2098).

Prior to beginning field surveys, EDAW biologists consulted the CDFG California Natural Diversity Database (CNDDB) (RareFind Version 3.1.0; CDFG 2009b), the CNPS Inventory of Rare and Endangered Plants (CNPS 2009), and the Natural Resources Conservation Service Web Soil Survey (USDA 2009). These resources along with the Special Animals list (CDFG 2009a) and range maps were consulted to determine historic occurrence of special-status plant and wildlife species and other natural resources within the BRSA (Figure 4). Additionally, the USFWS provided a memo detailing special-status species that they require to be considered (Attachment M).

In addition, the WEMO (BLM 2005) was reviewed for maps of lands designated for Wildlife Management Areas; documentation of sensitive vegetation communities; and documentation of sensitive species, such as Red Rock tarplant (*Deinandra arida*), DT (*Gopherus agassizii*), MGS (*Spermophilus mohavensis*;), and western burrowing owl (WBO) (*Athene cunicularia hypugaea*). Several plant and wildlife special-status species with potential for occurrence on the RSPP site are included in the WEMO.

Habitat requirements for special-status species were evaluated with respect to conditions in the BRSA. Surveys were initiated to determine presence or absence of species with the potential to occur on or near the BRSA. The following 24 special-status species were identified as having the potential to occur on or near the BRSA and are discussed in detail below:

<u>Federal or State Listed (ESA or CESA)</u>

- Red Rock tarplant (*Deinandra arida,* syn. *Hemizonia a.*) – CESA rare, CNPS List 1B.2, WEMO
- Mojave tarplant (*Deinandra mohavensis,* syn. *Hemizonia m.*) – CESA endangered, CNPS List 1B.3, WEMO
- Desert tortoise (*Gopherus agassizii*) – ESA and CESA threatened, WEMO
- Mohave ground squirrel *(Spermophilus mohavensis*) – CESA threatened, WEMO

<u>CDFG SSCs, PFMs, BLM Sensitive, or CNPS List 1A, 1B, or 2</u>

- Alkali mariposa lily (*Calochortus striatus*) – CNPS List 1B.2, BLM Sensitive, WEMO
- Brown fox sedge (*Carex vulpinoidea*) – CNPS List 2.2
- Muir's tarplant (*Carlquistia muirii,* syn. *Raillardiopsis m.*) – CNPS List 1B.3, BLM Sensitive
- Gilman's goldenbush (*Ericameria gilmanii*) – CNPS List 1B.3
- Hall's daisy (*Erigeron aequifolius*) – CNPS List 1B.3, BLM Sensitive, WEMO
- Red Rock poppy (*Eschscholzia minutiflora* ssp. *twisselmannii*) – CNPS List 1B.2, BLM Sensitive
- Creamy blazing star (*Mentzelia tridentata*) – CNPS List 1B.3, BLM Sensitive
- Sweet-smelling monardella (*Monardella beneolens*) – CNPS List 1B.3, BLM Sensitive, WEMO
- Charlotte's phacelia (*Phacelia nashiana*) – CNPS List 1B.2, BLM Sensitive, WEMO
- Nine-mile canyon phacelia (*Phacelia novenmillensis*) – CNPS List 1B.2, BLM Sensitive, WEMO

- Latimer's woodland gilia (*Saltugilia latimeri*) – CNPS List 1B.2
- Northern harrier (*Circus cyaneus*) – CDFG SSC, WEMO
- Western burrowing owl (*Athene cunicularia hypugaea*) – CDFG SSC, BLM Sensitive, WEMO
- Bendire's thrasher (*Toxostoma bendirei*) – CDFG SSC, BLM Sensitive, WEMO
- Le Conte's thrasher (*Toxostoma lecontei*) – BLM Sensitive, WEMO
- Loggerhead shrike (*Lanius ludovicianus*) – CDFG SSC, WEMO
- American badger (*Taxidea taxus*) – CDFG SSC
- Desert kit fox (*Vulpes macrotis arsipus*) – PFM (California Code of Regulations)
- Nelson's bighorn sheep (*Ovis canadensis nelsonii)* – BLM Sensitive, WEMO
- Pallid bat (*Antrozous pallidus)* – CDFG SSC, BLM Sensitive

Additionally, vegetation communities and cover types classified as "sensitive" were identified within the BRSA and include those that are of special concern to CDFG due to their unique nature, limited distribution, or importance as habitat for special-status species and common wildlife (CDFG 2003). Also included are those that contain vegetation associated with perennial and intermittent drainages that are subject to seasonal flooding or are associated with jurisdictional waters of the U.S. (Section 1602 of the CFGC, Sections 401 and 404 of the Clean Water Act [CWA]). The WEMO (BLM 2005) additionally designated several habitat conservation areas and areas of critical environmental concern (ACECs) identified as being of regional importance for cultural, scenic and natural resource values. Other than the MGS conservation area present within the disturbance area south of Brown Road, no other ACECs occur within or adjacent to the BRSA.

2.2 SURVEY PROTOCOLS

Comprehensive biological resource surveys designed to meet all applicable USFWS, BLM, CDFG, and CEC requirements were initiated in spring 2009.

Surveys for biological resources were conducted within the Project disturbance area plus a 1-mile buffer around the disturbance area, as required by the CEC. The entire 9,312-acre survey area (BRSA) is shown in Figure 5.

During spring 2009, Project biologists completed the following surveys within the BRSA: vegetation mapping, focused rare plant surveys, delineation of State jurisdictional waters, general wildlife surveys, protocol DT surveys, protocol WBO surveys, MGS habitat suitability

assessment, and avian point count surveys. This section below details the specific methodologies and protocols utilized for the Project for biological resources surveys within the BRSA.

A proposed water line running within the Kern County ROW west of South China Lake Boulevard is still in the planning stage and has not been subject to biological resources survey (Figure 2). When the route is finalized, the needed biological resources studies and surveys will be performed and submitted to the regulatory agencies and other stakeholders. This work will be performed and the information provided during the post-AFC submittal portions of the combined CEC/BLM RSPP review process.

In addition, several portions of the previous RSPP disturbance area, totaling approximately 288 acres, are no longer a part of the proposed Project and have been removed from the current disturbance area. The detailed results for these 288 acres that are no longer a part of the RSPP are reported in the technical reports attached to this BRTR. Also, as a result of the changes to the proposed disturbance area, approximately 15 acres of the current disturbance area, in addition to the water line route, have not yet been surveyed. Surveys for these additional 15 acres will be completed along with surveys of the water line route following final Project design (anticipated spring 2010) and results will be provided during the post-AFC submittal portions of the combined CEC/BLM RSPP review process.

Qualifications of field biologists involved in surveys for the proposed Project are presented in Attachment A.

2.2.1 California Energy Commission Survey Guidelines

Biological survey methodologies for the RSPP were formulated in conformance with the CEC's Draft Recommended Biological Resources Field Survey Guidelines for Large Solar Projects, dated May 8, 2007 (hereafter referred to as CEC Draft Solar Guidelines). The CEC Draft Solar Guidelines recommend that biological surveys be conducted according to established protocols within and around the proposed disturbance area and additional surveys be conducted as necessary to ultimately cover a 1-mile buffer around the disturbance area to evaluate suitable habitat and record occurrence and sign of special-status species. The CEC Draft Solar Guidelines were also intended to evaluate potential wildlife habitat and corridors in the RSPP vicinity that may be disrupted as a result of Project implementation.

The CEC Draft Solar Guidelines reference "established protocols," which in the case of species listed as threatened or endangered by the Federal or State government, are guidelines

promulgated by USFWS or CDFG, respectively. In an effort to gain consensus regarding the survey methodologies to be employed, the Project team initiated discussions with USFWS, BLM, CDFG, and the CEC (hereafter collectively referred to as "the agencies"). A document entitled *Proposed Survey Protocols for the Solar Millennium Parabolic Trough Projects 2009* (Proposed Survey Protocols) was prepared by EDAW and was discussed with relevant staff from the above-mentioned agencies via a conference call held on February 11, 2009. The protocols were modified slightly based on input received during this call. The revised version of the Proposed Survey Protocols was transmitted to the appropriate staff from the above-mentioned agencies on February 20, 2009 (Attachment L).

The agencies reviewed the Proposed Survey Protocols collectively. It was determined that a unified agency response would be compiled and forwarded by CDFG. Agency input was received in the form of an email from Kimberly Nicol of CDFG dated March 10, 2009 (Attachment L). The clarifications and elaborations requested by the agencies were incorporated.

The final version of the Proposed Survey Protocols is a compilation of the actual agency-required survey methodologies mentioned above, with certain modifications arising from the March 10, 2009, comments. Modifications to the standard USFWS DT survey protocol were made based on the need to incorporate CEC requirements as well as to make adjustments to standard survey protocols based on input received from individual agencies. Adjustments included the elimination of Zone of Influence (ZOI) transects from DT surveys and the addition of DT abundance estimates for the Project site according to the revised USFWS DT protocol (USFWS 2009). Zone of Influence transects were eliminated after discussions with USFWS as it was concluded that the usual rationale for these ZOI transects, i.e., the potential for a Federal action to affect offsite individuals of a threatened or endangered species and therefore necessitate consultation under Section 7 of the Federal ESA, was a moot point as consultation was already determined to be necessary. CEC buffer requirements would result in substantial offsite survey activity in any case. Additionally, based on information provided by CDFG, BLM, and MGS species expert Dr. Phil Leitner during a field visit to the Project site on April 29, 2009, no protocol-level trapping surveys were conducted for MGS because it is assumed that this species could occur within the BRSA (refer to "Mohave Ground Squirre"l under Section 2.2.7, Special-status Wildlife Surveys).

Figure 5 illustrates the various survey areas defined by the agency survey protocols used for the RSPP, including those from the CEC, BLM, USFWS, and the California Burrowing Owl Consortium (CBOC), as adopted by CDFG.

2.2.2 Vegetation Communities

Vegetation mapping was conducted within the BRSA between February 18 and May 8, 2009, by Project botanists Charles Battaglia, Joseph Betzler, Richard Dwerlkotte, Shirley Innecken, Fred Sproul, Scott McMillan, and Lance Woolley using the following methodology.

Vegetation communities within the BRSA were classified based on Holland (1986). Sawyer and Keeler-Wolf (1995) and CDFG (2003) classifications were used to provide additional detail when needed, such as denoting special vegetation communities that are either known or believed to be of high priority for inventory in CNDDB due to significance or rarity. Field biologists utilized 200-foot scale ortho-topographic maps for both vegetation mapping and recording rare plant points or polygons. If rare plants were documented during vegetation mapping, these sites were revisited during additional focused rare plant surveys in order to accurately delineate species populations using Global Positioning System (GPS) equipment.

The minimum mapping unit (MMU), per CEC guidelines, was 0.01 acre for riparian areas and 1.0 acre for all other cover types within the disturbance area. Within the buffer, the MMU for all land cover types, including riparian, was 1.0 acre. Vegetation mapping within the disturbance area was conducted concurrently with rare plant surveys, by walking transects ranging from 10 to 100 feet apart. The buffer was surveyed by walking transects within native habitat. Developed areas were surveyed by a combination of walking transects and selecting key vantage points from existing dirt access roads.

Dominant plant species for observed vegetation communities were recorded according to the 50/20 dominance rule (USACE 2008). According to this, dominant plant species are defined as those that, when ranked in order of abundance, collectively make up 50 percent relative cover. Each dominant species individually makes up at least 20 percent relative cover or is needed to surpass the 50 percent relative cover threshold. Once the dominant plant species were identified according to this method, they were grouped according to relative cover: species below 20 percent, species ranging from 20 to 50 percent cover, and species exceeding 50 percent cover.

An observation number was recorded on the map and keyed to the field notes for representative locations. A description of the vegetation community was written in field notes and included disturbance, special soils, potential jurisdictional waters, and habitat suitability for sensitive species.

Invasive species on the California Invasive Plant Council (Cal-IPC) List: A-1, A-2, and B (Cal-IPC 2009) were noted when occurring in high concentrations (approximately 107 square feet or more) and nearly monotypic stands. Examples of invasive plant species relevant to this report include three grasses: red brome (*Bromus madritensis*), cheat grass (*Bromus tectorum*), and Mediterranean grass (*Schismus* sp.). Additional relevant invasive species include nettleleaf goosefoot (*Chenopodium murale*), Russian thistle (*Salsola tragus*), and redstem stork's bill (*Erodium cicutarium*).

Vegetation communities and cover types classified as "sensitive" were identified within the BRSA and include those that are of special concern to CDFG due to their unique nature, limited distribution, or importance as habitat for special-status species and common wildlife (CDFG 2003). Also included are those that contain vegetation associated with perennial and intermittent drainages that are subject to seasonal flooding or are associated with jurisdictional waters of the State or U.S. (Section 1602 of the CFGC, Sections 401 and 404 of CWA). Sensitive vegetation communities and land cover types within the BRSA include the following, which are subject to CDFG jurisdiction:

- Mojave Desert wash scrub, and
- Unvegetated ephemeral dry wash.

Survey Limitations

Due to constraints on access and CEC guidelines requiring detailed surveys 250 feet beyond the disturbance area limits,[2] vegetation mapping within the 1-mile buffer was conducted from strategic vantage points whenever direct access was not feasible.

2.2.3 State Waters Streambed Delineation

EDAW ecologists Jason Phillips, Lindsay Teunis, and Joshua Zinn, and AECOM Environment ecologist Jessica Wilson conducted field assessments and surveys from March 6 through March 11, 2009, to formally delineate all jurisdictional "waters of the U.S. and State" (jurisdictional

[2] Specifically, unvegetated channels are potentially jurisdictional aquatic features and were not mapped within the buffer because these surveys were conducted at a minimum mapping unit of 1.0 acre, as opposed to 0.01 of an acre for riparian vegetation communities within the disturbance area. This approach is consistent with the EDAW Jurisdictional Delineation methodology and is pursuant to Appendix B, Section (g), Subsection (13), Paragraph (B), Clause (iii) of the CEC Siting Regulations, which does not require a detailed mapping of aquatic features beyond 250 feet of the disturbance limits (CEC 2007).

waters) occurring within the disturbance area[3, 4]. Jurisdictional delineations within the facility footprint were conducted based upon the one-parameter method outlined in CDFG/USFWS guidance documents and classification manual(s) to define presence and State jurisdictional extent. A field visit to the RSPP site by CDFG to review delineated State jurisdictional waters was conducted on July 2, 2009. This section is based on information provided in the Jurisdictional Delineation Report (JDR) included as Attachment B (EDAW 2009a).

Prior to conducting the field delineation, EDAW ecologists reviewed and identified areas with topographical configurations and vegetative signatures occurring within the disturbance area that may suggest the potential or presence of jurisdictional waters. This information was evaluated by consulting the following available sources:

- 7.5 U.S. Geological Survey (USGS) InyoKern Southeast (1972) and Ridgecrest (1973) topographic quadrangles,
- 2005 Aerial Maps of the Biological Resource Study Area (BRSA) (USDA 2005),
- The National Wetlands Inventory (NWI) Interactive Wetlands Mapper (USFWS 2009),
- The California Environmental Resources Evaluation System California Wetlands Information System Wetland Databases and Inventories (CERES 2009),
- California Online Soil Survey Manuscripts (NRCS 2009a),
- The Natural Resource Conservation Service Web Soil Survey (NRCS 2009b),
- The National List of Hydric Soils (NRCS 2009c),
- The California Soil Resource Lab (U.C. Davis 2009a),
- The Information Center for the Environment (ICE) (U.C. Davis 2009b),
- The California Watershed Network (CWN 2009),
- The California Watershed Portal (CalEPA 2009),
- The Office of Water Programs Water Quality Planning Tool (CSU Sacramento 2009),
- The Digital Watershed (USEPA 2009), and
- The National Weather Service Climate Office (NOAA 2009a).

[3] Through field surveys, topographical and hydrological investigation and analysis, EDAW determined that the disturbance area does not support jurisdictional waters of the U.S. A formal determination and documentation of for the absence of Federal waters under USACE jurisdiction are currently being pursued through the USACE's Jurisdictional Determination process.

[4] The jurisdictional delineation focused on the area within the disturbance area. Therefore, there are no jurisdictional waters data for areas outside the disturbance area (i.e., the buffer area). Refer to footnote 2 above.

Field delineation at the site involved two field teams, each with two ecologists. Teams recorded the presence (including extents, types, and boundaries) of jurisdictional waters with two Trimble XH sub-foot accuracy GPS units. At the close of each field day, all acquired field data were submitted via the internet to EDAW San Diego's geographic information systems (GIS) specialists for post-field processing using Trimble GPS Analyst (Version 2.1) GIS software. Post-field analysis to code, define, designate, and edit all acquired GPS field data representing jurisdictional waters occurring within the disturbance area was conducted in tandem with an EDAW GIS specialist and the ecologists who performed the fieldwork.

The field delineation utilized the Holland Code Classification System for vegetation communities (Holland 1986) for identifying xeric riparian vegetation associated with all washes occurring within the disturbance area. Only wash-dependent plant species were mapped (see below). In areas where a mixture of upland and wash-dependent indicator species from two or more Holland vegetation communities were present, the indicator species that appears with the greatest vegetation coverage (absolute dominance based on percent cover) was used to identify the vegetation community. The xeric riparian vegetation community occurring within the disturbance area has been identified as Mojave Desert wash scrub (Holland Code 63700). The MMU for xeric riparian vegetation utilized for the field delineation was 0.10 acre.

For wetlands and other aquatic habitats occurring in California, CDFG relies on USFWS wetland definition and classification system, which is based upon *Classification of Wetland and Deepwater Habitats of the United States* (Cowardin et al. 1979). Therefore, jurisdictional wetland delineations within the disturbance area have been conducted based on the one-parameter[5] method outlined in CDFG/USFWS guidance documents and classification manual(s) to define presence and State jurisdictional extent. The Cowardin method requires diligence to avoid false positive conclusions (e.g., concluding that an area with no transitional relation to the aquatic system is a wetland based on presence of vegetation equally apt to be found in wetland or nonwetland circumstances).[6]

Under Section 1600 et seq. of CFGC, the CDFG regulates activities that would alter the flow, bed, channel, or bank of streams and lakes. The limits of CDFG jurisdiction are defined in CFGC Section 1600 et seq. as the "bed, channel or bank of any river, stream or lake designated by the

[5] For Federal jurisdictional waters, a determination for the presence of wetland is based on the presence of three parameters occurring simultaneously at the area of investigation and study. These three wetland parameters are 1) hydrophytic vegetation, 2) hydric soils, and 3) wetland hydrology. For State-defined wetlands, only one of these three wetland criteria is required to be present for the State to consider an aquatic feature a wetland.

[6] Although aquatic features can be delineated and defined as wetlands under the Cowardin Classification System they are not necessarily *jurisdictional* waters of the U.S. or State.

department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit."[7] The limits of CDFG jurisdiction usually extend to the top of a stream, the bank of a lake, or outer edge of the riparian vegetation, whichever is wider. Therefore, boundaries for jurisdictional waters of the State were determined (and recorded) by the presence of shelving and/or scour resulting in an established bank, bed, and channel of an ephemeral wash feature and its associated xeric riparian lateral extent (where applicable).

Based on CFGC Section 1600 et seq. definition and CDFG regulatory practice, field diagnostic features were used to determine and delineate the presence of two types of State jurisdictional waters, which collectively and individually represent the jurisdictional extent, occurring within the disturbance area:

1. Mojave Desert Wash Scrub, and
2. Unvegetated Ephemeral Dry Wash.

Mojave Desert Wash Scrub

The jurisdictional limit of Mojave Desert wash scrub was considered, recorded, and mapped for areas within all washes and wash features where the association of wash-dependent vegetation was present and/or where Mojave creosote bush scrub (Holland Code 34100) was not established at more than 5 percent absolute cover. The jurisdictional linear and lateral extent of Mojave Desert wash scrub occurring within the disturbance area is collectively composed of three xeric riparian features:

i. Wash-dependent vegetation,
ii. Vegetated ephemeral dry wash, and
iii. Riparian interfluves.

<u>Wash-Dependent Vegetation</u>

Wash-dependent vegetation was considered, recorded, and mapped for ephemeral washes and Mojave Desert wash scrub occurring within the disturbance area. Subsampling of wash-dependent vegetation occurred for five selected portions (reaches) of the El Paso Wash occurring throughout the disturbance area. The MMU used for the wash-dependent vegetation subsampling

[7] The California Code of Regulations (Title 14 CCR 1.72) defines a stream as: "…a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation."

was 0.01 acre. The wash-dependent vegetation occurring within Mojave Desert wash scrub is composed of one plant species[8]:

- scalebroom (*Lepidospartum squamatum*).

Using GPS units, field data points were taken for the one wash-dependent plant species (scalebroom) occurring within five designated subsampling areas of the Mojave Desert Wash Scrub within the El Paso Wash. As a result of changes in the Project footprint after surveys were completed, not all subsampling locations were located within the current Project disturbance area; however, conditions at all five subsampling locations were representative of those occurring within the current disturbance area and thus were retained in the analysis. Within each subsampling location, canopy diameters of scalebroom (individuals and mixed/monotypic stands) were recorded for absolute cover, and a weighted arithmetic mean of percent cover for wash-dependent vegetation was calculated by dividing the total acres of the subsample area by the acres of mapped wash-dependent vegetation. An overall mean of the five subsample areas was then calculated. This percent cover was extrapolated to estimate total cover of wash-dependent vegetation occurring within Mojave Desert wash scrub of this primary wash.

Vegetated Ephemeral Dry Wash

Vegetated ephemeral dry wash vegetation occurs in desert washes that present an established bed, bank, and channel that support wash-dependent vegetation (see methodology for delineating unvegetated ephemeral dry wash, below).

Riparian Interfluves

Riparian interfluves are islands or terraces populated by wash-dependent vegetation or an intermix of wash-dependent vegetation and Mojave creosote bush scrub that are encompassed by vegetated and/or unvegetated ephemeral dry wash (see below) and Mojave Desert wash scrub (the xeric riparian extent). Riparian interfluves are considered jurisdictional waters (as a component of Mojave Desert wash scrub).

[8]Spiny senna (*Senna armata*) also was observed in the El Paso Wash. However, occurrence was determined to be incidental and of low density. Additionally, the occurrence of spiny senna was less than the MMU (0.01) utilized for subsampling and thus was not included in determining the weighted average and absolute cover for wash dependent vegetation occurring within the El Paso Wash.

Unvegetated Ephemeral Dry Wash

Unvegetated ephemeral dry washes make up the other component of jurisdictional waters within the disturbance area. They are defined by shelving and/or scour resulting in an established bed, bank, and channel. In areas where evidence of distinct shelving and/or scour were absent, but some indication of past surface waterflow could be observed, it was ascertained that these features were either swales (that support low volume and duration surface flow and/or were low lying undefined relatively linear features in the landscape that are unvegetated or primarily populated by Mojave creosote bush scrub) or eroded relictual washes (that support sheetflow) during rain events. Unvegetated ephemeral dry wash primarily does not support wash-dependent vegetation. There are sporadic occurrences of individual scalebroom; however, based on the MMU of 0.01 acre, these areas are unvegetated.

Jurisdictional lateral extents of the washes were determined by the farthest extents of the respective established channel bed and banks (including shelving and scouring) of each subchannel. The delineation of unvegetated ephemeral washes collectively includes all respective subchannels of each larger wash into linear ephemeral wash features for jurisdictional waters (see below). Jurisdictional linear extents of the washes were determined by the farthest extents of the established channel bed and banks (including shelving and scouring). When the established channel bed and banks began to transition into less distinct features, such as features that only support sheet flow, and/or features that began to blend into the landscape and/or reflect the features of a swale or relictual channel, jurisdictional linear extent(s) ceased.

All washes occurring within the disturbance area are generally linear. However, the washes are collectively made up of multiple subchannels of varying sizes, which exhibit sinuosity and interface, resulting in compound channel/anastomosed morphology. By virtue of the compound channel/anastomosed morphology occurring within the washes, there are interfluves that have been formed by these multiple subchannels. Within the unvegetated ephemeral dry wash, there are interfluves of Mojave creosote bush scrub habitat between the channels of the dry washes. These interfluves are upland features, encompassed by unvegetated ephemeral dry wash, and are not considered jurisdictional. In some cases channels appear to remain visible on a recent aerial map of the disturbance area (USDA 2005) beyond what was delineated. However, these areas were ground-truthed during spring 2009 to confirm that all evidence of bed, banks, scour, and shelving have abated within or beyond the disturbance area and/or the vegetation associated with swales occurring within the disturbance area is Mojave creosote bush scrub.

Survey Limitations

The State waters streambed delineation focused on the disturbance area. Therefore, there are no State waters data for the buffer, with the exception of a small portion of the current buffer that was part of the previous disturbance area that was surveyed. These data are presented in the JDR as Attachment B (EDAW 2009a).

2.2.4 Rare Plant Surveys

Rare plant surveys were conducted within the BRSA between February 11 and May 6, 2009, by EDAW botanists Charles Battaglia, Joseph Betzler, Richard Dwerlkotte, Shirley Innecken, Fred Sproul, Scott McMillan, and Lance Woolley using the following methodology.

A list of potentially occurring sensitive plant species was compiled prior to surveys based on the following: results from previous survey efforts in the vicinity of the Project (CH2MHill 2008), CDFG's CNDDB (RareFind Version 3.1.0, CDFG 2009b), CNPS Inventory of Rare and Endangered Plants (CNPS 2009), the Natural Resources Conservation Service Web Soil Survey (USDA 2009), and Project biologists with floral expertise in the region of the proposed Project. In addition, the WEMO (BLM 2005) was reviewed for documentation of sensitive species. At the direction of BLM, cottontop cactus (*Echinocactus polycephalus var. polycephalus*), hedgehog cactus (*Echinocereus* spp.), and all varieties of California barrel cactus (*Ferocactus cylindraceus*) were to be recorded and mapped when encountered on site (LaPre 2009). The portions of the disturbance area with potential to support rare plants were surveyed by pedestrian transects, with botanists walking parallel transects ranging from 10 feet to 100 feet apart based on distribution of the resource and topography. The buffer was also surveyed by walking transects within native habitat, but developed areas were surveyed by a combination of walking transects and selecting key vantage points from existing dirt access roads.

Rare plant surveys followed survey guidelines from the following resources: Guidelines for Conducting and Reporting Botanical Inventories for Federal Listed, Proposed, and Candidate Plants (USFWS 2000); Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (CDFG 1996); CNPS Botanical Survey Guidelines (CNPS 2001); and Survey Protocols for Survey and Manage Strategy 2: Vascular Plants (Whiteaker et. al. 1998).

The surveys included all accessible locations within the BRSA where suitable habitats for sensitive plant species were present. Suitable habitats were determined based on geography,

slope aspect, soil substrate, vegetation community, associated plant species, and familiarity with each species based on reference populations and historical surveys conducted in the region. Survey dates were selected based on the most phenologically appropriate time for each plant species, when reproductive structures (i.e., flowers and fruits) and distinctive leafy parts were present and easily identifiable. Several rounds of focused surveys were necessary to accommodate the distinct phenologies of different rare plant species with potential to occur.

Surveys were scheduled to coincide with optimum flowering times in spring 2009 for all of the special-status species potentially occurring on site. When appropriate, known locations of rare plants were visited to verify the status of these species during the 2009 growing season (e.g., germinating, flowering, seeding, etc.). In general, the ideal survey window for 2009 was closely associated with the rainfall pattern, including rainfall totals and the timing of precipitation. All areas were visited at least three times during the 2009 surveys to detect all of the potential sensitive plant species, and some areas were surveyed four or more times where appropriate. Vegetation communities known or suspected to support sensitive plant populations were walked in a meandering fashion. If a sensitive plant population was located, the population was assessed for vigor and possible threats (i.e., off-road vehicle activity and invasive plants), and individuals were counted. All sensitive plant locations identified were recorded onto an aerial photograph field map and digitized into GIS. Additionally, all plant species observed during the rare plant surveys are included in the floral inventory (Attachment C).

Survey Limitations

Rainfall patterns and totals can be a limiting factor in detecting rare plant species in desert environments. Often yearly precipitation totals are not indicative of annual plant growth and blooming; rainfall totals during and after germination are key indicators of growth and flowering. For Ridgecrest, the closest precipitation data are from Inyokern, approximately 7 miles northwest of the BRSA. Monthly precipitation totals have been recorded at Inyokern since December 1940 (WRCC 2009). The majority of Mojave Desert annual plants grow in the winter for a spring blooming period. Monthly rainfall totals between November 2008 and February 2009 reflect this key period and were below the historical mean rainfall totals. Late-season rain fall in March and April 2009 was also approximately 44 percent lower than the historical average.

The below-average rainfall in early 2009 and lack of late-season rain events may have depressed germination of annual plant species; however, 70 of the 112 species detected in the BRSA during spring 2009 surveys were annual plants, suggesting that germination of annuals was not likely substantially depressed. Additionally, site conditions observed by field staff early in the 2009 season indicated that both annual and perennial species were detectable when the surveys were

conducted, also suggesting that growth of annual plant species was not likely substantially depressed during 2009. As a result of these observations on site, conditions during spring 2009 were likely suitable for the detection of a representative suite of plant species during focused rare plant surveys, including special-status species, within the BRSA.

2.2.5 General Wildlife Surveys and Habitat Assessment

General wildlife surveys were conducted concurrently with protocol wildlife surveys and vegetation mapping to document all wildlife species observed on site and to assess the suitability of the site to support special-status wildlife species. General wildlife surveys were conducted from February to June 2009. Wildlife sign and sightings were recorded and special-status species were mapped using GPS units.

2.2.6 Avian Point Count Surveys

Point count surveys were conducted to characterize avian use of the BRSA during the spring breeding season. These surveys were requested by BLM (LaPre 2009) and are based on the methodology outlined in the *Handbook of Field Methods for Monitoring Landbirds* (Ralph et al. 1993) and based on guidance from BLM (LaPre 2009). Point counts were conducted for 4 consecutive weeks between April 14 and May 8, 2009. A total of 24 point count stations were established along three transect lines (8 stations per transect); transects were placed in a configuration designed to sample all major vegetation types and habitat features (e.g., low-lying wash, upland) represented on the RSPP site. Each transect line composed eight 328-foot radius point count stations, each placed 820 feet apart (Figure 5). This design allows for a 164-foot zone between each point count, a distance considered sufficient to minimize or avoid duplicate counts of individual birds.

Each of the 24 point count stations was visited once a week (four times total) over the 4-week period. Each point count lasted 10 minutes. The daily point count period was from approximately 15 to 30 minutes before sunrise until approximately 3 hours after sunrise when bird activity is typically highest and individuals are most easily detected. The order in which point count stations along a transect line were visited was reversed each week so that all stations were visited both earlier and later in the morning survey window.

All birds detected within the 328-foot radius of each point count station, including those flying birds whose flight path intersected the point count circle, were recorded on datasheets. At each station, the 10-minute time interval, temperature, wind, cloud cover, and visibility were recorded

on datasheets. For each species, the number of individuals detected, their age and sex (if known), the direction and approximate distance of the bird from the observer, its activity, and its habitat were recorded on datasheets. Additionally, special-status-species detected were mapped using GPS units. Notes on other birds detected beyond the 328-foot radius were also made. While these additional observations are discussed, they were not included in the quantitative analyses of avian use of the site.

Survey Limitations

Depending on their design, point counts can be effectively used to sample large, conspicuous birds such as raptors, or small, relatively inconspicuous species like passerines (songbirds) and near passerines (e.g., doves, hummingbirds, woodpeckers, etc.). The assumption is that the detection rate of most passerines diminishes rapidly beyond 328 feet; therefore, the point counts in this study were designed to determine resident breeding species use and record incidental observations of other avian use of the site, including migratory species and foraging raptors.

Strong wind and temperature extremes can have a profound effect on point count results. On a few occasions during the survey period, strong sustained wind and gusts occurred; however, these conditions were never extreme enough to appreciably affect bird detectability and for surveys to be rescheduled.

2.2.7 Special-Status Wildlife Surveys

Focused protocol surveys were conducted in spring 2009 for the DT, WBO, and MGS and are described below. Surveys for other special-status species were conducted concurrently with these protocol surveys (see "General Wildlife Surveys and Habitat Assessment", and "Avian Point Count Surveys" above). Incidental sightings for all other special-status species were recorded during protocol surveys.

Desert Tortoise

The survey followed the guidelines published in *Field Survey Protocol for any Non-Federal Action That May Occur within the Range of the Desert Tortoise* (USFWS 1992), with the following exception: no surveys of the five ZOI transects that are typically required outside of and parallel to the disturbance area at 100, 300, 600, 1,200, and 2,400 feet were conducted. This modification to the DT survey protocol was agreed upon prior to survey initiation by USFWS, CDFG, BLM, and CEC, per an email communication dated March 10, 2009, from Kim Nicol

(refer to Section 2.2.1). To comply with the recommendations of the CEC Draft Guidelines, transects outside of and parallel to the disturbance area were surveyed for DT at 3,960-foot (0.75-mile) and 5,280-foot (1-mile) intervals from and parallel to the edge of the disturbance area. These transects were more broadly focused than the DT protocol transects conducted inside the Project disturbance area and were not a formal part of the tortoise survey. However, they provided information on DT presence/absence and habitat suitability as well as other biological resources in the area surrounding the BRSA. Project biologists Arthur Davenport, Shelly Dayman, Charles German, Katie Hall, Gregg Lukasek, and Milo Rivera conducted DT habitat assessment of the BRSA on February 14, 2009. Presence/absence surveys for DT were completed between March 7 and May 28, 2009. Project biologists Arthur Davenport, Shelly Dayman, Kim Duncan, Elias Elias, Michael Gallagher, Charles German, Katie Hall, James Huelsman, James Jennings, Gregg Lukasek, James Luttrell, Milo Rivera, Ellen Schafhauser, and Rob Wolfson conducted focused presence/absence surveys for DT, according to the USFWS protocol (USFWS 1992).

The disturbance area was surveyed according to protocol by spacing transects 32.8 feet apart along north-to-south-oriented transects. The survey was conducted by slowly and systematically walking linear transects while surveyors visually searched for DT and sign. Particular emphasis was placed on searching around the bases of shrubs and along the banks of shallow washes. All types of DT sign were recorded using GPS. Surveys were conducted throughout the day. On days when temperatures were above 95 degrees Fahrenheit, surveys were conducted closer to dawn and dusk hours. DTs were measured at midline carapace length (MCL) and evaluated for health. Photographs of DT observations were taken when possible (i.e. animal not deep in burrow). Photographs of large carcasses and/or unusual sign were also taken. Burrows, scat, and shell remains were classed using the Information Index for Desert Tortoise Sign: Burrows and Dens, Scats and Shell Remains as in the USFWS protocol (USFWS 1992) (Attachment D).

Generally, under this classification system, sign coded by the observer as Class 1, 2, or 3 have been identified as DT sign with greater confidence than burrows or pallets coded as Class 4 or 5, which have the potential to be DT sign but cannot be confirmed as DT. The DT burrow classification system requires that observers determine if the burrows have been recently used and are therefore active burrows (recent DT sign present); if the burrows can be classed as definitely or possibly DT; and if the burrows are in good condition (i.e., could be used by a DT in the current condition) or deteriorated condition (i.e., would need modification by a DT to be used). Height, width, and depth (estimated) measurements of all DT burrows were taken.

DT scat was classified based on qualitative observations of variables that change over time. Fresh DT scat is wet, has odor, is tightly packed and is dark brown with a glaze. As DT scat

ages, it becomes dry; the odor disappears; the color becomes bleached; and the fibers become loosely packed. Qualitative observations (whether or not the scat was wet; had obvious odor or was odorless; was glazed or had no glaze; was dark brown, light brown or bleached; or loose or tightly packed) were used to classify scats according to the Information Index in Attachment D. Scat measurements (length and width) were taken whenever possible.

DT shell remains were classed based on qualitative observations regarding the condition of the shell remains. Fresh or putrid shell remains were classified as Class 1 and disarticulated/scattered pieces of DT bone were classified as Class 5. The following characteristics were used to determine the class of shell remains: color of the shell remains; location of scutes (adhering to bone or peeling off); condition of scutes (if scutes were peeling off bone, if growth rings on scutes were peeling); and condition of shell bones (intact or falling apart, if bone fragments are disarticulated and scattered). If bone fragments were observed, notes were taken as to whether or not the bones had begun to mineralize. Bones were assessed to determine whether they were becoming chalky as part of the aging process or if it appeared that the bone was being replaced by minerals and was therefore becoming more rock-like. Several bones showing mineralization were shown to paleontological crew members and it was confirmed that some of the DT bones within the BRSA had begun to mineralize. MCL measurements were taken or estimated on DT shell remains whenever possible.

At the request of USFWS (Bransfield 2009) adult DT abundance was estimated within the disturbance area according to the revised USFWS DT protocol (USFWS 2009). According to the revised protocol the estimated abundance of adult DTs within the area surveyed is:

$$\text{Estimated \# of Tortoises} = \frac{\text{Number of DTs observed aboveground}}{(P_a)\,(P_d)}$$

where:

P_a = the probability that a tortoise is above groundbased on estimated rainfall from October 2008 through March 2009 (Source: Western Regional Climate Center site http://www.wrcc.dri.edu/summary/Climsmsca.html monthly totals and Table 1 from the USFWS protocol). The total rainfall at the Inyokern weather station during this time period was 1.5 inches, which corresponds to a probability (P_a) of 0.64, with a variance of 0.08.

P_d = the probability of detecting a tortoise, if aboveground (specified as 0.63 in the USFWS protocol).

Density of adult DTs within the disturbance area was also calculated.

Survey Limitations

Not all DTs present within the survey area will typically be observed because of the cryptic nature of the species. DT activity or presence in deep burrows can prevent the surveyor from observing an individual. Not all above ground DTs are observed. Abundance estimates calculated as part of the protocol implemented within the Project disturbance area during spring 2009 account for the less than perfect probability of detecting DT during surveys.

Mohave Ground Squirrel

No CDFG protocol trapping surveys for MGS were conducted within the BRSA due to guidance from species expert, Dr. Phil Leitner, and CDFG and BLM biologists. MGS trapping was not expected to accurately reflect MGS occurrence (or lack of occurrence) within the BRSA given the species' tendency for dynamic population fluctuations in known occupied areas. Additionally during early consultation, CDFG and USFWS indicated that they would assume that this species was present on the Project site. Therefore, a habitat assessment in lieu of trapping was conducted by Dr. Leitner to quantify MGS habitat within the Project disturbance area. The MGS habitat assessment included a visual evaluation of conditions within the Project site as well as at numerous locations in the vicinity where MGS have been previously documented. A detailed report of this assessment is provided in the Mohave Ground Squirrel Habitat Assessment, which is included in Attachment L (Leitner 2009). Dr. Leitner also attended an onsite meeting on April 29, 2009, with Project biologists, David Hacker of CDFG, and BLM staff to discuss potential Project impacts to MGS.

Dr. Leitner conducted field surveys in support of the MGS habitat assessment in December 2008 and June 2009. Dr. Leitner spent a total of 3 days driving all unpaved access roads and walking through selected areas to visually assess MGS habitat suitability within the entire BLM ROW, including the disturbance area and the majority of the BRSA. Dr. Leitner additionally visited and assessed conditions at 24 locations at which MGS were previously recorded within 5 miles of the ROW (CDFG 2009b; Leitner 2008) to gain an understanding of the specific habitat conditions associated with MGS in the local region. MGS are closely associated with desert shrub vegetation, which provides cover from predators and temperature extremes as well as suitable forage in the form of leaves and seeds. Variables of particular importance during the habitat assessment included physical structure and species composition of vegetation, and soil conditions. Contiguous habitat units (i.e., habitat types) for MGS were mapped within the disturbance area based on similar vegetation and soil characteristics, and delineated habitat units were subsequently rated according to their overall quality for MGS.

Relative habitat quality rankings of these habitats were based on the preponderance of high-quality habitat traits for MGS. High quality MGS habitat is characterized by 1) a diversity of shrub species, including larger shrubs that provide shade and safer burrow locations, 2) an abundant and diverse array of native herbs; native herbaceous plants form an important part of the diet, especially in reproductive years when adult females and young have high energy and moisture requirements, 3) the presence of shrubs that provide forage, such as spiny hop-sage (*Grayia spinosa*) and winterfat (*Krascheninnikovia lanata*); species that may be particularly important food resources in low moisture years (BLM 2005), and 4) sandy or loamy soils, often with large soil accumulations at the bases of shrubs.

Western Burrowing Owl

WBO surveys were performed according to the protocol established by the CBOC (1993) and accepted by CDFG. The CBOC protocol requires that the disturbance area as well as a 492-foot buffer surrounding the disturbance area be surveyed. As noted earlier in Section 2.2.1, the CEC requires a habitat evaluation within a 1-mile buffer surrounding the disturbance area. The CBOC protocol involves three phases of surveys: Phase I is a habitat assessment to determine if suitable habitat for the WBO exists on site; Phase II involves mapping all potential WBO burrows; and Phase III involves four repeat presence/absence focused WBO surveys during the breeding season (if there are no detections, surveys are required during the wintering season as well). No WBO surveys were done during the wintering seasons since WBO was detected during the breeding season.

On February 14, 2009, Project biologists Arthur Davenport, Shelly Dayman, Charles German, Katie Hall, Gregg Lukasek, and Milo Rivera assessed the BRSA for WBO habitat (Phase I of the CBOC protocol). A burrow survey (Phase II of the CBOC protocol) was conducted in conjunction with DT focused protocol surveys from March through May 2009, during which the entire disturbance area was surveyed by walking linear transects spaced 32.8 feet apart. Additional Phase II burrow surveys were conducted within the 492-foot buffer by surveying along line transects spaced at 98-foot intervals. Two additional CEC-recommended transects within the 1-mile buffer were also surveyed for suitable WBO burrows in conjunction with DT protocol surveys (see “Desert Tortoise” above). Phase II burrow surveys were conducted by surveyors walking slowly and systematically along and, when visibility was limited, between transects, while visually searching for WBOs, their sign, and burrows potentially suitable for use by WBO. All WBO observations, WBO sign, and burrows potentially suitable for use by WBO (regardless of sign presence) were mapped using GPS units and recorded on datasheets. Phase II

burrow data also included the type of burrow if known (e.g., kit fox, DT), a GPS identity code, and the type of WBO sign observed.

Biologists Wendy Broadhead, Andy Hatch, Steve Henderson, Julie Roth, and Heather Valentine conducted Phase III surveys (WBO presence/absence surveys, census, and mapping) during the peak breeding season (April 15 through July 15, as defined in the CBOC protocol). Phase III surveys were initiated on April 16, 2009, and were completed on June 15, 2009. Phase III surveys consisted of a minimum of four site visits completed on separate days. During the initial Phase III site visit, all burrows mapped during the Phase II survey were carefully examined for WBO sign. The disturbance area and 492-foot buffer were surveyed three additional times during the breeding season to determine WBO presence, focusing on burrows and burrow complexes with burrowing owl sign (e.g., pellets, whitewash, feathers, bones, etc.). Where possible, biologists scanned for WBOs using binoculars or spotting scopes at a distance from burrows. However, due to the terrain and long distance of most burrows from roads or other fixed observation locations, surveyors typically approached the burrows on foot, carefully verifying presence or absence of WBOs at the burrows on their approach. All Phase III survey data were recorded on data forms. Data recorded included survey visit number (e.g., 1 through 4), weather conditions (temperature, wind, precipitation, cloud cover), dimensions and characteristics of all burrows surveyed (height, width, estimated depth, single burrow or complex), presence or absence of owl sign (feathers, prey remains, pellets, whitewash, etc.), burrow occupancy status (active, inactive), notes on any WBO detections (e.g., abundance, age, sex, behavior), and other wildlife species observed.

All WBO observations and old or fresh WBO sign were recorded on datasheets and mapped with GPS units. Old sign primarily included pellets that were bleached, desiccated, and disintegrated; and whitewash remnants that were sparse and partially eroded. In several cases, whether old whitewash remnants were from burrowing owls or other bird species was unknown; those signs were recorded as potential burrowing owl sign.

Survey Limitations

Protocol surveys for WBO were conducted in the previous disturbance area and 492-foot buffer during the 2009 breeding season only. Although the presence of nesting burrowing owl pairs has been confirmed (see Existing Conditions), and the specific burrows used during the 2009 breeding season were identified, owl abundance and patterns of use in the disturbance area during the nonbreeding season cannot be determined from these survey results. The results of the 2009 protocol survey (see Existing Conditions) suggest considerable variability in burrowing

owl use and abundance on the RSPP site between years and possibly seasons. Also, as recommended in the CBOC protocol and by CDFG, Phase III surveys were initiated in mid-April. However, burrowing owl breeding can be initiated as early as February, particularly in desert populations. Therefore, burrowing owl nesting attempts could have been initiated in 2009 before Phase III surveys were initiated and not detected.

CHAPTER 3
EXISTING CONDITIONS

The existing conditions presented in this chapter represent findings within the BRSA (as defined in Section 2.2). The following sections describe existing conditions present on site in spring 2009 for vegetation communities, jurisdictional areas, and special-status plant and wildlife species.

3.1 VEGETATION COMMUNITIES

Four vegetation communities and other cover types were identified within the BRSA during surveys (Table 1; Figure 6). The acreages of each vegetation community within the BRSA are provided in Table 1. Vegetation communities are described in detail below and are based on a classification system by Holland (1986). When appropriate, vegetation classification by Sawyer and Keeler-Wolf (1995) are also considered. Community types according to CDFG (2003) are listed where applicable. No seasonal or perennial aquatic habitats are present within the BRSA. Photographic documentation of vegetation communities is included in Attachment E. This section is based on the Botanical Survey Report included as Attachment F (EDAW 2009b).

Table 1
Vegetation Communities and Cover Types (Acres)

Vegetation Communities and Other Cover Types	Disturbance Area[a]	Buffer (1-mile)	BRSA
Riparian			
Mojave Desert Wash Scrub	8.2	50.2	58.4
Unvegetated Ephemeral Dry Wash	8.4	35.2[b]	43.6
Subtotal Riparian	*16.6*	*85.4*	*102.0*
Upland			
Mojave Creosote Bush Scrub	1,721.1	7,375.1	9,096.2
Subtotal Upland	*1,721.1*	*7,375.1*	*9,096.2*
Other Cover Types			
Developed	0.5	113.5	114.0
Subtotal Other Cover Types	*0.5*	*113.5*	*114.0*
Total Acres	**1,738.2**	**7,574.0**	**9,312.2**

[a] Disturbance area is based on the most recent design, as shown in Figure 2.

[b] Unvegetated channels are potentially jurisdictional aquatic features and were not mapped within the buffer because these surveys were conducted at a minimum mapping unit of 1.0 acre, as opposed to 0.01 of an acre for riparian vegetation communities within the disturbance area. This approach is consistent with the EDAW AECOM Jurisdictional Delineation methodology and is pursuant to Appendix B, Section (g), Subsection (13), Paragraph (B), Clause (iii) of the CEC Siting Regulations, which does not require detailed mapping of aquatic features beyond 250 feet of the disturbance limits (CEC 2007).

Vegetation communities and other land cover types classified as "sensitive" were identified within the BRSA and include those that are of special concern to CDFG due to their unique nature, limited distribution, or importance as habitat for special-status species and common wildlife (CDFG 2003). Also included are those that contain vegetation associated with perennial and intermittent drainages that are subject to seasonal flooding or are associated with jurisdictional waters of the State or U.S. (Section 1602 of the CFGC; Sections 401 and 404 of CWA). Sensitive vegetation communities and land cover types within the BRSA include only those that are subject to CDFG jurisdiction. Two of the vegetation communities are considered sensitive: Mojave Desert wash scrub and unvegetated ephemeral dry wash. Mojave Desert wash scrub and unvegetated ephemeral dry wash are sensitive because they are also considered potential State waters under the jurisdiction of CDFG. In addition, Mojave Desert wash scrub is a special community type (e.g., high priority for inventory in the CNDDB) per CDFG's Vegetation and Mapping Program (CDFG 2003).

3.1.1 Riparian Vegetation Communities

Mojave Desert Wash Scrub

Mojave Desert wash scrub is designated by Holland as Code 63700. It also approximates Sawyer and Keeler-Wolf's Catclaw Acacia Series 129. This vegetation community consists of an open to moderately dense evergreen scrub that attains a height of 3 to 6 feet. This community consists of three primary components: wash-dependent vegetation, vegetated ephemeral dry wash, and islands of Mojave creosote bush scrub (e.g., riparian interfluves). The dominant and indicator plant of this community within the BRSA is scale-broom (*Lepidospartum squamatum*), which occurs in patches throughout the dry washes scattered amongst creosote bush (*Larrea tridentata*), spiny senna (*Senna armata*), cheesebush (*Hymenoclea salsola*), burroweed (*Ambrosia dumosa*), Virgin River brittlebush (*Encelia virginensis*), and rayless goldenhead (*Acamptopappus sphaerocephalus*). Common herbaceous plants include California desert dandelion (*Malacothrix californica*), Fremont pincushion (*Chaenactis fremontii*), distant phacelia (*Phacelia distans*), and Wallace eriophyllum (*Eriophyllum wallacei*). Mojave Desert wash scrub is concentrated among the northern portion of the dry wash that traverses the central portion of the BRSA from south to northwest (Figure 6).

Approximately 8.2 acres of Mojave Desert wash scrub were mapped within the disturbance area and 50.2 acres in the buffer, for a total of 58.4 acres within the BRSA (Figure 6).

Unvegetated Ephemeral Dry Wash

This community consists of unvegetated washes that are dominated by sandy substrate and little to no perennial vegetation. Unvegetated ephemeral dry wash (which approximates nonvegetated channel, Holland Code 64200) predominately occurs within the transition zone between the desert wash scrub, in locations where the washes transition to sheet flow (Figure 6). There were no dominant perennial plant species, specifically scale-broom which is the dominant indicator of Mojave desert wash scrub, observed in association with nonvegetated channel as these areas are primarily devoid of vegetation.

Approximately 8.4 acres of unvegetated ephemeral dry wash occur within the disturbance area within the central wash and 35.2 acres in the buffer, for a total of 43.6 acres within the BRSA (Figure 6).

3.1.2 Upland Vegetation Communities

Mojave Creosote Bush Scrub

Mojave creosote bush scrub is designated by Holland as Code 34100 and by Sawyer and Keeler-Wolf as the Catclaw Acacia Series 129. This community type occurs on well-drained decomposed granite and volcanic soils, and consists of widely spaced shrubs up to 9 feet tall. This is the most common plant community within the BRSA, dominated by creosote bush, burroweed, cheesebush, and Virgin River brittlebush. Common herbaceous species include redstem stork's bill (*Erodium cicutarium*), Mediterranean grass (*Schismus* sp.), needle goldfields (*Lasthenia gracilis*), and blue dicks (*Dichelostemma capitatum*).

A large volcanic outcrop occurs along the western edge of the BRSA, where the Mojave creosote bush scrub becomes sparser and the herbaceous layer becomes more diverse. Vegetation associated with this outcrop includes such species as Parish's larkspur (*Delphinium parishii* ssp. *parishii*), snake's head (*Malacothrix coulteri*), and dwarf cottonrose (*Logfia depressa*). In the central-eastern portion of the BRSA, large granite boulder outcrops occur within the Mojave creosote bush scrub. In this area, sub-shrubs such as desert brickellbush (*Brickellia desertorum*), Eastern Mojave buckwheat (*Eriogonum fasciculatum* var. *polifolium*), and Cooper's goldenbush (*Ericameria cooperi*) become more common.

Approximately 1,721.1 acres of Mojave creosote bush scrub were mapped within the disturbance area and 7,375.1 acres in the buffer, for a total of 9,096.2 acres within the BRSA (Figure 6).

3.1.3 Other Cover Types

Developed Areas

Developed areas within the BRSA consist of roadways and residential lots. Brown Road is a two-lane paved roadway that traverses the entire central portion of the BRSA from east to west. In addition numerous unpaved dirt roads (over approximately 10 miles) traverse the Project site. U.S. Highway 395, a two-lane freeway, is located just east of the BRSA. Borders of paved roadways are highly managed and many of these areas are devoid of vegetation. Vegetation is also very limited on dirt roads; plants only occasionally grow along the center-line and are indicative of surrounding vegetation. A few residential lots occur within the BRSA at the northwestern corner of the disturbance area, while more extensive residential development occurs in the northeast corner of the BRSA at the outer limits of Ridgecrest, California. Plant composition on residential lots is primarily nonnative, especially within the residential development in the northeast portion of the BRSA.

Approximately 0.5 acre of developed areas was mapped within the disturbance area, and 113.5 acres in the buffer, for a total of 114.0 acres within the BRSA (Figure 6).

3.2 WATERS OF THE STATE

All Mojave Desert wash scrub and unvegetated ephemeral dry desert washes within the disturbance area were delineated as potential waters of the State (Figure 7) by Project ecologists. A detailed analysis of the potential waters of the State within the disturbance area is provided in the JDR included as Attachment B (EDAW 2009a). Potential waters of the State were not delineated outside of the disturbance area, with the exception of a small area that was surveyed within the previous disturbance area, prior to changes in the proposed project; these data are not displayed here, but are presented in the JDR included as Attachment B (EDAW 2009a). The primary wash (El Paso Wash) is comprised of several washes varying in width from 10 to 40 linear feet across interspersed between upland areas within the disturbance area. It extends up to approximately 17,000 linear feet across the disturbance area, in a southeast-to-northeast orientation. The El Paso Wash is the only feature that supports Mojave Desert wash scrub within the disturbance area. Unvegetated ephemeral dry wash, which is primarily devoid of wash-dependent plant species due to less availability of surface and subsurface hydrology, primarily occurs within the east and southeast portions of the disturbance area. The two smaller ephemeral washes located within the western portion of the disturbance area (e.g., secondary washes) are

between 10 and 40 linear feet across each and generally run parallel to El Paso wash. Both washes could be considered part of El Paso wash.

The total area of all waters of the State delineated within the disturbance area is approximately 16.6 acres. Of these 16.6 acres of jurisdictional waters, 8.2 acres are composed of Mojave Desert wash scrub and 8.4 acres are composed of unvegetated ephemeral dry wash (Table 2). Of the 8.2 acres of Mojave Desert wash scrub occurring within the disturbance area, 0.4 acre is composed of wash-dependent vegetation (absolute cover), 7.8 acres are composed of vegetated ephemeral dry wash, and there are no riparian interfluves (Figure 7).

Table 2
Potential Jurisdictional Waters of the U.S. and State Occurring within the Disturbance Area[a]

Type of Jurisdictional Waters	Type of Habitat (Holland 1986)	Type of Habitat (Cowardin et al. 1979)	Area of Aquatic Resource (ac)[b, c]
Jurisdictional Waters of the U.S.			
None	N/A	N/A	0.00
Total USACE Waters =			*0.00*
Subtotal Jurisdictional Waters of the U.S.			*0.00*
Jurisdictional Waters of the State			
Xeric Riparian Extent	Mojave Desert wash scrub (Holland Code 63700)	Palustrine; Scrub/Shrub, Broad-Leaved, Evergreen, Intermittently Flooded/ Temporary, Well Drained/Fresh, Alkaline	8.2
Ephemeral Channel	Unvegetated ephemeral dry wash (e.g., Nonvegetated Channel [Holland Code 64200])	Riverine; Unconsolidated Bottom, Sand, Intermittently Flooded, Temporary, Well Drained/Fresh, Alkaline	8.4
Total CDFG Waters =			*16.6*
Subtotal Jurisdictional Waters of the State			*16.6*
Grand Total Jurisdictional Waters			16.6

a Based upon the total area of potential jurisdictional waters delineated within the disturbance area. Final acreages of jurisdictional waters of the U.S. will be based upon the JD process undertaken by USACE/USEPA to confirm the findings of the JDR (see Attachment B). The total area of federally regulated waters may change as a result of the formal JD process.

b Acreage of all potential jurisdictional waters occurring within the disturbance area was determined by using the GIS program ArcGIS. All acreages are rounded to the nearest tenth.

c Disturbance area is based on the updated Project design (August 10, 2009).

3.3 FLORA

This section discusses plant species detected within the BRSA or with potential to occur on site. In total, 112 plant species were detected in the BRSA during vegetation mapping and rare plant surveys (Attachment C). Of all plant species detected, 106 are native and 6 are nonnative species. No Federal listed, State-listed, or other special-status plant species were observed within the BRSA during spring 2009 surveys (Table 3). This section is based on the Botanical Survey Report included as Attachment F (EDAW 2009b).

A discussion of the special-status plant species categories and species detected within the BRSA follows. In addition, at the request of BLM, a section is included on cactus species detected within the BRSA.

3.3.1 Federal Listed Plant Species

No Federal listed plant species were detected within the BRSA during spring 2009, nor did any Federal listed plant species have the potential to occur within the BRSA (Table 3).

3.3.2 State Listed Plant Species

No State-listed plant species were detected within the BRSA during spring 2009 surveys. Based on regional databases; site-specific habitat evaluations conducted by EDAW; and literature review, including a CNDDB records search (CDFG 2009b), two State-listed plant species were identified as having the potential to occur in the BRSA: Mojave tarplant and Red Rock tarplant. However, upon visiting nearby locations of known habitat for Mojave tarplant (CDFG 2009b), it was determined that habitat for this species has low potential to occur within the BRSA. Habitat for Red Rock tarplant may be present but this species is considered to have low potential for occurrence due to the low water flow in the dry washes of the BRSA. Neither of these two species was detected during spring 2009 surveys. The closest recorded occurrence of Mojave tarplant is approximately 15 miles northwest of the BRSA in Short Canyon (CDFG 2009b). Plants have been observed in similar terrain to the BRSA near Jawbone Canyon (McMillan 2009). The closest occurrence of Red Rock tarplant to the BRSA is approximately 18 miles to the southwest (CDFG 2009b). Field observations of plants near Red Rock State Park on May 6, 2009, a reference population from CNDDB, confirm that a few specimens of this species were flowering during the time period that surveys were conducted by Project botanists in spring 2009. Therefore, the Red Rock tarplant would likely have been detected on site, if present, since

Table 3
Special-Status Plant Species Relevant to the Proposed Project Potentially Occurring in the BRSA

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2007)	Plant Habit, Flowering Period	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area[2]	Potential for Occurrence within the Buffer[2]
Mojave tarplant (*Deinandra mohavensis*, syn. *Hemizonia m.*)	CESA: Endangered CNPS: List 1B.3 WEMO	Chaparral, riparian scrub on low sand bars, mostly in riparian areas or in ephemeral grasslands 2,500 – 4,800 feet.	Annual herb to 1 foot that blooms July – September.	This species was not detected within the BRSA during spring 2009 surveys. Marginally suitable habitat for this species is present in the dry washes within the BRSA. The nearest record of this species is 15 miles to the northwest of the BRSA in Short Canyon (CDFG 2009b).	Low	Low
Red Rock tarplant (*Deinandra arida*, syn. *Hemizonia a.*)	CESA: Rare CNPS: List 1B.2 WEMO	Mojave desert scrub where water has collected along ephemeral streams; clay soils 900 – 2,800 feet.	Annual herb to 3 feet that blooms May to November.	This species was not detected within the BRSA during spring 2009 surveys. Marginally suitable habitat for this species is present in the dry washes within the BRSA. The nearest documented population occurs 18 miles to the southwest of the BRSA in Red Rock State Park (CDFG 2009b).	Low	Low

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2007)	Plant Habit, Flowering Period	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area[2]	Potential for Occurrence within the Buffer[2]
Alkali mariposa-lily (*Calochortus striatus*)	CNPS: List 1B.2 BLM: Sensitive WEMO	Chaparral, chenopod scrub, meadows and seeps 200 – 4,800 feet.	Perennial herb to 6 inches that flowers April – June.	This species was not detected within the BRSA. Habitat for this species does not occur within the BRSA. This species prefers more mesic sites than those that occur within the BRSA. The nearest record of this species is 25 miles to the northwest of the BRSA (CDFG 2009b).	Not Expected	Not Expected
Brown fox sedge (*Carex vulpinoidea*)	CNPS: List 2.2	Marshes and swamps, riparian woodland 90 – 3,600 feet.	Perennial herb that blooms May – June.	This species was not detected within the BRSA during spring 2009 surveys. Habitat for this species does not occur within the BRSA. This species prefers more mesic sites than those that occur within the BRSA. The nearest record of this species is 13.8 miles to the northwest of the BRSA (CDFG 2009b).	Not Expected	Not Expected

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2007)	Plant Habit, Flowering Period	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area[2]	Potential for Occurrence within the Buffer[2]
Muir's tarplant (*Carlquistia muirii*) (syn. *Raillardopsis m.*)	CNPS: List 1B.3 BLM: Sensitive	Chaparral, montane coniferous forest in crevices of granite ledges and dry sandy soils 3,300 – 7,500 feet.	Rhizomatous herb < 2 feet that blooms July to August.	This species was not detected within the BRSA during spring 2009 surveys. Habitat for this species does not exist within the BRSA. The nearest documented population occurs 19 miles to the northwest of the BRSA near Nine-Mile Canyon at higher elevations (CDFG 2009b).	Not Expected	Not Expected
Gilman's goldenbush *(Ericameria gilmanii)*	CNPS: List 1B.3	Subalpine coniferous forest, montane coniferous forest, generally on limestone 6,300 – 10,200 feet.	Shrub to 2 feet that blooms August to September.	This species was not detected within the BRSA during spring 2009 surveys. Habitat for this species does not exist within the BRSA. The nearest documented population occurs 19 miles to the northwest of the BRSA near Owen's Peak (CDFG 2009b).	Not Expected	Not Expected

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2007)	Plant Habit, Flowering Period	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area[2]	Potential for Occurrence within the Buffer[2]
Hall's daisy (*Erigeron aequilifolius*)	CNPS: List 1B.3 BLM: Sensitive WEMO	Broadleafed upland forest, lower montane coniferous forest, pinyon and juniper woodland, upper montane coniferous forest, rocky, granitic soils 4,500 – 13,500 feet	Rhizomatous herb to 1 foot that blooms July – August.	This species was not detected within the BRSA during spring 2009 surveys. Habitat for this species does not exist within the BRSA. The nearest documented population occurs 19 miles to the northwest of the BRSA near Owen's Peak (CDFG 2009b).	Not Expected	Not Expected
Red Rock poppy (*Eschscholzia minutiflora* ssp. *twisselmannii*)	CNPS: List 1B.2 BLM: Sensitive	Mojave desert scrub on volcanic tuff 2,000 – 6,120 feet.	Annual herb to 1 foot that blooms March – May.	This species was not detected within the BRSA during spring 2009 surveys. Habitat for this species occurs in the western portion of the BRSA. The nearest documented population occurs 8.5 miles southeast of the BRSA (CDFG 2009b).	Moderate	Moderate
Creamy blazing star (*Mentzelia tridentata*)	CNPS: List 1B.3 BLM: Sensitive	Mojave desert scrub 2,100 – 3,500 feet.	Annual herb to 1 foot that blooms March – May.	This species was not detected within the BRSA during spring 2009 surveys. Habitat for this species occurs within the BRSA. The nearest documented population occurs 17.5 miles southwest of the BRSA (CDFG 2009b).	Moderate	Moderate

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2007)	Plant Habit, Flowering Period	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area[2]	Potential for Occurrence within the Buffer[2]
Sweet-smelling monardella (*Monardella beneolens*)	CNPS: List 1B.3 BLM: Sensitive WEMO	Alpine boulder and rock field, subalpine coniferous forest, upper montane coniferous forest 7,500 – 10,500 feet.	Rhizomatous herb to 1 foot that blooms July -- September.	This species was not detected within the BRSA during spring 2009 surveys. Habitat for this species does not exist within the BRSA. The nearest documented population occurs 19 miles to the northwest of the BRSA near Owen's Peak (CDFG 2009b).	Not Expected	Not Expected
Charlotte's phacelia (*Phacelia nashiana*)	CNPS: List 1B.2 BLM: Sensitive WEMO	Joshua tree "woodland," mojave desert scrub, pinyon and juniper woodland 1,800 – 6,600 feet.	Annual herb to 8 inches that blooms April – May.	This species was not detected within the BRSA during spring 2009 surveys. Marginally suitable habitat is present within the BRSA. The nearest documented population occurs 12 miles to the west of the BRSA (CDFG 2009b).	Low	Low
Nine-mile canyon phacelia (*Phacelia novenmillensis*)	CNPS: List 1B.2 BLM: Sensitive WEMO	Broadleafed upland forest, cismontane woodland, pinyon and juniper woodland, upper montane coniferous forest 4,935 – 7,920.	Annual herb to 4 inches that blooms May – June.	This species was not detected within the BRSA during spring 2009 surveys. Habitat for this species does not exist within the BRSA. The nearest documented population occurs 16.8 miles to the northwest of the BRSA near Owen's Peak (CDFG 2009b).	Not Expected	Not Expected

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2007)	Plant Habit, Flowering Period	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area[2]	Potential for Occurrence within the Buffer[2]
Latimer's woodland-gilia (*Saltugilia latimeri*)	CNPS: List 1B.2	Chaparral, mojave desert scrub, pinyon and juniper woodland 1,200 – 5,700 feet.	Annual herb to 1 foot that blooms March – June.	This species was not detected within the BRSA during spring 2009 surveys. Marginally suitable habitat is present within the BRSA. The nearest documented population occurs 16.3 miles to the northwest of the BRSA (CDFG 2009b).	Low	Low

[1] Sensitivity Status Key

ESA Endangered

CNPS California Native Plant Society Lists:

1B: Considered rare, threatened, or endangered in California and elsewhere.

2: Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere

Decimal notations: .1 - Seriously endangered in California, .2 – Fairly endangered in California, .3 – Not very endangered in California

BLM Special -status Plants (BLM 2009)

WEMO Special-status species considered in analysis of the West Mojave Plan (BLM 2005)

[2] Species Potential for Occurrence

Not Expected – Species not detected during Project surveys and not expected to occur

Low Potential – Species not detected during Project surveys, but has low potential to occur because suitable habitat present, but of marginal quality

Moderate Potential – Species not detected during Project surveys, but has moderate potential to occur because suitable habitat present

High Potential – Species not detected during Project surveys, but has high potential to occur because suitable habitat present, and species known to occur within the vicinity

Present – Species detected during Project survey

this species was observed blooming at a nearby location during the time period surveys were conducted on the RSPP site. Based on results of rare plant surveys, occurrences of these species in the vicinity and habitat evaluations on the RSPP, both Mojave tarplant and Red Rock tarplant were determined to have a low potential to occur within the BRSA (Table 3).

3.3.3 Other Special-Status Plant Species

No other non-listed special-status plant species (i.e., CNPS List 1B or 2) were detected within the BRSA. However, a total of 11 non-listed special-status plants, in addition to the State-listed species mentioned above, were evaluated for their potential to occur in the BRSA because these species were either known to occur in the region or were identified as having the potential to occur in the region based on regional databases (CNDDB), site-specific habitat evaluations conducted by EDAW, and literature review (see Section 2.2.4, "Rare Plant Surveys" above).

Two of the 11 non-listed special-status plants had a moderate potential to occur within the BRSA: Red Rock poppy (*Eschscholzia minutiflora* ssp. *twisselmannii*) and creamy blazing star (*Mentzelia tridentata*) (Table 3). These species are both associated with Mojave creosote bush scrub; the Red Rock poppy occurs on volcanic tuff. Suitable habitat for both of these species occurs in the BRSA (Table 3). Neither of these species was detected during spring 2009 surveys.

Two of the 11 non-listed special-status plants had a low potential to occur within the BRSA: Charlotte's phacelia (*Phacelia nashiana*) and Latimer's woodland-gilia (*Saltugilia latimeri*) (Table 3). Only marginally suitable habitat occurs for these species within the BRSA and neither of these species was detected during surveys in spring 2009. Additionally, existing off-road vehicle activity and invasive plant establishment contribute to a lower probability of these species occurring within the BRSA.

Seven species of non-listed special-status plants evaluated are not expected to occur within the BRSA, due to the lack of suitable habitat. These species include alkali mariposa-lily (*Calochortus striatus*), brown fox sedge (*Carex vulpinoidea*), Muir's tarplant (*Carlquistia muirii*), Gilman's goldenbush (*Ericameria gilmanii*), Hall's daisy (*Erigeron aequilifolius*), sweet-smelling monardella (*Monardella beneolens*), and nine-mile canyon phacelia (*Phacelia novenmillensis*). Alkali mariposa-lily and brown fox sedge need more mesic conditions. Muir's tarplant, Gilman's goldenbush, Hall's daisy, sweet-smelling monardella, and Nine-mile canyon phacelia all occur from 16.8 to 19 miles away from the BRSA at much higher elevations in the foothills of the eastern Sierra Nevada (Table 3).

3.3.4 Cactus Species

The BLM requested that cottontop cactus, hedgehog cactus, and any varieties of California barrel cactus be mapped for future salvage when construction begins (LaPre 2009). Only four species of cactus were found in the BRSA: silver cholla (*Opuntia echinocarpa*), beavertail pricklypear (*Opuntia basilaris*), Mojave fish-hook cactus (*Sclerocactus polyancistrus*), and cottontop cactus. Mojave fish-hook cactus is listed by CNPS as a watch list species and three plants were found in the southwest portion of the buffer survey area of the BRSA. One species targeted by the BLM, cottontop cactus, was observed; three specimens of this species were located in the eastern portion of the disturbance area and one specimen which was located near these individuals within the buffer (Figure 6).

3.4 FAUNA

This section discusses wildlife species detected within the BRSA or with potential to occur on site. In total, 77 animal species were detected during general reconnaissance and protocol wildlife surveys (Attachment G). Of these, nine special-status wildlife species were observed within the BRSA (Table 4; Figures 8 through 11), although three of these species were likely migrating individuals and not expected to occur regularly (and are not included in Table 4). The nine special-status wildlife species detected in the BRSA were:

- Desert tortoise
- Western burrowing owl
- Loggerheaded shrike
- Le Conte's thrasher
- American Badger
- Desert kit fox
- Yellow Warbler
- Yellow-headed blackbird
- Vaux's swift

One additional special-status species has a high potential, one species has a moderate potential, and three species have a low potential to occur (Table 4). A discussion of non-special-status wildlife species is provided below, followed by detailed discussions of each special-status species detected within the BRSA.

Table 4
Special-Status Wildlife Species Relevant to the Proposed Project Potentially Occurring in the BRSA

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area[2]	Potential for Occurrence within the Buffer[2]
Reptiles					
Desert tortoise *(Gopherus agassizii)*	ESA: Threatened CESA: Threatened WEMO	Various desert scrubs and desert washes up to about 5,000 feet, but not including playas.	Fifty DTs were observed during surveys in spring 2009, 40 of which were within the disturbance area. Twenty-two occupied DT burrows and 48 DT burrows with sign of recent use (presumed active) were also documented in the BRSA. Based on survey results, 69 adult DT are estimated to occur in the disturbance area, equivalent to a density of approximately 0.040 DT per acre.	Present	Present
Birds					
Northern harrier (*Circus cyaneus*)	CDFG: Species of Special Concern, Priority 3 (nesting) WEMO	Occurs in open sage scrub, desert scrub, grasslands, and agricultural fields during migration and in winter. Does not breed in the desert, but is fairly common in winter and during periods of migration.	This species was not detected within the BRSA. No suitable nesting habitat is present in the BRSA; however, species could forage in the BRSA during the nonbreeding season. Documented regular breeding in the west Mojave Desert is limited to Paiute Ponds on Edwards Air Force Base and Harper Dry Lake (BLM 2005).	Moderate (nonbreeding)	Moderate (nonbreeding)

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area[2]	Potential for Occurrence within the Buffer[2]
Western burrowing owl (*Athene cunicularia hypugaea*)	CDFG: Species of Special Concern Priority 2 BLM: Sensitive WEMO	Found mainly in grassland and open scrub from the seashore to foothills. Also found in deserts and scrublands. Strongly associated with the burrows of ground squirrels or other fossorial mammals.	Seven active burrows were located in three separate regions of the BRSA, including five main or nest burrows and two satellite burrows. Of these, the four main or nest burrows and both satellite burrows were recorded in the disturbance area. A minimum of eight burrowing owls were detected, including at least two nesting pairs with juveniles.	Present	Present
Loggerhead shrike *(Lanius ludovicianus)*	CDFG: Species of Special Concern, Priority 2 WEMO	Occurs in semi-open country with utility posts, wires, and trees to perch on.	One loggerhead shrike was detected during avian point count surveys in the disturbance area; three additional shrikes were observed during WBO and DT surveys; two of which were in the disturbance area. High-quality nesting habitat is limited in the BRSA due to the lack of larger shrubs and trees, and low abundance of thorny vegetation (EDAW and Bloom Biological 2009).	Present	Present

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area[2]	Potential for Occurrence within the Buffer[2]
Le Conte's thrasher (*Toxostoma lecontei*)	CDFG: Species of Special Concern, Priority 1 (San Joaquin Valley population only) BLM: Sensitive WEMO	Open desert scrub, desert washes, and alluvial fans with sandy or alkaline soils. Where it occurs, silver cholla is the preferred nesting substrate.	One pair of Le Conte's thrasher was detected on May 8, 2009, during avian surveys in the disturbance area; a single Le Conte's thrasher was also observed during DT surveys, also in the disturbance area. Suitable habitat is present throughout the BRSA. Silver cholla, the preferred nesting plant, occurs in the BRSA.	Present	High
Bendire's thrasher (*Toxostoma bendirei*)	CDFG: Species of Special Concern, Priority 3 BLM: Sensitive WEMO	Mojave Desert scrub with either *Yucca* spp., *Opuntia* spp., or other succulents present (England and Laudenslayer 1989).	This species was not detected within the BRSA and is not expected to occur. Although Mojave creosote bush scrub and Mojave Desert wash scrub are potentially suitable for Bendire's thrasher, they are considered low quality for this species due to only sparse cover by succulents and lack of *Yucca* spp.	Not Expected	Not Expected
Mammals					
Mohave ground squirrel (*Spermophilus mohavensis*)	CESA: Threatened WEMO	Mojave Desert shrub vegetation. High-quality habitat includes a diversity of shrub species, native herbaceous plants, and sandy or loamy soils that provide suitable substrate for burrow construction.	This species was not detected within the BRSA; however, the BRSA contains suitable habitat for MGS, including some high-quality habitat. This species is expected to occur in the BRSA. There have been 24 detections within 5 miles of the BRSA, generally to the north, outside of the MGS conservation area.	High	High

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area[2]	Potential for Occurrence within the Buffer[2]
American badger (*Taxidea taxus*)	CDFG: Species of Special Concern	Coastal sage scrub, mixed chaparral, grassland, oak woodland, chamise chaparral, mixed conifer, pinyon-juniper, desert scrub, desert wash, montane meadow, open areas, and sandy soils.	Badger was detected in the BRSA outside the disturbance area by a single digging and claw marks, approximately 3,500 feet north of the disturbance area. No badgers or their sign were detected in the Project disturbance area.	Moderate	Present
Desert kit fox (*Vulpes macrotis arsipus*)	Calif. Code of Regulations: PFM	This fossorial species is found in desert habitats of western states.	Desert kit fox burrows, complexes, and scat were commonly observed throughout the BRSA during spring 2009 surveys. A total of four active kit fox burrows/complexes were detected within the disturbance area, and also in the buffer.	Present	Present
Nelson's bighorn sheep (*Ovis canadensis nelsoni*)	BLM: Sensitive WEMO	Mountain slopes with sparse growth of trees above the desert floor in California. The species prefers open areas that are steep and rocky to avoid predators (Bleich et al. 1990).	This species was not detected within the BRSA. Bighorn sheep has been reintroduced to China Lake Naval Air Weapons Station, over 15 miles east-southeast of the BRSA. Bighorn sheep are not expected to occur within the BRSA due to low habitat quality and because the RSPP site does not occur between occupied mountain ranges.	Not Expected	Not Expected

Common Name Scientific Name	Sensitivity Status[1]	Habitat Requirements	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area[2]	Potential for Occurrence within the Buffer[2]
Pallid bat (*Antrozous pallidus*)	CDFG: Species of Special Concern BLM: Sensitive	This gregarious species usually roosts in small colonies in rock crevices and buildings but may nest in caves, mines, rock piles, and tree cavities.	This species was not detected within the BRSA. Potential roosting habitat for pallid bat is present in the large granite boulder outcrops in the central-eastern portion of the BRSA. However, this area is highly disturbed by recreational users.	Low	Low

[1] Sensitivity Status Key

Federal Endangered Species Act (ESA)

State California Department of Fish and Game (CDFG)
California Endangered Species Act (CESA)

BLM Sensitive

WEMO Special-status species considered in analysis of the West Mojave Plan (BLM 2005)

[2] Species Potential for Occurrence

Not Expected – Species not detected during Project surveys and not expected to occur

Low Potential – Species not detected during Project surveys, but has low potential to occur because suitable habitat present, but of marginal quality

Moderate Potential – Species not detected during Project surveys, but has moderate potential to occur because suitable habitat present

High Potential – Species not detected during Project surveys, but has high potential to occur because suitable habitat present, and species known to occur within the vicinity

Present – Species detected during Project surveys

3.4.1 Non-Special-Status Species

Reptiles

Seventeen species of reptiles were observed within the BRSA during spring 2009 surveys.. Reptile species most commonly observed within the BRSAinclude the western whiptail (*Cnemidophorus tigris)*, side-blotched lizard (*Uta stansburiana*), desert horned lizard (*Phrynosoma platyrhinos*), zebra-tailed lizard (*Callisaurus draconoides)*, gopher snake (*Pituophis catenifer*), and desert iguana (*Dipsosaurus dorsalis)*. These species were relatively common throughout the habitat types observed within the BRSA. Sagebrush or western fence lizard (*Sceloporus* spp.), long-nosed leopard lizard (*Gambelia wislizenii*), common chuckwalla (*Sauromalus ater*), common kingsnake (*Lampropeltis getula*), Mojave rattlesnake (*Crotalus scutulatus*), sidewinder (*Crotalus cerastes)*, long-nosed snake (*Rhinocheilus lecontei*), and western lyre snake (*Trimorphodon biscutatus*) were also observed in the BRSA. One special-status reptile species, the Federal and State-threatened DT, was observed in the BRSA. A more detailed discussion of this species is provided below.

Birds

A detailed analysis of avian use of the BRSA is provided in the Avian Point Count Technical Report included as Attachment H (EDAW and Bloom Biological 2009). Additional incidental observations of avian species in the BRSA were made during various protocol surveys conducted on the Project site. The following summarizes avian use of the BRSA based on point count survey results and incidental detections by Project biologists.

A total of 41 bird species were detected during spring 2009 surveys. Of these, 14 species of resident breeding birds were recorded in the BRSA between April 14 and June 15, 2009. Cumulatively, across all habitat types, horned lark (*Eremophila alpestris*) and sage sparrow (*Amphispiza bellii*) were the most commonly recorded species during the point count surveys. Black-throated sparrow (*Amphispiza bilineata*) was also frequently detected.

Nine of the 14 resident bird species were detected within Mojave creosote bush scrub; this community averaged 2.9 species detected per point count station. The most common species observed in this habitat type were horned lark and sage sparrow. Horned lark and sage sparrow individuals accounted for 71 percent and 15 percent, respectively, of all birds detected during point counts in this habitat type. Other resident species detected less commonly within Mojave creosote bush scrub during point count or other surveys were black-throated sparrow, common

raven (*Corvus corax*), verdin (*Auriparus flaviceps*), house finch (*Carpodacus mexicanus*), and mourning dove (*Zenaida macroura*), as well as the non-listed special-status species loggerhead shrike (*Lanius ludovicianus*) and WBO (further discussed in "Special-Status Species" below).

Additionally, rock wrens (*Salpinctes obsoletus*) were commonly detected in the large granite boulder outcrops in the central-eastern portion of the BRSA, amongst the Mojave creosote bush scrub; and a greater roadrunner (*Geococcyx californianus*) was detected at that location during rare plant surveys.

Mojave Desert wash scrub had the highest resident species richness. Eleven of the 14 resident species were detected in Mojave Desert wash scrub habitat; this community averaged 3.75 species detected per point count station. The most common species observed were horned lark and sage sparrow, accounting for 79 percent (combined) of all birds detected during point counts. Other species detected in this habitat type included all species found in Mojave creosote bush scrub except house finch, plus lesser nighthawk (*Chordeiles acutipennis*), Costa's hummingbird (*Calypte costae),* and Le Conte's thrasher (*Toxostoma lecontei*).

Twenty-three species of nonresident birds were identified in the BRSA during point counts and other surveys. Of the nonresident species detected during point counts, Brewer's sparrow (*Spizella breweri*) was the most common, followed closely by white-crowned sparrow (*Zonotrichia leucophrys*), yellow-rumped warbler (*Dendroica coronata*), and blue-gray gnatcatcher (*Polioptila caerulea*). Tree swallow (*Tachycineta bicolor*), cliff swallow (*Petrocheliden pyrrhonota*), great-tailed grackle (*Quiscalus mexicanus*), and pine siskin (*Carduelis pinus*) were observed flying over the point count circles only and were not associated with any particular vegetation community. All other species observed on site were perched or foraging within the count circles for at least part of the observation period. Mojave Desert wash scrub had the highest number of nonresident species detected per station. This community averaged 3.00 species detected per point count station, while creosote bush scrub averaged 0.95 species per station.

Raptors observed on site include a red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), and WBO (further discussed in "Special-Status Species" below). A State-listed Swainson's hawk (*Buteo swainsoni*) was incidentally observed flying over the BRSA on April 28, 2009 (further discussed in "Special-Status Species" below).

Mammals

Eleven mammal taxa were detected within the BRSA during spring 2009 surveys. Desert kit fox (*Vulpes macrotis arsipus*) and coyote (*Canis latrans*) dens and sign were detected throughout the BRSA. Kangaroo rats (*Dipodomys* spp.) and pocket mice (*Perognathus* spp.), which were frequently observed on and adjacent to dirt roads at dusk or night after WBO surveys, are abundant in the BRSA. Black-tailed jackrabbit (*Lepus californicus*) was observed regularly, along with occasional sightings of white-tailed antelope squirrel (*Ammospermophilus leucurus)* and desert cottontail (*Sylvilagus audubonii*). Desert woodrat (*Neotoma lepida*) sign (e.g., middens and scat) was detected near rocky outcrops. Additionally, evidence of old wild burro (*Equus asinus)* scat was present on site. Mule deer (*Odocoileus hemionus*) was not detected in the BRSA but could occur. No bats were detected within the BRSA during spring 2009 surveys. Additionally, no significant roost sites for special-status bats, as identified in the WEMO (BLM 2005), are known to occur within the BRSA. Marginal potential roosting habitat for bats is located among the rocky outcrops at the eastern edge of the BRSA, at the edge of the disturbance area and within the buffer.

Large mammalian predator activity was documented across the BRSA during spring 2009. Predator digs in ground squirrel, kangaroo rat, and pocket mouse burrow complexes were prevalent. Most predator activity in the BRSA appears to be by kit fox and coyote. Bobcat (*Lynx rufus*) scat was observed in the large granite boulder outcrops in the central-eastern portion of the BRSA during vegetation surveys. American badger (*Taxidea taxus*) was detected by its claw marks at one location in the BRSA, approximately 3,500 feet north of the disturbance area. No evidence of mountain lion (*Felis concolor*) was detected in the BRSA.

3.4.2 Special-Status Species

Two wildlife species listed under the ESA and/or the CESA occur or have potential to occur in the BRSA: DT, listed as threatened under the ESA and CESA; and MGS, listed as threatened under the CESA. Of these two species, only DT was observed and is well-distributed over the BRSA (Figure 8). The BRSA contains suitable habitat for MGS. Focused surveys to determine presence or absence of MGS have not been conducted (see “Mohave Ground Squirrel” in Section 2.2.7 above). There have been detections of MGS within 5 miles of the BRSA, generally to the north, outside of the MGS conservation area. Approximately 1,725.6 acres of potentially suitable MGS habitat, of which 234.7 acres are potentially high-quality habitat, occur in the disturbance area. Areas of potential high-quality MGS habitat occur along the washes and adjacent areas and in the southwest portion of the BRSA.

One Swainson's hawk, listed as threatened under CESA, was incidentally observed flying over the BRSA on April 28, 2009. This individual was likely migrating over the area. Swainson's hawk was not observed using the BRSA; this species is not expected to breed or regularly use the BRSA due to the lack of suitable nesting habitat and no breeding records nearby. The nearest Swainson's hawk record is approximately 50 miles from the BRSA (CNDDB 2009b). Therefore, Swainson's hawk is not addressed further in this analysis.

Eight other special-status wildlife species were documented within the BRSA: WBO, loggerhead shrike, Le Conte's thrasher, yellow warbler, Vaux's swift, yellow-headed blackbird, American badger, and desert kit fox (Table 4; Figure 11). However, three of these species—yellow warbler, yellow-headed blackbird, and Vaux's swift—were detected during their migration. These migratory birds are not addressed further in this analysis because the BRSA does not provide suitable breeding or wintering habitat. Four additional special-status species have a low or moderate potential to occur on site and were not detected during Project surveys in 2009: northern harrier, Bendire's thrasher, pallid bat, and Nelson's bighorn sheep (Table 4).

Detailed discussions of special-status wildlife species detected and considered resident within the BRSA are provided below and summarized in Table 4. Those special-status species considered as migrants/nonbreeding season residents or with potential to occur but not detected are discussed in Table 4. Observations of DT, WBO, and MGS within or near the BRSA are shown in Figures 8, 9, and 10, respectively. Other special-status wildlife species observations are displayed in Figure 11.

Federal Listed Wildlife Species

One Federal listed wildlife species, the DT, was detected in the BRSA. This species is discussed below. This section is based on the Desert Tortoise Technical Report included as Attachment I (EDAW 2009d). No other Federal listed species were detected or determined to have potential for occurrence in the BRSA.

The DT is listed as threatened under the ESA, with critical habitat designated by USFWS (USFWS 1994a). The listing was initially made on August 4, 1989, by emergency rule (USFWS 1989) and by final rule on April 2, 1990 (USFWS 1990). This listing status applies to the entire population of DT, except in Arizona south and east of the Colorado River, and in Mexico. An approved recovery plan has been published by USFWS (1994b). The DT was listed as threatened under CESA on June 22, 1989 (California Fish and Game Commission 1989). No Federal designated critical habitat for the DT occurs within the BRSA.

The DT is widely distributed in the deserts of California, southern Nevada, extreme southwestern Utah, western and southern Arizona, and throughout most of Sonora, Mexico. However, populations over approximately 50 percent of its U.S. range (30 percent of its overall range) began declining in the late 1960s and early 1970s (USFWS 1990, 1994b). In the 1994 DT Recovery Plan (USFWS) it was estimated that DT populations have declined at rates ranging from 3 to 59 percent per year (Berry et al. 1990). However, while these data are suitable for describing general DT population trends, they should be interpreted cautiously in relation to quantifying population losses at a rangewide scale due to the sampling design that was used for the long-term plots. These declines have been documented at the local level and are most notable in the western extent of the listed range (Western Mojave; Tracy et al. 2004), where the proposed Project is located.

Declines in DT populations have been attributed to several factors, paramount of which are habitat destruction, degradation, and fragmentation. It is important to note that threats to DTs often work synergistically. Mortality rates of DT can be increased due to road mortality, predation by opportunistic predators such as domestic dogs and ravens, disease, livestock trampling, shooting, and collecting (USFWS 1994). While drought is sometimes mentioned as a cause of reductions in DT populations, DT is adapted to survive long periods with low rainfall (Van Devender et al. 1987). Mortality of DTs in the western Mojave desert may be due to upper respiratory tract disease (URTD) caused by *Mycoplasma agassizii* (Brown et al. 1994; Berry 1997).; however, the probability of infection leading to death in DTs may be based on the combination with other factors such as habitat degradation. Large areas of unfragmented habitat and connections between habitats are essential components to the survival of the species (USFWS 2008). Metapopulation dynamics are likely more important to DT conservation and conservation planning than originally thought (Tracy et al. 2004; USFWS 2008); areas that are suitable but vacant can be important for long-term viability of DT populations.

The Project site occurs in the northern limits of the West Mojave recovery unit (USFWS 1994), and does not occur within designated DT critical habitat. Four DT sub-populations occur south of the Project site, which have been identified as part of the West Mojave Recovery Unit (USFWS 1994). DT populations within these sub-populations have been characterized as variable and patchy with some areas containing high densities of DT while others contain low densities (BLM 2005). DT population densities outside these sub-populations; however, are generally very low (BLM 2005).

During habitat assessments in spring 2009, it was determined that the entirety of the disturbance area and the majority of the buffer contain suitable habitat for DT. A total of 50 DTs were observed in the BRSA in 2009 surveys, 40 of which occurred within the disturbance area (Figure 8). Of all detections within the BRSA, 29 were adult DTs, 12 juveniles, and 9 were DTs of unknown age. Of all DT detections within the disturbance area, 23 were adults, 12 were juveniles, and 5 were of unknown age class. Over two hundred DT burrows were observed. Forty-eight burrows observed were active (with DT sign) and an additional 22 burrows were occupied. Thirty-six of the active burrows and 18 of the occupied burrows were within the disturbance area. Thirty-three DT pallets were noted, 27 of which were within the disturbance area. Observations of DT scat, totaling 122, were made within the BRSA. Of these, 12 observations of fresh DT scat were made within the disturbance area (one observation of fresh scat was within the buffer). DT carcasses and bone fragments were observed throughout the BRSA; three juvenile carcasses and two adult carcasses were observed within the disturbance area. Carcasses were more common in the southern portion of the BRSA. Fifteen observations of DT bone fragments (disarticulated and scattered DT remains) were made; eight of these were recorded within the disturbance area. Many of these observations were made in the southern and eastern areas of the BRSA. DT tracks were observed within a wash just west of the disturbance area, to the north of Brown Road. Based on USFWS Mojave Desert Tortoise survey methodology (USFWS 2009), an estimated 69 adult DTs occur within the disturbance area. The corresponding adult DT density within the disturbance area is 0.040 DTs per acre, or 9.8 DTs per km^2. These reported densities at the Project site are comparatively higher than DT densities recently reported within the nearby Fremont-Kramer DWMA (5.3 to 7.6 DTs per km2) (USFWS 2008).

Historic DT occurrences occur in proximity to the RSPP site; CNDDB records show seven DT records within 10 miles of the BRSA (CDFG 2009b). Of the nearest DT detections, one record from 2004 overlaps the southern portion of the BRSA adjacent to the Project disturbance area; three additional DT records from 1988 and one from 2006 occur approximately 1 mile northwest of the BRSA; and one DT record from 1990 occurs approximately 1 mile to northeast of the BRSA. CNDDB record data are largely incomplete and may not provide an accurate depiction of the actual population size and distribution within the area, but the data can provide some insight into the distribution of DT here.

Suitable landscapes for DT are generally defined as alluvial fans and plains and rocky slopes at elevations of 1,969 to 3,937 feet above sea level (USFWS 2008). The topography and landscape of the disturbance area are generally flat, with a few large washes in the central portion. The area on the northwestern side of the disturbance area is bordered by several single-family

residences. On the eastern side is U.S. Highway 395 and farther east of this highway is Ridgecrest. Single-family residences associated with the town are present on the eastern side of the disturbance area.

DTs require soils that support burrows but also allow DTs to excavate burrows (Anderson et al. 2000). In some cases, tortoises take advantage of existing natural shelters such as rock formations or exposed calcic soils horizons (Nussear et al. 2009). The soils within the BRSA are suitable for burrowing, so soils here would not limit the distribution of DT.

Presence of ephemeral plant species is an indicator of habitat suitability for the DT because these species are the primary components of the tortoise diet (Esque 1994; Jennings 1997; Avery 1998). Generally DTs prefer creosote bush scrub habitat with a high diversity and cover of perennial plant species and high productivity of ephemeral plants. Less commonly, DT will occur in blackbrush (*Coleogyne ramosissima*), Joshua tree (*Yucca brevifolia*), and juniper (*Juniperus* sp.) at higher elevations and saltbush (*Atriplex* sp.) at lower elevations (Nussear et al. 2009). The vegetation within the disturbance area consists primarily of Mojave creosote bush scrub.

Winter rainfall in the season prior to the DT survey period (November 2008 to February 2009) was 44 percent lower than average (as recorded at Inyokern; WRCC 2009); however, despite lower than average rainfall, growth of annual plants, upon which DT depend, did not appear depressed during spring 2009 (see Attachment G Botanical Survey Report; EDAW 2009b). Therefore adequate forage for DT was likely present on site during spring 2009 surveys. In fact, annual plant production was noted to be high during the initiation of surveys in 2009.

State-Listed Wildlife Species

In addition to the DT, the State-listed Swainson's hawk was observed on site. An individual Swainson's hawk was observed flying over the site on April 28, 2009. This species was likely migrating through the area because no suitable nesting habitat occurs on or near the site and the site is well outside of the neareast documented occurrence.

MGS also has potential to occur on the RSPP site; however, this species was not detected within the BRSA. The BRSA contains suitable habitat for MGS, including 234.7 acres of high-quality habitat (Leitner 2009). This species is most often associated with Mojave creosote bush scrub, which typically supports abundant herbaceous annuals but also inhabits desert saltbrush scrub, shadscale scrub, desert greasewood scrub, and Joshua tree woodland (BLM 2005; MGSWG

2006). Within its range, MGS inhabits flat to moderate desert terrain, including alluvial fans, basins, and plains with deep sandy or gravelly friable soils with an abundance of native herbaceous vegetation. Important habitat features for MGS are food availability and appropriate soil composition for burrow construction. MGS primarily feeds on green vegetation and seeds of shrubs and forbs but may also eat invertebrates (BLM 2005). Spiny hop-sage (*Grayia spinosa*), winterfat, and saltbush (*Atriplex* spp.) are of particular importance in the MGS diet in the northern portion of its range, especially during portions of the year when herbaceous annuals are no longer available and in drought years (Leitner and Leitner 1998). Both spiny hop-sage and winterfat were observed as a component of high-quality desert wash and adjacent areas; in particular these shrub species were quite common in the southern portion of the BRSA (Leitner 2009). High-quality habitat includes a diversity of shrub species, native herbaceous plants, and sandy or loamy soils (often with large soil accumulations at the bases of shrubs) that provide suitable substrate for burrow construction as described in Attachment L (Leitner 2009).

The MGS has not been previously documented within the BRSA and no presence/absence trapping surveys have been conducted (see "Mohave Ground Squirrel" in Section 2.2.7 above). No MGS were detected within the BRSA during wildlife surveys conducted during spring 2009. However, MGS has been documented outside the BRSA; a total of 24 historical records occur within 5 miles of the RSPP site, generally to the north, outside of the MGS conservation area (CDFG 2009b; Leitner 2008; Figure 9). A total of 234.7 acres of high-suitability habitat was determined to be present within the disturbance area (see below). Although presence of MGS on site is not known, MGS is expected to occur within the disturbance area due to habitat suitability and proximity to known population occurrences.

Four MGS habitat types were identified within the RSPP ROW, which encompasses the Project disturbance area: unsuitable (rocky terrain), low (monotypic creosote bush scrub), medium (low diversity creosote bush scrub), and high (desert washes and adjacent high-diversity creosote bush scrub) (Leitner 2009). It should be noted that vegetation descriptions for the purposes of MGS habitat quality does not correspond to mapped vegetation communities or state jurisdictional areas discussed earlier. Of these, all but rocky terrain, occurring in the central-eastern portion of the disturbance area, are considered potentially suitable for MGS; neither rocky terrain nor monotypic creosote bush scrub are expected to support resident populations of MGS. Rocky terrain and monotypic creosote bush scrub occurring in the BRSA may support dispersing MGS individuals (Leitner 2009). Desert washes and adjacent areas provide high-quality MGS habitat due to greater shrub density, vegetation diversity, presence of sandy soils, and inclusion of important food shrubs such as spiny hop-sage and winterfat (Leitner 2009). A total of 1,725.6 acres of potentially suitable MGS habitat occur in the disturbance area, of which 234.7 acres are

potentially high-quality habitat (Leitner 2009; Figure 9). Areas of potentially high-quality MGS habitat occur along the primary wash and in the southwest portion of the BRSA (Figure 9). A total of 844 acres of the disturbance area (south of Brown Road) occur within the MGS Conservation Area (Figure 12), a Wildlife Habitat Management Area designated by the WEMO (BLM 2005).

Non-listed Special-Status Wildlife Species

In addition to the Federal and State-listed wildlife species discussed above, eight non-listed special-status species (e.g., CDFG species of special concern, CDFG fully protected species, BLM sensitive species, and State-protected fur bearing mammals) were detected in the BRSA: WBO, loggerhead shrike, Le Conte's thrasher, yellow warbler, Vaux's swift, yellow-headed blackbird, American badger, and desert kit fox. These species, with the exception of the yellow warbler, Vaux's swift, and yellow-headed blackbird (considered migrants and nonbreeding season residents on site) are discussed in detail below. The yellow warbler, Vaux's swift, and yellow-headed blackbird are not further addressed in this document. In addition, four special-status species, the northern harrier, Nelson's bighorn sheep, Bendire's thrasher, and pallid bat, have potential to occur within the BRSA but were not detected during spring 2009 surveys. These species are discussed in Table 4.

Western Burrowing Owl

This section is based on the survey results and discussion provided in the Burrowing Owl Technical Report prepared for the Project (EDAW 2009e), which is included as Attachment K.

WBO is designated as a SSC (Priority 2 Bird SSC) by CDFG due to rapid habitat loss and degradation from urbanization. Suitable WBO habitat consists of annual and perennial grasslands, deserts, and scrublands, characterized by low-growing vegetation (Zarn 1974; CBOC 1993; Haug et al. 1993). Suitable WBO habitat may also include trees and shrubs if the canopy covers less than 30 percent of the ground surface (DeSante et al. 1996). Burrows are the essential component of WBO habitat, and both natural and artificial burrows provide protection, shelter, and nests for WBO. WBOs typically use burrows made by mammals, such as kit foxes, ground squirrels, or badgers, but also may use man-made structures, such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement (Collins and Landry 1977; Trulio 1994). Where the ranges of WBO and DT overlap, WBOs also use DT burrows.

WBOs in California are generally nonmigratory and most abundant in the Central and Imperial valleys, primarily in agricultural areas (Center for Conservation Biology et al. 2003). Small, scattered populations occur in the Mojave Desert. Although the WBO population in the southern desert region is primarily resident (i.e., present year-round), some migration from northern populations to this area occurs during winter (Center for Biological Diversity et al. 2003 *citing* Garrett and Dunn 1981). Seasonal nonmigration movements and shifts in burrow use by juveniles and adults within a region also occur. Population density seems to be correlated with prey availability, particularly small mammals (Klute et al. 2003). The WEMO documents 53 records of WBOs in the west Mojave Desert (Campbell 2004), only five of which are confirmed or probable breeding pairs. Other sources document scattered WBO occurrences in eastern Kern County, including near the BRSA in the Ridgecrest region.

CNDDB reports 136 occurrences of WBO in Kern County, concentrated in the western portions of the county. Three burrowing owl occurrences located within 10 miles of the RSPP site are reported in the CNDDB: 1) near Indian Wells, approximately 10 miles northwest of the project site and 1 mile west of the intersection of Highway 14 and Highway 178 (observed in 1977); 2) approximately 3 miles northwest of the site and 1.4 miles southwest of the intersection of Brown Road and Bowman Road (observed in 2006); and 3) near Ridgecrest, approximately 4 miles northeast of the Project site and 0.2 mile southwest of the intersection of South China Lake Boulevard and Bowman Road. The next closest CNDDB records of the WBO to the RSPP site are approximately 30 miles to the west in Kern County and 30 miles to the east in San Bernardino County.

Suitable nesting habitat occurs throughout nearly the entire 1,738-acre disturbance area, with the exception of the volcanic outcrop along the western edge and the granite rocky outcrop in the central-eastern portion of the site. Figure 10 displays the locations of WBOs observed, active burrows (i.e., occupied by WBO), and other locations where WBO sign was observed during surveys. During Phase II and Phase III of the CBOC protocol surveys, seven active burrows were located in three separate regions of the BRSA, including five main or nest burrows and two satellite burrows; all of these except one main burrow are located in the current disturbance area. A minimum of eight WBOs were detected, including at least two nesting pairs with juveniles. One pair, and four individual WBOs were recorded within the disturbance area; a second WBO pair was detected in the northwest portion of the buffer, outside of the disturbance area.

A total of 78 burrows with various levels of WBO sign (29 percent of the 272 suitable burrows) were detected during the Phase II and Phase III surveys (Figure 10), including the seven active burrows; 55 of these occur in the current Project disturbance area. Sign observed at the 71

inactive burrows (i.e., burrows not occupied by WBO during the surveys) was old and consisted primarily of pellets that were bleached, desiccated, and disintegrated; or whitewash remnants that were partly eroded. Of these 71 inactive burrows, 15 had relatively abundant old sign and showed evidence of past regular use (e.g., multiple pellets and whitewash spots); sign at the other 56 burrows was sparse and did not indicate regular use in recent years (e.g., one degraded pellet, single spot of whitewash, etc.). The number of inactive burrows with WBO sign, particularly those with abundant old sign, suggests that other areas of the disturbance area may have been used previously by WBO for breeding.

Loggerhead Shrike

Loggerhead shrike is designated as a SSC (Priority 2 Bird SSC) by CDFG. It inhabits open habitat types such as grasslands, old (fallow) fields, pastures, farmland, and desert scrub. For foraging, this species requires perches of tall enough stature to overlook hunting areas, such as tree snags, stumps, and fence posts. They also require vegetation with thorns (or barbed wire fences) for impaling their prey. Prey includes invertebrates and small vertebrates, including small mammals, birds, and reptiles.

While this species has been in steady decline throughout much of its range, beginning in the northeast in the 1930s and in the southeast and midwest by the 1960s, it was still fairly common in California as late as 1970. It showed significant declines in most of California beginning around 1968 (Sauer et al. 2005); however, in the southern California deserts, it has shown no marked decline (Shuford and Gardali 2008). One loggerhead shrike was detected foraging in Mojave Desert wash scrub in the disturbance area during avian point count surveys. Additionally, three loggerhead shrikes were observed in Mojave creosote bush scrub in the BRSA during WBO and DT protocol surveys (two in the disturbance area, one outside the disturbance area) (Figure 11). Although suitable habitat for loggerhead shrike is present, high-quality nesting habitat is limited in the BRSA due to the lack of larger shrubs and trees and relatively low abundance of thorny vegetation (EDAW and Bloom Biological 2009).

Le Conte's Thrasher

Le Conte's thrasher is designated as a BLM sensitive species and is considered in the WEMO. This species was previously designated rangewide as a California SSC; however, Shuford and Gardali (2008), recognizing that desert populations were more common and widespread than previously thought, included only the San Joaquin Valley population in the updated list of California Bird Species of Special Concern. Le Conte's thrasher is associated primarily with

open desert scrub, desert washes, and alluvial fans with sandy or alkaline soils. Where it occurs, silver cholla is the preferred nesting substrate.

One pair of Le Conte's thrasher was detected on May 8, 2009, in the disturbance area during avian point count surveys (Figure 11). Also, an individual Le Conte's thrasher was observed in the disturbance area during DT protocol surveys. Suitable habitat for this species is present throughout the BRSA in Mojave creosote bush scrub and Mojave Desert wash scrub. Silver cholla, the preferred nesting plant, occurs in the disturbance area, and in the BRSA.

American Badger

American badger is designated as a SSC by CDFG. This species is a resident of flat, open areas in grasslands, agricultural areas, and open shrub habitats. It digs large burrows in dry, friable soils and feeds mainly on fossorial mammals: ground squirrels, gophers, rats, mice, etc. Badgers are primarily active during the day but may become more nocturnal in proximity to humans. The home range of male badger has been measured to be 1,327 to 1,549 acres for males and 338 to 751 acres for females in Utah (Lindzey 1978) and 400 to 600 acres in Idaho (Messick and Hornocker 1981). Mating occurs in late summer or early fall and two to three young are born 183 to 265 days later in March or April (Long 1973). Badgers are known to live up to 11 to 15 years (Messick and Hornocker 1981).

American badger was detected in the BRSA by a single digging and claw marks, approximately 3,500 feet north of the disturbance area; however, no badgers or their sign were detected within the disturbance area. Most of the disturbance area is suitable for this species.

Desert Kit Fox

The desert subspecies of kit fox is a State PFM. Suitable habitat for this fossorial mammal consists of arid open areas, shrub grassland, and desert ecosystems. Kit fox diet consists mostly of small rodents, especially kangaroo rats. Kit foxes will also eat rabbits, lizards, insects, and berries. Dens have multiple entrances; entrances are up to 8 inches wide and often keyhole-shaped. Litters of one to seven young are born in February through April (Egoscue 1962; McGrew 1979).

Active and inactive desert kit fox burrows and complexes were found throughout the BRSA during spring 2009 surveys (Figure 11). A total of 75 burrows and burrow complexes, including four active complexes (and three with pups confirmed), were recorded in the disturbance area.

An additional 44 kit fox complexes, including four active complexes, were located in the buffer. Nearly all Mojave creosote bush scrub, Mojave Desert wash scrub, and unvegetated ephemeral dry wash communities in the BRSA are considered suitable kit fox habitat. An abundant prey base and suitable soils for burrowing are well distributed in these communities and provide highly suitable habitat for this species throughout the BRSA in undeveloped areas. Areas within these communities that do not provide suitable denning conditions for kit fox are the large volcanic outcrop on the western edge of the disturbance area and the large granite boulder outcrops in the central-eastern portion of the BRSA.

3.5 CRITICAL HABITAT

The BRSA is not located in DT critical habitat (USFWS 2008) nor is it located within a WEMO-designated DT conservation area (i.e., DWMAs). The closest designated DT critical habitat occurs just over 7 miles south of the RSPP disturbance area.

3.6 WILDLIFE MOVEMENT

The Project site could be used by a variety of wildlife species for movement purposes. Wildlife movement activities typically fall into one of three movement categories: (1) dispersal (e.g., juvenile animals from natal areas, or individuals extending range distributions); (2) seasonal migration; and (3) movements related to home range activities (e.g., foraging for food or water; defending territories; or searching for mates, breeding areas, or cover). Potentially important wildlife movement corridors and habitat linkages were identified in the WEMO (BLM 2005); however, none occur within or adjacent to the BRSA. The closest identified corridor (for MGS), the Sierra Foothills Habitat Connector, is over 10 miles to the northwest.

In general, several species are likely to use habitat on the Project site, in particular the Mojave Desert wash scrub vegetation community, as movement corridors at multiple scales for the above-mentioned wildlife movement activities. Movement by large mammals such as coyote, kit fox, mule deer, bobcat, American badger, and mountain lion could be associated with desert washes on site because these areas may provide greater foraging opportunities.

The Project site is located in an area that could provide dispersal opportunities and habitat connectivity for special-status species such as MGS and DT. MGS occurrences are concentrated in Indian Wells Valley, located north of the Project site (Figure 9). There are also two CNDDB occurrences south of the Project site. MGS could occur elsewhere in the Project vicinity because much of this area has not been previously surveyed. Leitner (2009) concluded

that past development in this valley has fragmented occupied and potential MGS habitat and created barriers between the core MGS population located southwest of Inyokern (i.e., Little Dixie Wash population) and a known population to the east of Ridgecrest. Construction and operation of U.S. Highway 395 and State Routes 14 and 178 have also adversely affected MGS habitat connectivity. Due to its overall large size, the proposed Project could contribute to a potentially significant loss of suitable habitat available for MGS dispersal between local populations. However, no studies have been conducted to determine to what extent past habitat loss and fragmentation in the vicinity of Ridgecrest may have altered MGS historic movement patterns. Any substantial adverse affects would generally only pertain to short-distance movement as MGS is a resident (i.e., nonmigratory) species that occupies a relatively small home range.

The Project site occurs within the DT West Mojave recovery unit (USFWS 2008); four areas of critical habitat for DT subpopulations have been designated as DWMAs by the WEMO; these DT DWMAs are located to the south of the Project site. The closest DT DWMA, the Fremont-Kramer DWMA, is greater than 7 miles southeast of the Project site. DT populations within the West Mojave recovery unit are characterized by localized areas of high density surrounded by areas of low density amongst suitable habitat. Movements between local populations are important for long-term population viability (Averill-Murray and Averill-Murray 2005). The Project site was determined to support a fairly high density of DT relative to the closest known populations in the region (see "Federal Listed Wildlife Species – Desert Tortoise" above), and DT habitat at the Project site could contribute to population connectivity with known populations to the south. Due to its overall large size, the proposed Project could contribute to a potentially significant loss of suitable habitat available for DT dispersal between local populations. Movements to the north and east are probably limited by development associated with Ridgecrest and movement barriers associated with U.S. Highway 395 and State Routes 14 and 178.

Additionally, the intermountain area of desert (valley floor) where the Project occurs could potentially serve as a seasonal and dispersal movement corridor for Nelson's bighorn sheep, a CDFG fully protected and BLM sensitive species. Populations of bighorn sheep within individual mountain ranges are often small, and there is typically considerable movement between mountain ranges (Bleich et al. 1990); these intermountain movements are particularly important to long-term population viability (BLM 2005). However, use of any potential movement corridors for bighorn sheep through the Project site is not expected due to the lack of known use of the Project site (there were no observations of this species in the 2009 surveys), relatively high levels of human disturbance in and adjacent to the BRSA, and

relatively large distance between neighboring mountain ranges in the vicinity of the Project site. Additionally, the Project site does not occur between occupied mountain ranges (Epps et al. 2003).

3.7 LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

This section discusses the laws, ordinances, and regulations (LORS) related to biological resources within the proposed Project's disturbance area.

3.7.1 LORS Compliance

The RSPP will comply with applicable Federal, State, and local LORS throughout Project planning, construction and operation. Potentially applicable LORS are summarized in Table 5 and discussed in Sections 3.7.2 through 3.7.4.

Table 5
LORS Applicable to the Proposed Project

LORS	Applicability
Federal	
Endangered Species Act of 1973 (ESA), 16 USC Section 1531 et seq., and implementing regulations, Title 50 CFR Section 17.1 et seq.	Designates and protects federally threatened and endangered plants and animals and their critical habitat. Requires Federal agency consultation with the U.S. Fish and Wildlife Service (USFWS) and issuance of Biological Opinion and incidental take authorization for listed species.
Migratory Bird Treaty Act (MBTA), 16 USC Sections 703-712	Prohibits the take of protected migratory birds.
Clean Water Act (CWA), 33 U.S.C Section 1251 et seq.	Restore and maintain the chemical, physical, and biological integrity of the nation's waters and regulate the discharge of pollutants and dredged or fill material to the navigable waters of the United States waters.
National Environmental Policy Act (NEPA), 42 USC Section 4321 et seq., and implementing regulations, Title 40 CFR Sections 1500-1508	Requires Federal agencies to analyze environmental impacts of proposed actions with a Federal nexus and to disclose impacts to the public.
California Desert Conservation Area (CDCA) Plan	Under the Federal Land and Policy Management Act (FLPMA), BLM is required to develop Resource Management Plans. All activities proposed for public land must be consistent with the approved Resource Management Plan(s). The CDCA Plan, as amended by the West Mojave Plan (WEMO), is the resource management plan for the area including the BRSA.
West Mojave Plan (WEMO)	Protects and conserves natural resources while simultaneously balancing human uses of the California portion of the Mojave Desert ecosystem. The WEMO is an amendment to the CDCA Plan (see below)
State	

LORS	Applicability
California Environmental Quality Act (CEQA), Public Resources Code Section 15000 et seq.	CEQA requires identification of significant environmental effects of proposed projects (including impacts on biological resources) and avoidance (where feasible) or mitigation of the significant effects. CEQA applies to "projects" proposed to be undertaken or requiring approval by State and/or local governmental agencies. "Projects" are activities that have the potential to have a physical impact on the environment. The CEC licensing process, under the Warren-Alquist Act, is a CEQA-equivalent process.
California Endangered Species Act of 1984 (CESA), Fish and Game Code (CFGC) Sections 2050 – 2098	Protects California's endangered and threatened species, including species designated as candidates for listing.
CFGC Section 3503	Prohibits take, possession, or needless destruction of the nests or eggs of any bird, except as otherwise provided by the code or any regulation made pursuant thereto.
CFGC Fully Protected Species: Sections 3503.3, 3511: Fully protected birds Section 4700: Fully protected mammals Section 5050: Fully protected reptiles and amphibians	Prohibits the taking of listed plants and animals that are classified as "Fully Protected" in California.
Native Plant Protection Act of 1977 (NPPA), CFGC Section 1900 et seq.	Provides specific protection measures for identified populations of State-listed rare and endangered plants
Title 14 California Code of Regulations (CCR) Section 670.2 and 670.5	Listings of plants and animals of California declared to be threatened or endangered.
CFGC Section 1600 et seq., Streambed Alteration Agreement (SAA)	Requires California Department of Fish and Game (CDFG) to review project impacts to waters of the State (bed, banks, channel, or associated riparian areas of a river, stream, or lake), including impacts to wildlife and vegetation from sediments, diversions, and other disturbances.
The 1969 Porter-Cologne Water Quality Control Act (Porter-Cologne): California Water Code (CWC) Section 13000 et seq.	Regulates discharges of waste and fill material to waters of the State, including "isolated" waters and wetlands.
Local	
Kern County General Plan (2003), Land Use, Conservation and Open Space Element.	Provides land use designations, goals, and policies for the development and conservation of land within the unincorporated areas of Kern County.

Note: According to results of the Project Jurisdictional Delineation Report (JDR) prepared by EDAW (and included in Appendix F), there are no "waters of the U.S." within the BRSA. However, final determination of the absence of jurisdictional waters of the U.S. will be based upon the JD process undertaken by USACE/USEPA to confirm the findings of this JDR.

3.7.2 Federal LORS

Federal LORS that are applicable to the RSPP are discussed below.

Endangered Species Act (ESA) (16 USC Section 1531 et seq.). This 1973 law, administered by USFWS, is designed to minimize impacts to imperiled plants and animals, as well as to facilitate recovery of such species. Declining plant and animal species are listed as "endangered" or "threatened" based on a variety of factors. Applicants for projects requiring Federal agency action that could adversely affect listed species are required to consult with and mitigate impacts in consultation with USFWS. Adverse impacts are defined as "take" (defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct"), which is prohibited except as authorized through consultation with USFWS and issuance of an Incidental Take Statement under Section 7 or Section 10 of the ESA, depending on whether there is a Federal nexus (Federal permit required or funding involved). The entire Project disturbance area and majority of the BRSA is managed by BLM, providing a Federal nexus. Therefore, the Project will conduct the ESA consultation process under Section 7.

Migratory Bird Treaty Act (MBTA) (16 USC Sections 703-712). This law prohibits actions resulting in the pursuit, capture, killing, and/or possession of any protected migratory bird, nest, egg, or parts thereof. USFWS maintains a list of designated migratory birds occurring in various regions of the United States. This regulation can constrain construction activities that have the potential to affect nesting birds either through vegetation removal and land clearing or other construction- or operation-related disturbance.

Clean Water Act (CWA) (33 USC Section 1251 et seq.). Through formal field surveys following the latest established Federal protocol and guidance documents for delineating jurisdictional waters of the U.S., including hydrological investigation and analysis, the Project team determined that the disturbance area does not support jurisdictional waters of the U.S. No field surveys to delineate jurisdictional waters outside the disturbance area were conducted, with the exception of a small area surveyed within the previous disturbance limits of the Project prior to changes in the proposed Project. It is anticipated that U.S. Army Corps of Engineers (USACE) will not assert jurisdiction over any waters and/or aquatic features occurring within the disturbance area. Final acreages of jurisdictional waters of the U.S. will be based on the USACE's approved jurisdictional determination (JD) process per the March 30, 2007, USACE Jurisdictional Determination Form Guidebook; the June 5, 2007, Approved JD Form; the June 5, 2007, Joint Guidance Memorandum; the December 2, 2008, Guidance Memorandum; or Regulatory Guidance Letter (RGL) 08-02 (if RGL 08-02 is deemed applicable and appropriate

[i.e., the permit applicant, or other "affected party" can decline to request and obtain an Approved JD and elect to use a Preliminary JD instead]).

National Environmental Policy Act (NEPA) (42 USC Section 4321 et seq.). NEPA (42 USC Section 4321 et seq.) established a national policy for promoting environmental protection that includes a multidisciplinary approach to considering environmental effects in decision making is intended to "encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man…"

NEPA requires Federal agencies to analyze and publicly disclose of the environmental impacts of a proposed project. To do so, Federal agencies are required to prepare either an Environmental Assessment or, where an action may significantly affect the quality of the human environment, an Environmental Impact Statement (EIS). These documents explore project alternatives and identify the likely environmental consequences of each action. These documents contain statements of the environmental impacts and include mitigation measures to lessen the effects of a proposed project to the extent practicable. The significance of an impact is determined by both its context and its intensity. "Context" includes society as a whole, the affected region, the affected interests, and the locality. "Intensity" refers to the severity of impact, including "the degree to which the action may adversely affect an endangered or threatened species or habitat that has been determined to be critical under [ESA]." Based on the potential for significant environmental impacts, it is anticipated that BLM would be required to prepare an EIS for the proposed Project to satisfy NEPA, within the context of the CEC-BLM MOU, which calls for a joint NEPA/CEQA process.

California Desert Conservation Area (CDCA) Plan. Per Title 43 CFR Section 1610.5-3, BLM must manage the land within its jurisdiction in compliance with a Resource Management Plan. The entire disturbance area and majority of the BRSA (including the proposed water line route) will be located on lands under BLM jurisdiction and managed pursuant to the CDCA Plan. The CDCA Plan serves as a guide for the management of all BLM-administered lands in three desert areas: the Mojave, the Sonoran, and a small portion of the Great Basin. The CDCA Plan covers approximately 25 million acres, of which 12 million are public lands. The primary goal of the CDCA Plan is to provide overall maintenance of the land while planning for multiple uses and balancing the needs of people with the protection of the natural environment.

WEMO (BLM 2005). The Federal Land Policy and Management Act (FLPMA) requires BLM to develop land use plans, also known as Resource Management Plans, to guide BLM's

management of public land. BLM is required to determine conformity of the Project with the California Desert Conservation Area (CDCA) Plan, including the WEMO, which is an amendment to the CDCA Plan. The WEMO is the result of a multiagency Federal, State, and local planning effort. This plan was prepared under the regulations implementing the FLPMA. The WEMO is a multispecies landscape-scale habitat conservation plan developed to protect and conserve the DT, MGS, and numerous other sensitive species and their habitats; to prevent future species listing; and provide a consistent, cost-effective, streamlined process for complying with threatened and endangered species law. The WEMO designates ACECs and other special management areas; designates off-road travel routes on public lands; classifies various land use categories for appropriate uses; and establishes regional standards and guidelines for grazing, mineral exploration, and development, recreation, and other public land uses to meet the goals and objectives of the plan."

Key components of the WEMO designed to promote species conservation include: the establishment of four DT conservation areas, designated by WEMO as DWMAs; an MGS Conservation Area; and 11 additional species and habitat-based conservation areas. The WEMO specifically identifies goals and objectives for the protection and conservation of DT, MGS, and WBO in addition to several other sensitive species occurring in the planning area. The WEMO includes compensatory mitigation requirements for projects proposed in the Plan area, with mitigation fees required for all new ground-disturbing activities located on public lands.

The portion of the Project located south of Brown Road would be built within an MGS Conservation Area designated by the WEMO (Figure 12). The Project is not located within any WEMO-designated DT conservation areas or DWMAs. The closest DT DWMA, the Fremont-Kramer DWMA, is located approximately 7 miles southeast of the Project.

3.7.3 State LORS

The following are State LORS that are applicable to the RSPP.

California Environmental Quality Act (CEQA) (Public Resources Code Section 15000 et seq.). CEQA requires identification of significant environmental effects of proposed projects (including impacts on biological resources) and avoidance (where feasible) or mitigation of the significant effects. CEQA applies to "projects" proposed to be undertaken or requiring approval by State and/or local governmental agencies. "Projects" are activities that have the potential to have a physical impact on the environment. The CEC licensing process, under the Warren-Alquist Act, is a CEQA-equivalent process.

California Endangered Species Act (CESA) (CFGC Section 2050 et seq.). This State law prohibits the "take" (defined as "to hunt, pursue, catch, capture, or kill") of State-listed species except as otherwise provided in State law. CESA, administered by CDFG, is similar to the Federal ESA, although unlike the Federal law, CESA applies incidental take prohibitions to species currently petitioned for State-listing status (i.e., candidate species). State lead agencies are required to consult with CDFG to ensure that their authorized actions are not likely to jeopardize the continued existence of any State-listed species or result in the degradation of occupied habitat.

Under Section 2081, CDFG authorizes "take" of State-listed endangered, threatened, or candidate species through incidental take permits or memoranda of understanding if 1) the take is incidental to otherwise lawful activities, 2) impacts of the take are minimized and fully mitigated, 3) the permit is consistent with regulations adopted in accordance with any recovery plan for the species in question, and 4) the applicant ensures suitable funding to implement the measures required by CDFG.

Because DT has been confirmed as present within the RSPP disturbance area and MGS is assumed present based on habitat suitability, it is expected that a Section 2081 incidental take permit (ITP) will need to be obtained prior to Project implementation to comply with CESA, and in the case of DT, a take authorization under Section 7 of the Federal ESA will be required (described in Section 3.7.2). CDFG may agree to provide a consistency determination for DT indicating that the Federal ESA permit meets the requirements of CESA, in which case the 2081 ITP would only be needed for MGS. Although the Applicant will work closely with CDFG, the formal permit issuance, if required, will occur through the CEC licensing process.

CFGC Section 3503

This Code prohibits take, possession, or needless destruction of the nests or eggs of any bird, except as otherwise provided by the code or any regulation made pursuant thereto.

CFGC Section 3503.5 This Code makes it unlawful to take, possess, or destroy birds of prey. It also prohibits the take, possession, or destruction of nests or eggs of any bird of prey.

CFGC Section 3511 This law describes bird species, primarily raptors, that are "fully protected." Fully protected birds may not be taken or possessed, except under specific permit requirements.

CFGC Sections 4700 and 5050 These Codes list mammal, amphibian, and reptile species that are classified as fully protected in California.

Native Plant Protection Act (NPPA) (CFGC Section 1900 et seq.). The NPPA includes measures to preserve, protect, and enhance rare and endangered native plant species. Definitions for "rare and endangered" are different from those contained in CESA, although CESA-listed rare and endangered species are included in the list of species protected under the NPPA.

Title 14, California Code of Regulations Sections 670.2 and 670.5. These regulations list plant and animal species designated as threatened and endangered in California. California SSC status is a designation applied by CDFG to those species that are indicators of regional habitat changes or are considered potential future protected species. SSCs do not have any special legal status but are intended by CDFG for use as a management tool to take these species into special consideration when decisions are made concerning the future of any land parcel.

CFGC Section 1600 et seq. CDFG regulates all changes to the natural flow, bed or bank, of any river, stream, or lake that supports fish or wildlife resources. A stream is defined broadly as a body of water that flows at least periodically, or intermittently, through a channel that has banks and that supports fish or other aquatic biota. Such areas are formally referred to as waters of the State. Impacts to vegetation and wildlife from sediment, diversions, and other disturbances are included in the review.

Project proponents must provide CDFG with written notification before activities begin that will:

- Substantially divert or obstruct the natural flow of any river, stream, or lake;
- Substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or
- Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake.

Notification is generally required for any activity that will take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks and support fish or other aquatic life, and watercourses having a surface or subsurface flow that support or have supported riparian vegetation. Generally, CDFG is concerned with activities that have the potential to impact State-regulated resources at the activity site, as well as the effects of those actions on the ecosystem at and surrounding the activity (i.e., upstream, downstream, and neighboring). As the

RSPP's disturbance area contains potential waters of the State, the Project will submit a CFGC Section 1603 Lake and Streambed Alteration Agreement (SAA) notification to the CDFG. Although the Applicant will work closely with CDFG, the formal SAA process will occur through the CEC licensing process.

1969 Porter-Cologne Water Quality Control Act (Porter-Cologne) (California Water Code Section 13000 et seq.). Through a programmatic agreement between the Federal government and the States, the Regional Water Quality Control Board (RWQCB) has primary authority for permit and enforcement activities under Porter-Cologne) and the CWA. Under Porter-Cologne, the RWQCB regulates the "discharge of waste" to waters of the State. The term "discharge of waste" is also broadly defined in Porter-Cologne, such that discharges of waste include fill, any material resulting from human activity, or any other "discharge" that may directly or indirectly impact waters of the State relative to implementation of Section 401 of the CWA.

Porter-Cologne authorizes the RWQCB to regulate discharges of waste and fill material to waters of the State, including "isolated" waters and wetlands, through the issuance of waste discharge requirements (WDRs). Under Porter-Cologne, all parties proposing to discharge waste that could affect the quality of waters of the State, other than into a community sewer system, shall file with the appropriate RWQCB a Report of Waste Discharge (ROWD) containing such information and data as may be required by the RWQCB. The RWQCB will then respond to the ROWD by issuing a WDR in a public hearing, or by waiving WDRs (with or without conditions) for that proposed discharge. The RWQCB has a statutory obligation to prescribe WDRs except where the RWQCB finds that a waiver of WDRs for a specific type of discharge is in the public interest. Therefore, all parties proposing to discharge waste that could affect waters of the State, but do not affect Federal waters (which requires a CWA Section 404 permit and CWA Section 401 Certification) must file an ROWD with the appropriate RWQCB.

3.7.4 Local LORS

Kern County General Plan, Land Use, Conservation and Open Space Element (2007). Kern County requires that habitats of threatened or endangered species should be protected to the greatest extent possible. The administering agency is the Kern County Planning Department.

3.7.5 Involved Agencies

The Federal, State, and local agencies involved in biological resource issues related to the RSPP are provided in Table 6. Copies of correspondence with agency personnel are provided in Attachment M.

Table 6
Agencies and Agency Contacts

Agency Contact	Phone/E-mail	Permit/Issue
Hector Villalobos, Field Manager Bureau of Land Management Ridgecrest Field Office 300 S. Richmond Road Ridgecrest, CA 93555	(760) 384-5400 Hector_villalobos@ca.blm.gov	Right-of-Way Permit and preparation of EIS per NEPA
Danielle Dillard, Wildlife Biologist USFWS Ventura Office 2493 Portola Road, Suite B Ventura, CA 93003	(805) 644-1766 danielle_dillard@fws.gov	Federal ESA, Section 7 Consultation.
Jeffrey Single, Regional Manager CDFG Central Region 1234 E. Shaw Avenue Fresno, CA 93710	(559) 243-4005 JSingle@dfg.ca.gov	Section 2081 Take Permit, SAA Section 1600.
Mark Durham, Branch Chief USACE Regulatory Division 915 Wilshire Blvd Los Angeles, CA 90017-3401	(213) 452-3416 mark.durham@usace.army.mil	Concurrence that disturbance area and linears do not include “waters of the U.S.”

3.7.6 Required Permits and Permit Schedule

As shown in Table 7, the proposed Project may require several permits that are specific to biological resources issues.

Table 7
Required Biological Resource Permits and Permitting Schedule

Permit/Approval	Schedule
Federal ESA, Section 7 Consultation	Because DT was confirmed present on the RSPP site, a take authorization under Section 7 of the Federal ESA will be required, as well as a Section 10(a)(1)(A) permit for the monitoring or handling of a Federal listed species. Section 7 Consultation will be initiated by BLM to obtain a Biological Opinion from USFWS for the Project. Section 7 consultation for this project is triggered by a ROW application to BLM from the Applicant. A Biological Assessment (BA) for the project's effect on DT will be prepared and submitted to BLM and USFWS to initiate formal consultation. It is anticipated that the Draft BA will be submitted in January 2010. Once the Final BA is submitted by BLM the 135-day consultation period with USFWS begins.
California Endangered Species Act, Incidental Take (2081) Permit (ITP)	CDFG will be invited to participate in the Section 7 consultation with USFWS regarding species protected under both the ESA and the CESA. For this project, DT and MGS are the only State-listed species detected or assumed present on site. If CDFG agrees with the conditions of the Biological Opinion, CDFG will issue a concurrence letter within a few weeks of issuance of the Biological Opinion. If the project determines that pursuing the 2081 ITP is more appropriate, the Draft 2081 ITP would be submitted in January 2010. Once the Final 2081 ITP is submitted, CDFG provides their determination to the CEC and 2081 take authorization is included in the CEC Decision Document. A separate 2081 ITP will not be issued by CDFG. Additionally, a Memorandum of Understanding would be necessary for the handling of state-listed species.
CDFG 1602 Streambed Alteration Agreement (SAA)	The SAA application will be submitted to CDFG approximately 3 months after the AFC submittal. CDFG provides their determination to the CEC and SAA authorization is included in the CEC Decision Document. A separate SAA will not be issued by CDFG.

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CHAPTER 4
IMPACTS

This section addresses RSPP-related impacts on vegetation communities and special-status plant and wildlife species during both Project construction and operation. Direct and indirect impacts may be either permanent or temporary. These impact categories are defined below.

- Direct: Direct impacts are caused by the project and occur at the same time and place as the project. Any alteration, disturbance, or destruction of biological resources that would result from Project-related activities is considered a direct impact. Direct impacts include direct losses to native habitats, potential jurisdictional waters, wetlands, and sensitive species, and diverting natural surface water flows. Specifically, direct impacts may include injury, death, and/or harassment of listed and/or sensitive species. Direct impacts may also include the destruction of habitats necessary for species breeding, feeding, or sheltering. Direct impacts to plants can include crushing of adult plants, bulbs, or seeds.
- Indirect: As a result of Project-related activities, biological resources may also be affected in a manner that is not direct. Indirect impacts may occur later or at a place that is farther removed than direct impacts from the Project site, but are still reasonably foreseeable and attributable to project-related activities. Examples include habitat fragmentation; elevated noise, dust, and lighting levels; soil compaction; increased human activity; decreased water quality; changes in hydrology, runoff, and sedimentation; and the introduction of invasive wildlife and plants.
- Permanent: All impacts that result in the long-term or irreversible removal of biological resources are considered permanent. Examples include constructing a building or permanent road on an area containing biological resources.
- Temporary: Any impact considered to have reversible effects on biological resources can be viewed as temporary. Examples include the generation of fugitive dust during construction or removing vegetation for underground pipeline trenching activities and either allowing the natural vegetation to recolonize or actively revegetating the impact area. Surface disturbance that removes vegetation and disturbs the soil could be considered a long-term temporary impact if vegetation is allowed to reestablish over time. However, because of the very slow natural recovery in arid ecosystems (such as those present in the disturbance area and vicinity), all such impacts in the BRSA are considered permanent.

For the purpose of this analysis, the following applicable thresholds of significance have been used to determine whether implementing the RSPP would result in a significant impact. These thresholds of significance are based on Appendix G of the State CEQA Guidelines. A biological resources impact is considered significant if implementation of the proposed project would do any of the following:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFG or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marshes, vernal pools, and coastal areas) or any state-protected wetlands through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- Conflict with the provisions of an adopted habitat conservation plan; natural community conservation plan; or other approved local, regional, or state habitat conservation plan; or
- Substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or substantially reduce the number or restrict the range of an endangered, rare, or threatened species.

4.1 KEY DEFINITIONS AND BIOLOGY-RELATED DESIGN ELEMENTS

The following paragraphs define some of the key Project design elements as they are related to the biological resources impact analysis below.

The biological resources investigation uses a number of definitions for the area(s) of interest.

- The BRSA includes the disturbance area and the buffer surrounding the disturbance area and linear features. The BRSA encompasses approximately 9,312 acres.

- The buffer includes the area within a one-mile radius of the disturbance area and within 1,000 feet of Project linear features; the buffer totals 7,574 acres.
- Project linear features include a transmission line (located entirely within the facility footprint) that will interconnect the Project with Southern California Edison's (SCE's) existing Inyokern/Kramer Junction transmission line, and a water pipeline to connect the Project with the Indian Wells Valley Water District (IWVWD) supply. The water pipeline is not included in this report because the route has not yet been finalized.
- The facility footprint encompasses the entire area within the fence line of the Project site, including the transmission line. It covers approximately 1,440 acres.
- The ROW application covers 3,920 acres,
- The disturbance area is the area inside and outside the facility fence line that would be disturbed by the Project. The disturbance area is estimated at 1,738 acres, excluding the proposed water line.

4.1.1 Solar Array, Access Roads, and Maintenance Facilities

The 1,440 acres occupied by the facility footprint include solar fields, office and maintenance buildings, laydown area, drainage channels, bioremediation area, and a corridor for the transmission line, and roads (Figure 13). The two solar fields would occupy approximately 1,400 acres. It is assumed that the entire 1,738-acre disturbance area would be directly and permanently affected by the RSPP. The disturbance area for the purposes of this report is 1,738 because it does not include the proposed water line. The proposed water line route is in the planning stages and has not been surveyed for biological resources yet.

The minimum number of lights necessary to provide safety and security will be installed in the power block. All lights will be installed within the footprint of the Project. Where practicable, lights would be shielded and down-directed in to illuminate only the needed area and to avoid illuminating adjacent undeveloped areas when the lights are located near the perimeter of the site.

4.1.2 Rerouted Desert Washes

The following summary of existing drainage patterns and planned modifications is based on information presented in the Hydrology Report (AECOM 2009) included as part of Appendix F of the AFC.

As part of the RSPP, the series of desert washes that cross the disturbance area generally from south to north would be rerouted into three channels along the east and west sides of the disturbance area (Figure 13). These channels would intercept flows prior to their entry to the site and convey them into realigned channels to approximately the same locations and flow levels at which they exit the site under existing conditions. Outlets for each channel would end in diffusers.

The rerouted channels would be located outside of the Project's proposed perimeter fence. The channels would be constructed with native material, and scour protection (i.e., riprap) would be added to the channel sides and bottoms in stress areas such as curves and slope transitions. No scour protection is proposed for the channel bottom in the straight sections of the channels. This is to allow the low flows to meander across the bottom, replicating as nearly as possible the flow regimes under current conditions.

4.2 CONSTRUCTION IMPACTS

This section identifies impacts to the biological resources within the BRSA that would result from construction of the Project. Sensitive vegetation communities and other land cover types were defined in Section 3.1 and sensitive species were defined in Sections 3.3 and 3.4. All potential jurisdictional waters, including unvegetated channels, are considered sensitive.

4.2.1 Vegetation Communities

Sensitive vegetation communities and other land cover types were described in Section 3.1. All potential State-jurisdictional waters, including Mojave Desert wash scrub and ephemeral dry washes, are considered sensitive.

Direct Impacts

Table 8 identifies the vegetation communities and other cover types within the disturbance area that would be directly and permanently affected. The majority of the site supports vegetation communities that are nonsensitive. Direct, permanent impacts to 1,721.1 acres of nonsensitive Mojave creosote bush scrub vegetation would not be considered significant and therefore would not require mitigation in this respect. However, Mojave creosote bush scrub supports the Federal and State threatened DT and MGS, as discussed, below. Mojave Desert wash scrub and unvegetated ephemeral dry wash are considered potential jurisdictional State waters and therefore are considered sensitive. Direct, permanent impacts would occur to 8.2 acres of Mojave

Desert wash scrub and 8.4 acres of unvegetated ephemeral dry wash and would be considered significant, if left unmitigated.

Table 8
Anticipated Permanent Impacts to
Plant Communities and Waters of the State in the Disturbance Area

Vegetation Communities and Other Cover	Total Permanent Impact Acreage
Vegetation Communities	
Mojave Desert Wash Scrub[1]	8.2
Unvegetated Ephemeral Dry Wash[1]	8.4
Mojave Creosote Bush Scrub	1,721.1
Developed	0.5
Total Acres	**1,738.2**

[1] Potential waters of the State

Indirect Impacts

Potential temporary, indirect impacts to the vegetation communities surrounding the disturbance area would occur as a result of grading activities creating airborne dust and potential offsite sedimentation. Potential permanent, indirect impacts include alteration of drainage patterns, spreading of exotic plant species in native vegetation communities such as those in transmission line corridors, and increased incidence of accidental wildfires (potentially caused by construction or downed new transmission wires) destroying or disturbing native vegetation communities. Potential indirect impacts to offsite vegetation communities downstream of the Project site would be minimized by the plans (described above) to reroute the desert wash channels around the site and return drainage to approximately the same locations and flow levels at which they exit the site under existing conditions. Potential accidental wildfires and sitewide ground-disturbing activities could adversely affect vegetation communities by altering adjacent vegetation boundaries and creating disturbed areas that are more conducive to invasion by exotic plant species. The introduction of exotic species could potentially reduce native plant growth, dispersal, and recruitment. The potential spread of exotic species into the surrounding vegetation communities would be considered a permanent, indirect impact. The introduction and invasion of exotic species would be considered a significant impact to sensitive vegetation communities surrounding the disturbance area and transmission line corridor if left unmitigated.

Potential temporary, indirect impacts resulting from grading include sedimentation and erosion. A Storm Water Pollution Prevention Plan (SWPPP) and a Drainage, Erosion, and Sedimentation Control Plan (DESCP) shall be prepared to comply with RWQCB, BLM, and CEC requirements.

A preliminary construction DESCP is provided in Appendix L to the AFC. The DESCP and SWPPP will identify the design features and BMPs that will be used to effectively manage drainage-related issues (e.g., erosion and sedimentation) during both construction and for long-term operation.

Significance after Mitigation

Potential construction-related direct and indirect impacts to sensitive vegetation communities would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Chapter 5, including general measures BIO-1 through BIO-14, and resource-specific measures BIO-15 and BIO-16.

4.2.2 Jurisdictional Waters

Direct Impacts

The potential waters of the State that traverse the BRSA (approximately 16.6 acres within the disturbance area) would be directly and permanently affected by Project construction. No temporary direct impacts to jurisdictional waters are expected as a result of construction. The permanent direct impacts would be a result of grading and installation of the solar facility, which would result in the permanent removal of all jurisdictional waters within the disturbance area. Direct permanent impacts would occur to 8.2 acres of Mojave Desert wash scrub and 8.4 acres of unvegetated ephemeral dry wash for a total of 16.6 jurisdictional acres. The permanent removal of these jurisdictional waters would be considered a significant impact if left unmitigated.

This impact would be reduced to the greatest extent practicable by Project plans (see Section 4.1.2) to reroute washes around Project features, revegetating the new channels in a manner that approximates existing channel vegetation, and returning the channels to approximately the same locations where they exit the site under existing conditions north and west of the RSPP site.

Indirect Impacts

Potential temporary, indirect impacts to State waters surrounding the disturbance area would occur as a result of grading activities creating airborne dust and potentially offsite sedimentation. These impacts would be considered significant where jurisdictional Mojave Desert wash scrub or unvegetated ephemeral dry wash occur adjacent to the disturbance area. Potential temporary,

indirect impacts resulting from grading including possible sedimentation and erosion would be reduced through implementation of the BMPs in the SWPPP and DESCP, as described above.

Potential permanent, indirect impacts to the jurisdictional waters surrounding the disturbance area would result from modifications to existing drainage patterns on site. As described previously, existing desert washes within the facility would be rerouted around the disturbance area. This could result in offsite jurisdictional waters receiving lower or higher volumes and rates of water than current conditions. Permanent indirect impacts to offsite jurisdictional waters resulting from the alteration of drainage patterns would be considered a significant impact if left unmitigated.

Significance after Mitigation

Potential construction-related impacts to jurisdictional waters of the State would be reduced to less than significant through project plans to reroute washes around the Project site, as described above, and implementation of the avoidance, minimization, and mitigation measures described in Chapter 5, including general measures BIO-1 through BIO-14, and resource-specific measures BIO-15 and BIO-16.

4.2.3 Flora

Direct Impacts

No permanent, direct impacts to special-status plant species are expected to occur from implementation of the RSPP. No special-status plants are known to occur in the BRSA, and none were found during focused surveys within the disturbance area or buffer in 2009.

Indirect Impacts

No temporary or permanent indirect impacts to special-status plant species are expected to occur from implementation of the Project. No special-status plant species were detected within the disturbance area or buffer during focused 2009 surveys. Potential temporary and permanent indirect effects (e.g., fugitive dust, erosion, sedimentation, introduction or spread of nonnative invasive weeds) of the proposed Project to special-status plants would not be expected to extend outside of the Project site because there are no known special-status plant species in the immediate vicinity of the RSPP site where these indirect effects are most likely to occur.

Significance after Mitigation

There are no significant direct or indirect impacts to mitigate for flora.

4.2.4 Wildlife Species

Direct Impacts

The RSPP would result in direct impacts to special-status wildlife species. Direct impacts include destruction of habitat for sensitive species and could result in injury, death, and/or harassment of sensitive species.

Indirect Impacts

The RSPP would potentially result in permanent and temporary indirect impacts to special-status wildlife species that include 1) habitat fragmentation, where removal of habitat elements results in isolated patches of formerly connected habitat; 2) edge effects, where Project facilities would lead to increased lighting, exotic plant and wildlife invasion, dust/air pollution, predators, pesticides, parasites, and other factors that could affect native plants and animals; and 3) alteration of hydrology, runoff, and sedimentation, which could alter foraging and breeding habitat for animals by adversely affecting native plant populations.

If left unmitigated, temporary, indirect impacts would result from dust accumulation on surrounding vegetation, increased ambient noise levels adjacent to construction areas, and accidental wildfires (potentially caused from construction or downed new transmission wires, but the potential for this is low due to the relatively small length of transmission lines proposed in the RSPP), which could potentially lead to temporary, indirect impacts to special-status avian species that may use the adjacent plant communities by disrupting their natural foraging patterns, destroying foraging habitat (dust can adversely affect plants by reducing the rates of metabolic processes such as photosynthesis and respiration), and adversely affecting species communication. If construction activities are conducted at night, the use of lighting could temporarily indirectly impact special-status wildlife species adjacent to construction areas by increasing possible detection by predators, obscuring lunar cycles, and/or causing direct habitat avoidance in lighted areas. Potential indirect impacts from increased erosion and rates of scouring associated with changes in drainage patterns, which could result in downstream habitat loss for some species, would be reduced to less than significant by implementation of the SWPPP and DESCP, as described above, which will include flood management procedures.

The potential for Project-related direct and indirect impacts specific to special-status wildlife species are discussed in the following text.

Federally Listed Wildlife Species – Desert Tortoise

Direct Impacts. The RSPP would result in permanent, direct impacts to DT. The Project site currently supports a large DT population. Fifty DT individuals (29 adults, 12 juveniles, and 9 of unknown age class) were observed during 2009 surveys, 40 of which (23 adults, 12 juveniles, and 5 of unknown age class) were within the disturbance area. Over 200 DT burrows were detected during 2009 surveys, including 22 occupied burrows (18 within the disturbance area) and 48 burrows that showed recent evidence of use by DT (active burrows); 36 of which occurred in the disturbance area. Burrows and DT observations were widely distributed over the RSPP site. Site grading and installation of Project facilities would permanently and directly impact 1,738.2 acres of occupied DT habitat. Project construction would destroy DT burrows and remove foraging habitat. DT could also be killed or injured during construction, as individuals could be entombed or crushed in their burrows. DTs are not expected to depart the Project site on their own after construction begins. Therefore, direct mortality is assumed for DT occupying the disturbance area unless those individuals are successfully removed from harm's way as part of DT clearance surveys. These permanent, direct, impacts are considered significant.

Significant temporary impacts to DT could also occur. Temporary direct impacts to DT could result from an increase in vehicle traffic while the Project is under construction. The increased vehicular traffic volumes could lead to an increase in vehicular strikes on roads near the RSPP site. Because DT is a Federal listed species, any adverse direct impact would be considered significant.

Indirect Impacts. Indirect impacts to DT could occur from increased habitat fragmentation, which could adversely affect the local DT population outside of the disturbance area by reducing habitat connectivity. Indirect impacts could also result from a potential increase in the population of common raven (*Corvus corax*) resulting from the construction of new elevated perching and nesting sites (e.g., new transmission line towers, perimeter fencing, facility structures). Additionally, garbage from increased human presence may attract common ravens. Temporary ponding of water from construction (e.g., dust suppression during construction), which could attract common ravens, is not expected to occur. Currently, common ravens are not common within the Project area. However, new features as a result of Project construction could increase

raven numbers and result in increased predation on DT. Indirect impacts could also result from invasive plants that outcompete native plants, or from increased incidence of accidental wildfires (potentially caused by construction or downed new transmission wires, but the potential for this is low due to the relatively small length of transmission lines proposed in the RSPP), both of which could reduce foraging habitat for DT. Potential deposition of sediment loads during heavy rain events and flooding downstream of the site could affect existing DT burrows outside of the survey area. However, the rerouting of desert washes as part of the proposed Project would contribute to the reduction of such impacts. Since DT is a Federal listed species, any adverse indirect impact would be considered significant.

Significance after Mitigation. Potential construction-related direct and indirect impacts to DT would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Chapter 5 below, including general measures BIO-1 through BIO-14, and resource-specific measures BIO-17 through BIO-32.

State-Listed Wildlife Species – Desert Tortoise and Mohave Ground Squirrel

Impacts to DT, which is listed under ESA and CESA, are described immediately above. Impacts to MGS are described in detail below.

Direct Impacts. The RSPP could result in permanent, direct impacts to MGS, if MGS occurs on the Project site. It is assumed that MGS could occur on the Project site. The current distribution and abundance of this species on the RSPP site are unknown. No focused surveys for MGS were conducted as part of this analysis, and there are no previous documented occurrences from the RSPP site. Project biologists conducting surveys for other special-status species did not report any MGS during 2009 surveys. However, there are 24 documented occurrences of MGS within 5 miles of the RSPP site, and 1,725.6 acres of suitable habitat occurs within the disturbance area. Therefore, the potential for this species to occur on site is assumed based on documented occurrences in the Project vicinity and the presence of suitable habitat. Direct impacts on MGS would include the permanent loss of 1,725.6 acres of potentially suitable MGS habitat, including 234.7 acres of potentially high-quality habitat. The majority of the site (1,490.9 acres) was categorized by Leitner (2009) as low or medium habitat quality. The portion of the Project disturbance area located south of Brown Road (844 acres) is located within a WEMO-designated MGS Conservation Area. Project construction resulting in the loss of 844 acres within the MGS Conservation Area represents as loss of approximately 6.6 percent of allowable take as defined in the WEMO, as identified by the BLM Ridgecrest office as within a current limit of 12,801 acres, within the MGS Conservation Area.

The magnitude of permanent, direct impacts to MGS that would result from implementation of the Project is difficult to quantify or otherwise measure because of the lack of known occurrences within the Project site. However, it is assumed that Project construction could result in direct loss of individuals during construction. MGS mortality could result from site grading and installation of Project facilities. MGS could be crushed or entombed in their burrows during construction. The Project would also result in the loss of foraging and burrowing habitat. These permanent, direct, impacts are considered significant. Significant temporary impacts on MGS could also occur. Temporary direct impacts to MGS could result from an increase in vehicle traffic while the Project is under construction. The increased vehicular traffic volumes could lead to an increase in vehicular strikes on roads near the RSPP site. Because MGS is a State-listed species, any adverse direct impact would be considered significant.

Indirect Impacts. Indirect impacts to MGS could occur from increased habitat fragmentation, which could adversely affect the local MGS population outside of the disturbance area by reducing habitat connectivity. Indirect impacts could also result from a potential increase in opportunistic predators (e.g., coyotes) as a result of garbage generated from increased human presence associated with construction. Indirect impacts could also result from invasive plants that outcompete native plants, or from accidental wildfires (potentially caused by construction or downed new transmission wires, but the potential for this is low due to the relatively small length of transmission lines proposed in the RSPP), both of which could reduce foraging habitat for MGS. Indirect impacts to high-quality MGS habitat downstream of the site could result from potential deposition of increased sediment loads during heavy rain events and flooding downstream of the site. However, these impacts would be reduced by Project design (i.e., rerouting the desert wash and connecting to offsite channels, and grading and compacting the entire footprint of the solar array, thereby reducing onsite erosion). Similarly, indirect impacts to habitat by changes in drainage patterns potentially altering offsite vegetation communities would be minimized by Project design. Because MGS is a State-listed species, any adverse indirect impact would be considered significant.

Significance after Mitigation. Potential construction-related direct and indirect impacts to MGS would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Chapter 5, including general measures BIO-1 through BIO-14, and resource-specific measures BIO-17, BIO-18, BIO-27, BIO-30, BIO-31, BIO-32, and BIO-44.

Non-listed Special-Status Wildlife Species

Direct impacts. Installation of Project facilities and the establishment of work areas on site could result in direct impacts to non-listed special-status wildlife species. Project construction could result in the crushing of occupied burrows, destruction of nests, collisions with construction and maintenance vehicles, and loss of habitat.

Indirect impacts. Indirect impacts from potential deposition of sediment loads during heavy rain events and flooding downstream of the site could impact existing habitat for non-listed special-status wildlife outside of the Project site. However, these impacts would be minimized by Project design (i.e., rerouting the desert wash and connecting to offsite channels, and grading and compacting the entire footprint of the solar array, thereby reducing onsite erosion). Similarly, indirect impacts to habitat by changes in drainage patterns potentially altering offsite vegetation communities would be minimized by Project design.

Indirect impacts could result from invasive plants that outcompete native plants, or from accidental wildfires (potentially caused by construction or downed new transmission wires, but the potential for this is low due to the relatively small length of transmission lines proposed in the RSPP), both of which could reduce wildlife foraging habitat. Indirect impacts could also result from increased common raven and raptor predation on WBO associated with the addition to new elevated perching sites, including the transmission structures, perimeter fencing, and transmission lines. Temporary ponding of water from construction (e.g., dust suppression during construction), which could attract common ravens, is not expected to occur.. These indirect impacts could adversely affect breeding success and would be considered significant. Implementation of the mitigation measures described in Chapter 5 would reduce the Project's indirect impacts on non-listed, special-status wildlife species to less-than-significant levels.
T
he potential for Project-related direct and indirect impacts to non-listed special-status wildlife species are discussed in the following text.

Western Burrowing Owl

Direct impacts. Based on survey data, the Project facilities would permanently impact burrows and habitat for at least two nesting pairs of WBO and four additional individual WBO. The entire 1,738.2-acre disturbance area is considered suitable WBO foraging and nesting habitat, with the exception of the rocky outcrops in the central-eastern portion of the disturbance area. Temporary direct impacts to WBO could also result from an increase in vehicle traffic while the Project is

under construction and, consequently, an increase in vehicular strikes of this species. The loss of occupied WBO habitat is considered a significant impact if left unmitigated. The following potential effects on WBO as a result of Project implementation would be significant and require mitigation: 1) disturbance or harassment of WBOs within 160 feet of occupied burrows; 2) destruction of active burrows and burrow entrances; and 3) degradation of foraging habitat adjacent to occupied burrows.

Indirect Impacts. Indirect impacts of Project construction on WBO are discussed above (see "Non-listed Special-Status Wildlife Species")

Significance after Mitigation. Potential construction-related impacts to WBO would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Chapter 5, including general measures BIO-1 through BIO-14, and resource-specific measures BIO-17, BIO-18, and BIO-33 through BIO-38.

Loggerhead Shrike

Direct Impacts. Suitable loggerhead shrike foraging habitat is present throughout the disturbance area. However, high-quality nesting habitat is limited due to the lack of larger shrubs and trees and relatively low abundance of thorny vegetation. Three individuals were documented on the RSPP site but no nests were found. Direct impacts expected to loggerhead shrike include the loss of foraging habitat. The loss of foraging habitat would be less than significant because similar or higher quality foraging habitat is common in the vicinity of the Project site. There is a low probability that this species would nest on the Project site. The loss of an active nest during the breeding season coinciding with construction would be considered significant; however, this impact would be reduced to less than significant by implementation of nest clearance surveys (BIO-40 and BIO-41) as described in Chapter 5.

Indirect Impacts. Indirect impacts of Project construction on loggerhead shrike are discussed above (see discussion under Non-listed Special-Status Wildlife Species). The potential degradation or loss of habitat resulting from indirect impacts to this species would be less than significant because similar or higher quality habitat is common in the vicinity of the Project site.

Le Conte's Thrasher

Direct impacts. Suitable foraging habitat for Le Conte's thrasher is present throughout the disturbance area. Two detections, including one pair and one individual, were documented

during Project surveys in the disturbance area. The low-diversity creosote scrub that covers most of the Project site is considered marginal nesting habitat. However, areas that support higher plant diversity, particularly silver cholla, are considered suitable for nesting.

Direct impacts on Le Conte's thrasher include the loss of foraging habitat and potential loss of nesting habitat. The loss of foraging habitat would be less than significant because similar or higher quality foraging habitat is common in the vicinity of the Project site. The loss of an active nest during the breeding season coinciding with construction would be considered significant; however, this impact would be reduced to less than significant by implementation of nest clearance surveys (BIO-40 and BIO-41) as described in Chapter 5.

Indirect Impacts. Indirect impacts of Project construction on Le Conte's thrasher are discussed above (see discussion under Non-listed Special-Status Wildlife Species). The potential degradation or loss of habitat resulting from indirect impacts to this species would be less than significant because similar or higher quality habitat is common in the vicinity of the Project site.

American Badger

Direct impacts. Although most of the 1,738.2-acre disturbance area is suitable for this species, no American badgers or their sign were detected there. One American badger burrow was detected in the BRSA approximately 3,500 feet north of the disturbance area. Temporary direct impacts to American badger could also result from an increase in vehicle traffic while the Project is under construction and, consequently, an increased potential for vehicular strikes of this species.

Since it is unlikely for any permanent loss of occupied American badger burrows and immediately adjacent foraging habitat to occur as a result of the RSPP, direct impacts to this species are not considered to be significant. Temporary direct impacts to American badger could result from an increase in vehicle traffic while the Project is under construction and, consequently, an increased potential for vehicular strikes of this species. However, the potential for such an impact is very low given the lack of detection of this species in the disturbance area and limited occurrence in the BRSA; hence, the potential impact is also considered less than significant.

Indirect Impacts. Indirect impacts of Project construction on American badger are discussed above (see discussion under Non-listed Special-Status Wildlife Species). The potential degradation or loss of habitat resulting from indirect impacts to this species would be less than significant because similar or higher quality habitat is common in the vicinity of the Project site.

Desert Kit Fox

Direct impacts. Direct permanent impacts would occur to approximately 1,738.2 acres (the entire disturbance area) of occupied desert kit fox habitat as a result of construction in the disturbance area. Desert kit fox burrows and complexes are distributed throughout the disturbance area and were noted within the buffer areas. A total of 75 known burrows and burrow complexes, including four active complexes (three with pups confirmed), would be affected by construction. Temporary direct impacts to desert kit fox would also result from an increase in vehicle traffic while the Project is under construction and, consequently, an increased potential for vehicular strikes of this species. However, because this species is mostly nocturnal and construction is expected be limited primarily to daylight hours, this potential temporary, direct impact is considered less than significant.

The permanent loss of foraging habitat resulting from Project construction is not expected to substantially reduce the number or otherwise substantially affect this species because this species is relatively common regionally and similar quality habitat is present in the Project vicinity. However, potential mortality that could result from destroying active burrows is considered a significant impact. Implementation of mitigation measures described in Chapter 5, especially a preconstruction desert kit fox clearance survey (BIO-42), would reduce potential Project impacts to desert kit fox to less than significant.

Indirect Impacts. Indirect impacts of Project construction on desert kit fox are discussed above (see discussion under Non-listed Special-Status Wildlife Species). The potential degradation or loss of habitat resulting from indirect impacts to this species would be less than significant because similar or higher quality habitat is common in the vicinity of the Project site.

Migratory Birds

Direct Impacts. The Project could result in direct impacts to native migratory birds on the RSPP site in the form of habitat destruction, and potentially death, injury, or disturbance of nesting birds and active nests. The potential loss of active nests would be greatest if vegetation removal occurred during the nesting season. The loss of foraging habitat for nonsensitive migratory birds would be a less-than-significant impact because quality habitat is present in the Project vicinity and elsewhere throughout the region. The loss of an active migratory bird nest would be considered a significant impact, if left unmitigated.

Indirect Impacts. Temporary, indirect impacts that may arise from construction-related activities that could destroy active nests or reduce nesting success are increased noise levels; construction-generated fugitive dust accumulation on surrounding vegetation; and construction-related erosion, runoff, and sedimentation into plant communities resulting in damage and destruction of native vegetation. Indirect impacts on migratory birds could also include collisions with tower structures and transmission lines. These indirect impacts would be considered significant, if left unmitigated.

Significance after Mitigation. Implementation of the mitigation measures described in Chapter 5 would reduce this impact to less than significant, in particular, measures BIO-40, BIO-41, and BIO-43.

4.2.5 Wildlife Movement

Direct Impacts

The proposed Project would result in direct impacts to wildlife movement and habitat connectivity. These impacts would result from construction of the perimeter fence that would surround the disturbance area. The fence would represent a permanent barrier and prevent movement across the site by most terrestrial wildlife. Habitat connectivity would be reduced because the large project footprint would contribute to fragmentation of what is currently a mostly contiguous desert landscape south of Ridgecrest, with the exception of existing roads bordering, and in some cases traversing this portion of the landscape. Although impacts on wildlife movement are anticipated, these impacts would generally be less than significant for most species. The Project site is not located within documented important migration routes for any terrestrial wildlife species, and most of the animals expected to move across the Project site are considered common in California. Regional habitat connectivity would be reduced by implementation of the proposed Project, but much of the land surrounding the site is expected to remain as natural desert plant communities for the foreseeable future, allowing regional movement by common terrestrial wildlife species to continue outside of the perimeter of the site without significant impediment. For these reasons, impacts on common terrestrial wildlife species would be less than significant. Special-status terrestrial wildlife species detected or with potential to occur in the BRSA include DT, MGS, Nelson's bighorn sheep, desert kit fox, and American badger. Of these, only DT and MGS movement would be substantially affected outside of the disturbance area perimeter fence. Nelson's bighorn sheep has not been documented on the Project site and is not expected because of the current relatively high levels of human disturbance and the relatively large distance between the site and mountain ranges

known to be occupied by bighorn sheep. Movement by desert kit fox and American badger across the project site would be eliminated by construction of the perimeter fence. However, this impediment is not expected to substantially affect movement by either species because similar desert habitat outside of the Project perimeter would likely provide adequate movement opportunities for foraging and dispersal.

The RSPP could substantially affect the local movement and reduce the habitat connectivity of the State- and Federal listed DT and the State-listed MGS. Although DT and MGS are not migratory animals, opportunities for local movements within their home ranges and dispersal are important for maintaining viable populations. It is reasonable to assume that, as with other terrestrial wildlife species, impacts on MGS and DT would be relatively minor in the context of affecting regional movement—MGS and DT are both resident species that move within their home ranges and disperse, but individuals do not make regular long distance movements beyond their home ranges. Opportunities for DT movement around the perimeter of the Project site would remain, as would suitable habitat, after project construction. However, because DT is protected under ESA and CESA, and MGS is protected under CESA, even a minor decrease in opportunities for unimpeded movement across the RSPP site would be considered a significant impact, if left unmitigated.

Indirect Impacts

The RSPP could potentially result in permanent indirect impacts to wildlife movement and population connectivity. Potential indirect impacts of the proposed Project could occur as a result of edge effects and include the potential for wildlife to be deterred from using habitat adjacent to the Project site for movements due to changes in conditions on the Project site such as increased artificial light, noise, human activity, and unnatural structures.

Significance after Mitigation

Potential construction-related impacts to DT and MGS movement would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Chapter 5, including general measures BIO-1 through BIO-14, and resource-specific measures BIO-17, BIO-18, and BIO-44. BIO-17, BIO-18, and BIO-44 would ensure no net loss in sensitive habitat value through requiring the applicant to consult with appropriate agencies to either compensate through mitigation fees or replacement habitat that contributes to habitat connectivity in the region.

4.3 OPERATION

Direct and indirect impacts on biological resources during the operation of the Project are discussed below.

4.3.1 Vegetation Communities

Direct Impacts

Operation of the Project is not expected to result in additional permanent, direct impacts to vegetation communities because all vegetation would be removed before and during Project construction.

Indirect Impacts

Operation of the Project may result in permanent, indirect impacts to vegetation communities, including edge effects such as the introduction of invasive plant species that could replace native plant species in adjacent vegetation communities. In addition, new transmission wires could result in an increase in the number of accidental wildfires that could damage or destroy native vegetation, but the potential for this is low due to the relatively small length of transmission lines proposed in the RSPP. The SWPPP and DESCP will identify the Project design features and BMPs that will be used to effectively manage drainage-related issues (e.g., erosion and sedimentation) for long-term operations to avoid and minimize potential indirect impacts.

Significance after Mitigation

Potential operation-related direct and indirect impacts to sensitive vegetation communities would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Chapter 5, including BIO-45, BIO-47, BIO-48, BIO-50, and BIO-51.

4.3.2 Jurisdictional Waters

Direct Impacts

Operation of the Project is not expected to result in additional permanent, direct impacts to waters of the State because channels would only be directly altered during Project construction.

Indirect Impacts

Operation of the Project may result in potentially significant indirect impacts to waters of the State, including edge effects such as the introduction of invasive plant species that could replace native plant species along washes. In addition, new transmission wires could result in an increase in the number of accidental wildfires that could damage or destroy native vegetation along washes, but the potential for this is low due to the relatively small length of transmission lines proposed in the RSPP. The SWPPP and DESCP will identify the Project design features and BMPs that will be used to effectively manage drainage-related issues (e.g., erosion and sedimentation) for long-term operations to avoid and minimize potential indirect impacts.

Significance after Mitigation

Potential operation-related impacts to jurisdictional waters of the State would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Chapter 5, including BIO-45, BIO-47, BIO-48, BIO-50, and BIO-51.

4.3.3 Flora

Direct Impacts

Operation of the Project would not result in significant direct impacts to special-status plant species because they are not known to occur within the disturbance area and all vegetation would be removed prior to construction or operation of the facility.

Indirect Impacts

No temporary or permanent indirect impacts to special-status plant species are expected to occur from operation of the Project. No special-status plant species were detected within the disturbance area or buffer during focused 2009 surveys. Potential temporary and permanent indirect effects (e.g., fugitive dust, erosion, sedimentation, introduction or spread of nonnative invasive weeds, increased incidence of accidental wildfire) of the proposed Project to special-status plants would not be expected to extend outside of the Project site because there are no known special-status plant species in the immediate vicinity of the RSPP site where these indirect effects are most likely to occur.

Significance after Mitigation

There are no significant direct or indirect impacts to mitigate for flora.

4.3.4 Wildlife Species

Direct Impacts

Direct impacts to wildlife species could occur during Project operation from mortality of individuals by crushing or vehicle collisions. However, these impacts are not anticipated within the disturbance area because Project mitigation includes permanent perimeter fencing that would restrict terrestrial animals from entering the Project site during operation and it is assumed that the Project site will not provide suitable habitat for special-status species after construction is complete.

Indirect Impacts

Operation of the Project may result in permanent, indirect impacts to special-status wildlife species. These include edge effects where Project facilities could lead to increased noise and lighting, the introduction of invasive plant species, and increased incidence of accidental wildfire. Nighttime lighting could disrupt normal activity by nocturnal wildlife species and/or result in increased predation. New transmission wires could increase the frequency of accidental wildfires (potentially from downed wires) that could damage or destroy wildlife habitat but the potential for this is low due to the relatively small length of transmission lines proposed in the RSPP. The accumulation of water on site and/or off site as a result of Project operation may attract common ravens or other opportunistic predators that could prey on sensitive species. This impact would be considered potentially significant for special-status wildlife species, if left unmitigated.

Significance after Mitigation

Potential operation-related impacts to special-status wildlife species occurring or assumed to occur within the BRSA (i.e., DT, MGS, WBO, loggerhead shrike, Le Conte's thrasher, and desert kit fox) would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Chapter 5, including BIO-45 through BIO-51.

4.3.5 Wildlife Movement

Direct Impacts

Operation of the Project would not result in any additional direct impacts to wildlife movement beyond those already described during construction in Section 4.2.5.

Indirect Impacts

Operation of the Project would not result in any additional indirect impacts to wildlife movement beyond those already described during construction in Section 4.2.5.

4.4 CUMULATIVE IMPACTS

The cumulative impact of multiple solar projects in combination with other energy developments and continued urban expansion in the California and Nevada desert region would contribute to significant impacts on biological resources. Solar and wind development projects are currently proposed on over one million acres of BLM lands in California and Nevada (See Section 5.1, Environmental Introduction, of the Project AFC). Further, projects proposed on BLM lands in the WEMO plan area, alone, make up approximately 250,000 acres of solar projects, and another roughly 400,000 acres of wind energy projects; however, it is not likely that all projects would be developed. It is expected that primarily solar projects totaling nearly 260,000 acres of BLM land in the WEMO plan area would be reasonably foreseeable, and probable. There is a high likelihood that these projects would have adverse impacts on biological resources similar to and overlapping with the proposed RSPP, in particular for special-status species such as DT, WBO, and MGS. These species are present or have potential to occur throughout much of the WEMO plan area and their habitat is present at many of the proposed project sites (Attachment N). Due to the similar nature of solar project development actions, primarily resulting in habitat loss, the collective reduction in total habitat for these species would be substantial; for some species, nearly their entire range (MGS) or a significant portion of their range (DT) occurs within the WEMO plan area, and is likely to be impacted.

Additionally continued urban expansion (e.g., commercial and residential development) in and around the City of Ridgecrest that is expected to occur (from projected population growth), including proposed military base expansion at the China Lake NAWS, and infrastructure enhancement projects such as the Inyokern Four-Lane highway expansion and the Wal-Mart superstore, would have similar adverse affects on some of these same biological resources (e.g.,

DT, WBO, and MGS). Not only would direct habitat conversion occur as a result of proposed projects, but further expansion of development (i.e., growth inducement) would potentially cause greater reductions in available habitat for special-status species, as well as reduced habitat connectivity, and increased habitat fragmentation. The various projects individually would be required to mitigate their own impacts as part of the project-specific environmental review process through measures such as providing suitable habitat at an agreed upon ratio for the affected species to compensate for the habitat loss. Cumulatively, even with mitigation that would have the effect of permanently protecting habitat for these species, the loss of habitat for special-status species, particularly DT and MGS, would be significant.

The WEMO provides Federal authorization for take (e.g., destruction of habitat for utility development and other approved activities) of up to 1 percent of the total land surface designated as an MGS habitat conservation area, or 12,801 acres, according to the BLM Ridgecrest office. The RSPP would result in removal of 844 acres of the MGS conservation area, or approximately 6.6 percent of the total authorized by the WEMO. While the degree of overlap between other solar and development projects and the MGS Conservation area is unknown, given proposals for nearly 260,000 acres of desert developments, it is a reasonable assumption that the acreage of impact for these other projects collectively is likely to be much greater than that of the proposed RSPP. Therefore, the proposed RSPP is not likely to contribute considerably to the cumulatively significant impact on DT and MGS. The mitigation described in Chapter 5 (see below) would compensate for impacts to the MGS Conservation Area and ensure consistency with other WEMO requirements.

CHAPTER 5
AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

This section describes avoidance, minimization, and mitigation measures, also referred to as biological resource protection measures, to be implemented as part of the RSPP. Implementation of these measures would reduce potential environmental impacts of the RSPP to a less-than-significant level. Biological resource protection measures described in the following subsections include general avoidance and minimization measures for implementation during project construction and operations, and additional resource-specific avoidance, minimization, and mitigation measures for RSPP impacts determined to be potentially significant.

5.1 GENERAL AVOIDANCE AND MINIMIZATION MEASURES DURING CONSTRUCTION

General Avoidance and Minimization Measures

The following is a list of general impact avoidance and minimization measures applicable to Project construction activities. These measures are standard practices designed to prevent environmental degradation, and the Project applicant shall be responsible for implementation of these measures to avoid and minimize impacts to the greatest extent feasible. A Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) will be developed for review by the CEC as a Condition of Certification. The BRMIMP comprehensively describes avoidance, minimization, and mitigation measures, and provides a matrix to document their implementation and monitor their effectiveness. Those measures include the following:

BIO-1 The Project proponent shall designate a USFWS-, CDFG-, and BLM-approved Designated Biologist(s). The Designated Biologist shall be responsible for monitoring and verifying compliance with biological resource protective measures. A Section 10(a)(1)(A) permit would be necessary for the monitoring or handling of Federal listed species. A Memorandum of Understanding would be necessary for the handling of state-listed species. The Designated Biologist shall maintain communications with the appropriate personnel (project manager, resident engineer) to ensure that issues relating to biological resources are appropriately and lawfully managed. The Designated Biologist shall submit reports that document compliance with these measures to USFWS upon request or, at a minimum, once per year in the end-of-the-year report. In addition, the Designated Biologist shall perform the following duties:

a. Oversee the proper installation of DT exclusion fencing around the perimeter of the disturbance area prior to conducting pre-construction clearance surveys.

b. Conduct pre-construction surveys for listed species within 30 days prior to commencement of construction activities in the disturbance area.

c. Be on site during all vegetation clearing and grubbing, and weekly during project construction in upland and riparian habitat that will be impacted.

d. Review and modify, if necessary, specific best management practice (BMP) plans prior to implementation. Erosion control measures (i.e., BMPs) shall be regularly checked by the Designated Biologist, Project inspectors, and/or resident engineer. Fencing and erosion control measures of all project areas shall be inspected a minimum of once per week.

e. A Storm Water Pollution Prevention Plan (SWPPP) and a Drainage, Erosion, and Sedimentation Control Plan (DESCP) shall be prepared to comply with Regional Water Quality Control Board (RWQCB) and CEC requirements; a preliminary DESCP (equivalent to a SWPPP but covering both construction and operation phases) is provided as Appendix L to the AFC. The DESCP and SWPPP identify the design features and Best Management Practices (BMPs) that will be used to effectively manage drainage-related issues (e.g., erosion and sedimentation) during construction. Erosion control measures shall be regularly checked by inspectors, the Designated Biologist, and/or resident engineer. Specific best management practice plans shall be reviewed by A Designated Biologist and modified, if necessary, prior to implementation. Fencing and erosion control measures of all Project areas shall be inspected a minimum of once per week.

f. Inform construction contractor(s)/crews about the biological constraints of the Project. All construction personnel who work in the BRSA shall participate in a training/awareness program presented by the Designated Biologist prior to working on the proposed Project (e.g., commencement of construction activity). Construction crews and contractor(s) shall be responsible for unauthorized impacts from construction activities to sensitive biological resources that are outside the areas defined as subject to impacts by the CEC and other agencies that issue approvals for the Project.

g. Ensure proper implementation of protective measures developed in coordination with USFWS and CDFG to avoid or minimize impacts to all encountered sensitive species and nesting birds.

h. Immediately notify the resident engineer to halt work, if necessary, and coordinate with USFWS and CDFG to ensure the proper implementation of biological resource protection measures. The Designated Biologist would report any breech of protection measures to appropriate agencies within 24 hours of occurrence.

BIO-2 Anticipated impact zones, including areas for staging, materials and equipment storage; equipment access; and the disposal, stockpiling, or temporary placement of spoils, shall be delineated with stakes and flagging prior to construction to avoid natural resources where possible. Spoils shall be stockpiled in disturbed areas presently lacking native vegetation. No construction-related activities shall occur outside of the designated impact area (i.e., disturbance area).

BIO-3 The Project proponent shall ensure that all construction materials, staging, storage, dispensing, fueling, and maintenance activities are located in upland areas outside of sensitive habitat, and that adequate measures are taken to prevent any potential runoff from entering waters of the State.

BIO-4 New and existing roads that are planned for either construction or widening shall not extend beyond the disturbance area. All vehicles passing or turning around shall do so within the disturbance area. Where new access is required outside of existing roads or previously disturbed areas within the disturbance area, the route shall be clearly marked (i.e., flagged and/or staked) prior to the onset of construction.

BIO-5 Underground pipeline construction shall involve nearly simultaneous trenching, laying of pipe, and backfilling so that no open trenches shall be left unattended during daylight hours. Any open trenches that cannot be backfilled shall be covered with steel plates at night. The Designated Biologist(s) shall be present during pipeline construction to verify that special-status resources are avoided or moved to a safe location when necessary.

BIO-6 The solar fields shall be graded generally following the existing contours of the site to minimize the amount of ground disturbance.

BIO-7 Spoils, trash, or any debris shall be removed to an approved disposal facility off site. A trash abatement program shall be established. Trash and food items shall be contained in closed containers and removed daily to reduce the attractiveness to

opportunistic predators such as common ravens, coyotes, and feral dogs that may prey on sensitive species.

BIO-8 Workers shall be prohibited from bringing pets and firearms to the site.

BIO-9 If construction activities occur at night, all project lighting (e.g., staging areas, equipment storage sites, roadway) shall be directed onto the roadway or construction site and away from sensitive habitat. Light glare shields shall be used, when necessary, to reduce the extent of illumination into adjoining areas.

BIO-10 BMPs shall be employed to prevent loss of habitat due to erosion caused by Project-related impacts (i.e., grading or clearing for new roads). The Designated Biologist shall periodically monitor the work area to ensure that construction-related activities do not generate erosion or excessive amounts of fugitive dust. All detected erosion shall be remedied within 2 days of discovery.

BIO-11 Fueling of equipment shall take place within existing paved roads and not within 300 feet of, or adjacent to, drainages or native desert habitats. Contractor equipment shall be checked for leaks prior to operation and repaired as necessary.

BIO-12 Wildfires shall be prevented by all means possible by exercising care when driving and by not parking vehicles where catalytic converters could ignite dry vegetation. In times of high fire hazard (e.g., high wind or drought conditions), trucks shall carry water and shovels or fire extinguishers in the field, and high-fire-risk installations (e.g., electric lines) shall be delayed. The use of shields, protective mats, or other fire-prevention equipment shall be used during grinding and welding to prevent or minimize the potential for fire. No smoking or disposal of cigarette butts shall take place within vegetated areas.

BIO-13 A Weed Management Plan shall be developed and implemented to minimize the introduction of exotic plant species. The introduction of exotic plant species would be minimized through prevention strategies and physical or chemical removal. Preventing exotic plants from entering the site via vehicular sources shall include measures such as implementing Trackclean or other similarly effective methods of vehicle cleaning for vehicles entering and leaving the site. Earth-moving equipment shall be cleaned prior to transport to the Project site. Preventing exotic weeds from entering the site via materials sources shall require that weed-free rice straw or other

certified weed-free straw be used for erosion control. Weed populations inadvertently introduced into the site during construction shall be eliminated promptly by chemical and/or mechanical means approved by agency representatives (CDFG, BLM, USFWS, and the CEC).

BIO-14 In addition to the avoidance and minimization measures outlined in this chapter, the Project proponent shall implement any measures required by the CEC, BLM, USFWS, and CDFG as a condition of Project certification. Such measures include those set forth in the USFWS Biological Opinion and the CDFG 2081 Incidental Take Permit (ITP).

5.2 RESOURCE-SPECIFIC AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

Resource-specific impact avoidance, minimization, and mitigation measures for RSPP impacts determined to be potentially significant are discussed below. Incorporation of these measures would reduce potentially significant impacts to a less-than-significant level.

5.2.1 Vegetation Communities

No mitigation is required for impacts to nonsensitive vegetation communities.

5.2.2 Sensitive Vegetation Communities

No sensitive vegetation communities, other than waters of the State, would be permanently or temporarily impacted by Project-related activities; therefore, no mitigation is required. See below for mitigation required to compensate for impacts to waters of the State.

5.2.3 Waters of the State

The following are recommendations for compensatory mitigation of impacts to 16.6 acres of jurisdictional waters of the State in the form of Mojave Desert wash scrub and unvegetated ephemeral dry wash:

BIO-15 Impacts to State waters shall require the following permit application: CDFG CFGC, Section 1602 agreement application for alteration of a streambed to ensure Project

compliance with State policy, i.e., California Wetlands Conservation Policy (EO W-59-93), which provides for "no overall net loss" of jurisdictional waters and achieving a "long-term net gain in the quantity, quality, and permanence of [jurisdictional waters] acreage and values in California.". In lieu of a separate 1602 permit, the CDFG will coordinate with the CEC to have any mitigation requirements incorporated into the CEC project certification requirements. Mitigation for unavoidable permanent impacts to jurisdictional waters within the disturbance area could be accomplished via one or a combination of alternative methods. The mitigation could occur in the form of approved mitigation bank credits, an approved In-Lieu fee program, conservation easement(s), and/or jurisdictional habitat creation-restoration, and/or enhancement. Project-specific mitigation ratios shall be developed in consultation with CDFG.

BIO-16 The development of a conceptual mitigation, maintenance, and monitoring plan shall be required in support of the above mitigation, when accomplished via jurisdictional habitat creation-restoration and/or enhancement (see BIO-15). This plan is a requirement of both State 1602 permit applications. This plan shall include details regarding site preparation (e.g., grading), planting specifications, and irrigation design, as well as maintenance and monitoring procedures. The plan shall outline yearly success criteria and remedial measures should the mitigation effort fall short of the success criteria. Any mitigation that cannot be achieved through onsite creation-restoration and enhancement shall be performed off site, typically per agency guidance within the same hydrologic unit (watershed) where impacts occur. This plan shall be developed in consultation with CEC and CDFG and would be subject to their approval.

5.2.4 Special-Status Plants

No mitigation is required for impacts to special-status plants. However, cottontop cactus was found in the disturbance area. At the request of BLM, the three individuals of cottontop cactus detected within the disturbance area shall be salvaged by an experienced contractor and replanted within any potential onsite mitigation area or other secure land that is preserved in perpetuity.

5.2.5 Special-Status Wildlife

BIO-17 The Project proponent shall implement compensatory mitigation measures to achieve consistency with the WEMO and to compensate for permanent impacts to habitat for special-status wildlife species (e.g., DT, MGS, and WBO). The Project proponent

shall, at minimum, pay an applicable fee(s) to BLM as compensation for permanent impacts to wildlife habitat, including DT and MGS habitat, resulting from the proposed Project. In accordance with the WEMO, this fee shall be based on a 1:1 mitigation ratio for the area of impact north of Brown Road (894 acres), and a 5:1 ratio for the impacted area within the MGS conservation area to the south of Brown Road (844 acres). The fees would be calculated based on the average value of 1 acre of the private lands to be acquired for compensation in accordance with current BLM requirements.

BIO-18 The Project proponent shall consult with BLM, CDFG, and USFWS to prioritize and acquire compensatory mitigation lands (see BIO-17) within the immediate vicinity of the Project that contribute to the preservation of wildlife habitat connectivity.

Desert Tortoise

BIO-19 Prior to the onset of construction, the entire disturbance area shall be enclosed with a permanent DT-proof perimeter fence to permanently restrict DT from entering the site. Any utility (i.e., pipeline or transmission) corridors and tower locations shall be temporarily fenced to prevent DT entry during construction. Permanent and temporary fencing shall follow guidelines outlined in Appendix I of the WEMO (BLM 2005), or as modified and approved by agency representatives. All fence construction shall be monitored by the Designated Biologist to verify that no DTs are harmed. Following installation, the perimeter fencing shall be inspected monthly and during all major rainfall events. Damage to the fencing shall be repaired immediately.

BIO-20 A clearance survey for any DTs that may be within the disturbance area shall be conducted as specified in Appendix I of the WEMO (BLM 2005), or as modified and approved by agency representatives. A minimum of two clearance passes shall be completed after DT-proof fencing is installed around the disturbance area. The clearance survey shall coincide with heightened DT activity, from late March through May and during October. Excavation of all potential DT burrows encountered shall occur as a part of clearance surveys. Any DT found shall be removed using techniques established in Guidelines for Handling Tortoises During Construction Projects (Desert Tortoise Council 1999). Any DTs removed from the Project site shall be relocated or otherwise used (e.g., museum specimens) as determined in consultation with USFWS, CDFG, and BLM. It is anticipated that DT will be found

during the clearance survey. The Designated Biologist (s) conducting the DT clearance survey shall report any listed species seen, at minimum, to the local USFWS jurisdiction so that potential take can be tracked. Once the disturbance area is deemed free of DTs after two consecutive clearance passes, then heavy equipment will be allowed to enter the sites to perform construction activities.

BIO-21 In addition to general compliance monitoring responsibilities (see BIO-1), the Designated Biologist shall oversee compliance with the protection measures for the DT and other species. The Designated Biologist shall:

- Be on site during fencing activities;
- Have the right to halt all activities that are in violation of the DT protection measures;
- Allow work to proceed only after hazards to the DT are removed and the species is no longer at risk, or the individual has been moved from harm's way;
- Monitor DT during construction activity to avoid direct impacts to individuals. DT may be moved during seasons when daily ambient temperatures exceed lethal levels, but only late in the day when ground temperatures fall below 107°F and air temperatures fall below 89.6°F. Relocated DTs shall be temporarily monitored to ensure that being moved does not impact their survival.
- Have a copy of all the compliance measures in their possession while work is being conducted on site;
- Be responsible for awareness trainings, surveys, and reporting related to the DT;
- Distribute an educational brochure, as necessary, to onsite personnel that outlines the steps to be taken if a DT is encountered on the construction site after all Designated Biologist(s) have left the site;
- Maintain records of all DTs and other listed species encountered during project activities, including any capture and release dates, if applicable; locations of all DT found; general conditions and health of individual DTs found, including whether animals voided their bladder, and any diagnostic

markings; and amount of habitat lost (e.g., cleared of vegetation) as a result of the construction activity; and

- Prepare a report to document the clearance survey and results. This report shall be submitted in a timely manner to agency representatives.

BIO-22 During construction activities, monthly and final compliance reports shall be provided by the Designated Biologist to CDFG and other applicable resource agencies to document the effectiveness and practicality of the protection measures that are in place and make recommendations for modifying the measures to enhance species protection, as needed. The report shall additionally provide information on the overall biological resources-related activities conducted, including the worker awareness training, clearance/preactivity surveys, monitoring activities, and any observed DTs including injuries and fatalities.

BIO-23 The Project proponent shall submit the names and statement of qualifications of all proposed Designated Biologists to USFWS, CDFG, BLM, and CEC (agency representatives) for review and approval at least 30 days prior to initiation of any DT handling, clearance, and preactivity surveys. Project activities shall not begin until the Designated Biologist(s) are approved by the aforementioned agencies. Only Designated Biologist(s) shall be allowed to handle and relocate DT, when necessary. Qualifications of Designated Biologist(s) shall meet the minimum standards set forth in the WEMO (BLM 2005). Workers shall notify the Designated Biologist of all DT observations.

BIO-24 Proposed channels that reroute the washes around the site shall be made as natural as feasible, with earthen bottoms that facilitate DT movement outside the site.

BIO-25 Personnel shall use established roadways (paved or unpaved) in traveling to and from the site and existing tracks on site whenever possible. Cross-country vehicle and equipment use outside designated work areas shall be prohibited. To minimize the likelihood for vehicle strikes of DTs, a speed limit of 15 miles per hour shall be established for travel within DT habitat along off-highway access roads to the site.

BIO-26 As much as is feasible, parking and storage shall occur within the DT exclusion fencing, following the completion of the preconstruction surveys and site grubbing and grading. Anytime a vehicle or construction equipment is parked in unfenced DT habitat, the ground under the vehicle shall be inspected for the presence of DT before

the vehicle is moved. If a DT is observed, it shall be left to move on its own. If it does not move within 15 minutes, the Designated Biologist shall remove and relocate the DT to a safe location according to the techniques established in Guidelines for Handling Tortoises during Construction Projects (Desert Tortoise Council 1999).

BIO-27 All vehicles and equipment shall be in proper working condition to ensure that there is no potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The Designated Biologist shall be informed of any hazardous spills immediately. Hazardous spills shall be immediately cleaned up and the contaminated soil shall be properly disposed of at a licensed facility.

BIO-28 Intentional killing or collection of DT in the survey area and surrounding areas is prohibited. The Designated Biologist shall be notified of any such occurrences immediately and USFWS and CDFG shall be notified of any such occurrences within 24 hours.

BIO-29 For emergency response situations, the Designated Biologist shall notify USFWS and CDFG within 24 hours. As a part of this response, USFWS and CDFG may require additional measures to protect DT. During any responses related to human health, fire, hazardous waste, or repairs requiring off-road vehicle and equipment use, USFWS and CDFG may also require measures to recover damaged habitat; these additional measures shall be implemented.

BIO-30 Water shall be applied to the construction ROW, dirt roads, trenches, spoil piles, and other areas where ground disturbance has taken place to minimize dust emissions. During the DT active season, a Designated Biologist shall patrol these areas to ensure water does not puddle for long periods of time and attract DTs, common ravens, or other wildlife to the site that may prey on sensitive species.

BIO-31 Standing water shall be minimized on site to the extent feasible to minimize the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs that may prey on sensitive species.

BIO-32 Upon locating a dead or injured DT, the Designated Biologist shall make initial notification to USFWS and CDFG within 24 hours of its finding. The notification shall be made by telephone and writing to the USFWS Field Office with jurisdiction over the project. Additionally, the Designated Biologist shall take prompt appropriate

action as outlined in Salvaging Injured, Recently Dead, Ill, and Dying Wild, Free-Roaming Desert Tortoises (*Gopherus agassizii*) (Berry 2003). If an injured DT recovers, the offices of the agency representatives shall be contacted for final disposition of the DT.

Mohave Ground Squirrel

Impacts to MGS would be reduced to less than significant by implementation of BIO-17 and BIO-18. No additional mitigation is required (see also BIO-44 below).

Western Burrowing Owl

BIO-33 A preconstruction survey of the disturbance area shall be conducted no more than 30 days prior to construction to locate active WBO burrows and to estimate the current number of WBO individuals on site. The survey shall follow CBOC (1993) guidelines, consisting of walking parallel transects and noting any fresh WBO sign or presence of WBOs (may be combined with DT preconstruction surveys). Pre-construction surveys shall be conducted throughout the Project disturbance area and within 492 foot-buffer surrounding the disturbance area. The results of the preconstruction survey shall be provided to CDFG.

BIO-34 It is recommended that preconstruction surveys begin during the nonbreeding season (September 1 through January 31) regardless of the construction start date to identify WBOs that may breed on site, and to initiate passive relocation, if necessary, prior to the breeding season. If WBO activity is detected at a burrow during the nonbreeding season (September 1 through January 31), a 160-foot buffer shall be flagged surrounding the occupied burrow and all Project-related activity shall remain outside of the flagged area while the birds are passively relocated. WBOs shall be excluded from active burrows during the nonbreeding season (September 1 through January 31) and encouraged to passively relocate to suitable, unoccupied habitat at least 160 feet outside of the exclusion area. WBO shall be excluded from burrows according to procedures outlined in CBOC (1993) guidelines, by installing one-way doors in burrow entrances. One-way doors shall be left in place 48 hours to ensure owls have left the burrow before excavation. One alternate natural or artificial burrow shall be provided for each burrow to be excavated in the disturbance area. The excluded burrows shall be monitored daily for 1 week to confirm owl use of alternate burrows before excavating burrows. After burrows are confirmed to no longer be in use (1

week), the burrow shall be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe or burlap bag shall be inserted into the tunnels during excavation to maintain an escape route for any WBOs inside the burrow. Preconstruction surveys shall be conducted no more than 30 days prior to construction.

BIO-35 If, during preconstruction surveys, WBO activity is detected at a burrow during the breeding season (February 1 through August 31), a Designated Biologist approved by CDFG shall verify through noninvasive methods the breeding status of the birds. If the birds have not begun egg-laying and incubation or juveniles from the occupied burrow are foraging independently and are capable of independent survival, then WBO can be excluded from the burrows as described above. However, if it is determined that the burrow is occupied (e.g., eggs or juveniles still dependent on their parents are present) then, per CBOC (1993) guidelines, a 250-foot buffer shall be flagged surrounding the occupied burrow and all Project-related activity shall remain outside of the flagged area until a Designated Biologist determines the burrow is no longer occupied (e.g., juveniles are foraging independently).

BIO-36 A Designated Biologist shall be on site during all construction activities in potential WBO habitat.

BIO-37 The WBO shall be covered as part of the training/awareness program presented by the Designated Biologist (see BIO-1), as required by CEC.

BIO-38 During construction activities, monthly and final compliance reports shall be provided to CDFG and other applicable resource agencies documenting the effectiveness of mitigation measures and the level of take associated with the Project. Biological issues shall also be covered in the ongoing compliance reporting required by the CEC.

BIO-39 The CBOC mitigation guidelines adopted and used by CDFG recommend that mitigation for impacts to WBOs should be based on the number of pairs directly impacted. Mitigation ratios are based on whether suitable acquired habitat is occupied by the species or is contiguous to the impact area. Destruction of occupied and/or active burrows shall be mitigated at a 2:1 replacement ratio of enhanced natural, unoccupied burrows or artificial burrows, per guidelines from the CBOC (1993) and CDFG Memorandum (1995). The CBOC and CDFG mitigation

guidelines recommend a ratio of 9.75 to 19.5 acres per pair of WBOs (or single individual) impacted, depending on the replacement habitat type and/or Project-specific negotiations with CDFG. CBOC's mitigation guidelines recommend offsite mitigation should use one of the following ratios:

a. Replacement of occupied habitat with occupied habitat: 9.75 acres per pair or single bird;

b. Replacement of occupied habitat with unoccupied habitat contiguous to currently occupied habitat: 13 acres per pair or single bird; or

c. Replacement of occupied habitat with suitable unoccupied habitat: 19.5 acres per pair or single bird.

Mitigation to compensate for impacts to occupied WBO habitat, as referenced in BIO-39, would be provided by implementation of BIO-17 and BIO-18. No additional mitigation is required. BIO-17 and BIO-18 would be sufficient to meet CBOC guidelines (CBOC 1993) for mitigation of impacts to WBO (BIO-39).

Other Special-Status Wildlife Species

BIO-40 In accordance with the MBTA and CFGC Sections 3503, 3503.5, and 3513, if vegetation removal is scheduled to take place during the migratory bird breeding season (roughly February through June for most species in the desert), a Designated Biologist shall be retained 30 days prior to vegetation removal to monitor on a weekly basis the protected native birds on the site, and within a 300-foot buffer of the disturbance area, for nesting activity. The last survey shall be conducted no more than 3 days prior to initiation of vegetation clearance. If a nest with eggs or young is found or suspected, every effort shall be made to avoid the area around the nest until the young have fledged, the nest has failed, or CDFG, USFWS, and the CEC agree that construction can proceed with the incorporation of resource agency agreed-to monitoring measures.

BIO-41 If nesting birds, including but not limited to special-status species and those species protected by the MBTA, are detected on the site or within a 300-foot buffer of the disturbance area, the nest shall be flagged and no construction activity shall take place near the nest until nesting is complete (nestlings have fledged or nest has failed).

BIO-42 Desert kit fox dens present in the disturbance area shall have a one-way trap door installed to passively exclude the kit foxes from the den. After 48 hours post installation, the den shall be excavated and collapsed, following the same protocol to be used for WBO burrows (see BIO-34 and BIO-35). These dens shall be collapsed prior to construction of the DT fence, to allow foxes the opportunity to move off site without impediment. Alternatively, a Designated Biologist shall trap and remove foxes from occupied dens and move them off site into appropriate habitat.

BIO-43 Construction of electric utility lines shall be raptor-safe. Approved raptor-safe designs should follow those outlined in Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996 (Avian Power Line Interaction Committee 1996), or other updated guidelines as approved by CDFG and BLM.

5.2.6 Wildlife Movement

The following measure shall be implemented to reduce potential direct and indirect impacts to wildlife movement.

BIO-44 Prioritize and acquire land (see BIO-18) within the immediate vicinity of the Project that contributes to the preservation of adequate wildlife habitat connectivity.

5.3 GENERAL AVOIDANCE AND MINIMIZATION MEASURES DURING OPERATION

BIO-45 All vehicles passing or turning around shall do so within the planned impact area (i.e., disturbance area).

BIO-46 The Project proponent shall support a monitoring program to document potential nesting ravens. The details of the funding mechanism and monitoring shall be coordinated with USFWS prior to initiation of the Project. The raven monitoring, management, and control plan shall include the following components:

a. How the monitoring and control plan will be coordinated with CDFG and USFWS;

b. Area covered by the plan;

c. Potential use of perch-deterrent devices and locations of their installation;

d. Measures that might reduce raven presence and nesting activities (e.g., removing food items, garbage, and access to water);

e. A monitoring plan, including discussion of survey methods and frequency for establishing baseline data on pre-Project raven numbers and activities, assessing post-Project changes from this baseline, and the funding mechanism for the monitoring plan;

f. Remedial actions that would be employed (e.g., nest removal) if raven predation of DT is detected;

g. The circumstances that would trigger the implementation of remedial actions; and

h. Payment of an in-lieu fee to a third-party account established by USFWS to support a regional raven monitoring and management plan.

BIO-47 Fueling of equipment shall take place within existing paved roads and not within 300 feet of, or adjacent to, drainages or native desert habitats. Maintenance equipment shall be checked for leaks prior to operation and repaired as necessary.

BIO-48 The Project shall employ a comprehensive system of management controls, including site-specific BMPs, to minimize erosion and stormwater contact with contaminants and thereby reduce exposure of wildlife and plants to pollutants in the stormwater. These management controls shall include erosion and sediment control BMPs; an employee training program; good housekeeping and preventive maintenance programs; structural BMPs, including temporary containment during maintenance activities and permanent secondary containment structures at chemical storage and process areas; materials, equipment, and vehicle management practices; spill prevention and response programs; and inspection programs.

BIO-49 The Project's lighting system shall provide the minimum illumination required to meet safety and security objectives and shall be oriented to minimize additional illumination in areas not pertinent to the facility. If lighting is adjacent to sensitive habitat, it shall be directed or shielded away from the habitat. No permanent lights shall be installed within sensitive habitat. All facility lighting shall be directed onto the roadway or Project site and away from sensitive habitat. Light glare shields shall be used, if necessary, to reduce the extent of illumination into adjoining areas.

BIO-50 During Project operation, the disturbance area including pipeline and transmission corridors shall be maintained free from nonnative invasive plant species. This can be accomplished through physical or chemical removal and prevention. If necessary, application of an approved herbicide (not toxic to wildlife) shall be performed or directly supervised by a state licensed applicator following the label instructions, including application rates and protective equipment.

BIO-51 Decommissioning of the facility shall include the removal of all improvements and restoration of the disturbance area to the preexisting ("as-found") condition. All surface improvements shall be removed, and all ground level penetrations and subsurface storage tanks (if any) shall be removed and filled/capped to prevent the access and entrapment of wildlife. The channel realignments shall be filled and the ephemeral desert washes shall be restored to preexisting hydrology, as deemed appropriate by CDFG, USFWS, and BLM. Funding for such restoration, whether it is needed at the anticipated facility closure date or is needed earlier due to untimely closure (i.e., bankruptcy), shall be provided by the Applicant once a comprehensive decommissioning plan is established.

CHAPTER 6
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ATTACHMENT A

FIGURES

Map Location

1 inch = 40 miles

0 40 80 Miles

Source: ESRI; AECOM 2009;

Ridgecrest Solar Power Project
Biological Technical Report

Figure 1
Regional Map

Solar Millennium

AECOM

Date: September 2009

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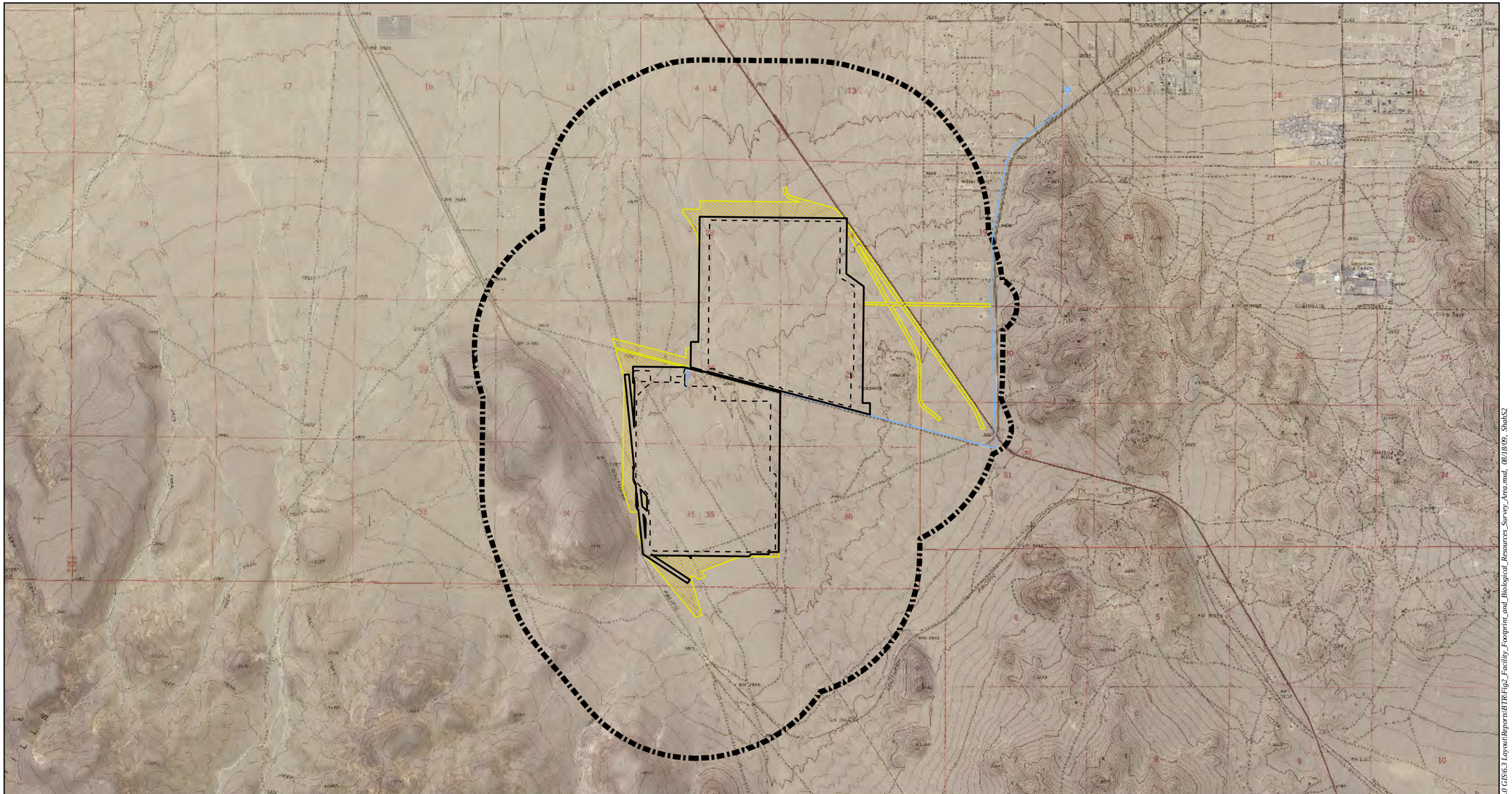

Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)
- Disturbance Area (Surveyed - No Longer Proposed)

Source: NAIP 2005; AECOM 2009; EDAW 2009

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Biological Technical Report

Figure 2
Facility Footprint, Disturbance Area, and Biological Resources Survey Area

Solar Millennium

AECOM

Date: September 2009

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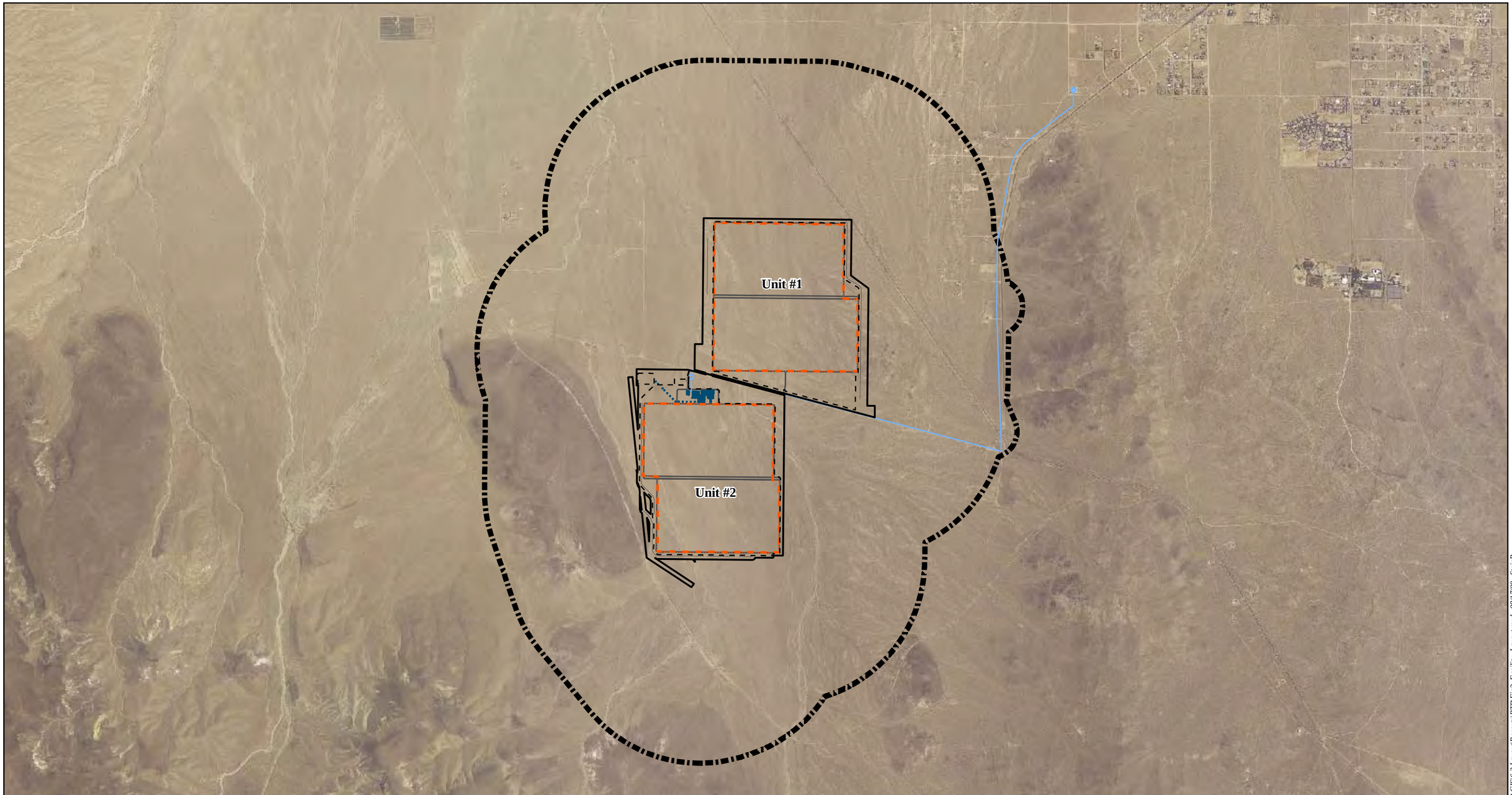

Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)
- Solar Unit
- Facilities Layout
- Power Block

Source: NAIP 2005; AECOM 2009; EDAW 2009

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Biological Technical Report

Figure 3
Facility Design

Solar Millennium

AECOM

Date: September 2009

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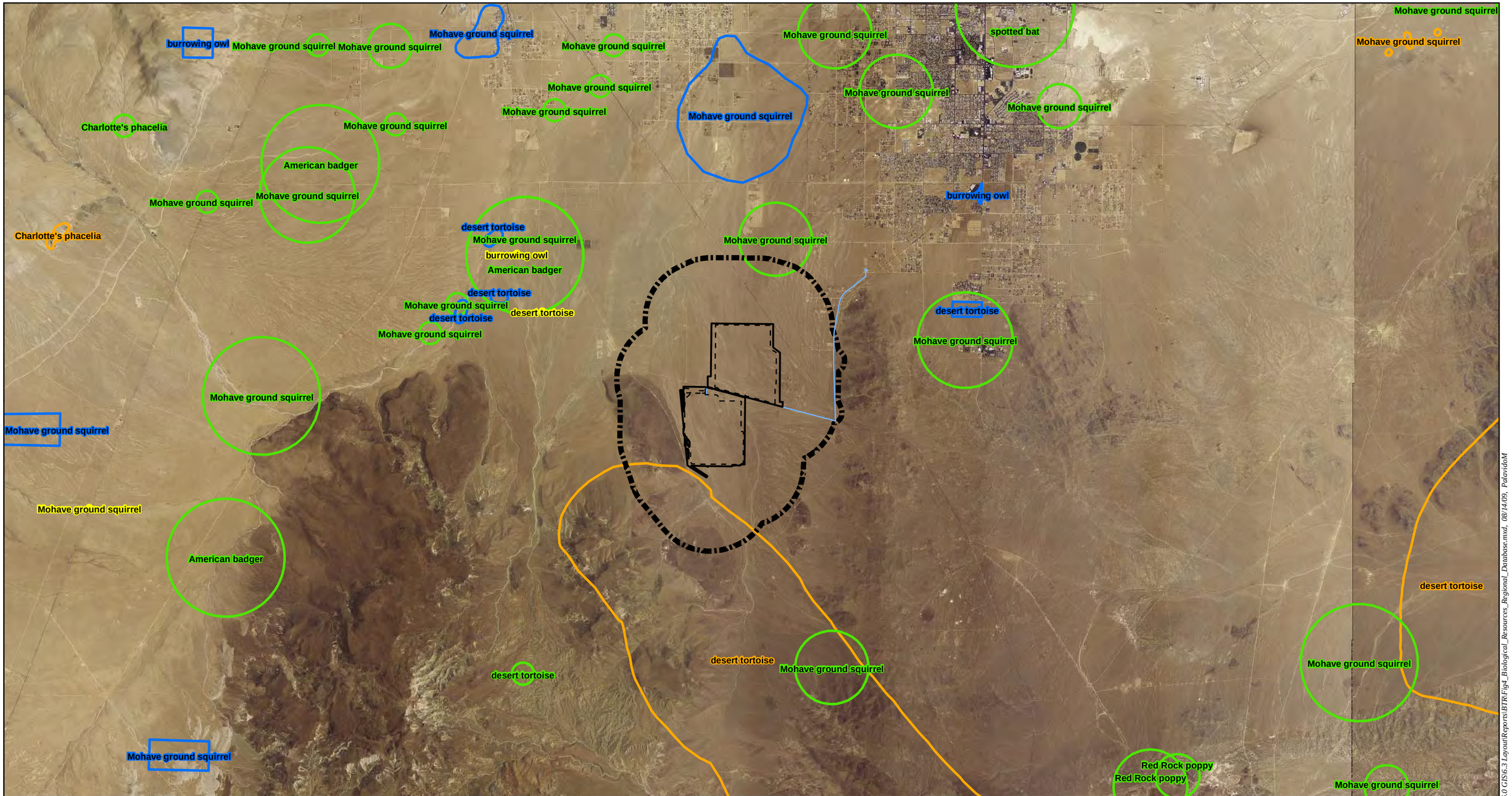

Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)

Source: NAIP 2005; CNDDB 2009; AECOM 2009; EDAW 2009

CNDDB Species Inventory (May 2009)

Accuracy

- Specific Area Record
- Specific Area Record, 1/20-mile Accuracy
- Point Location Record, Variable Accuracy Shown as Radius Buffer
- Non-specific Area Record

N W E S

1 inch = 8,333 feet

0 8,333 16,666 Feet

Ridgecrest Solar Power Project
Biological Technical Report

Figure 4
Biological Resources
Regional Database

Solar Millennium

AECOM

Date: September 2009

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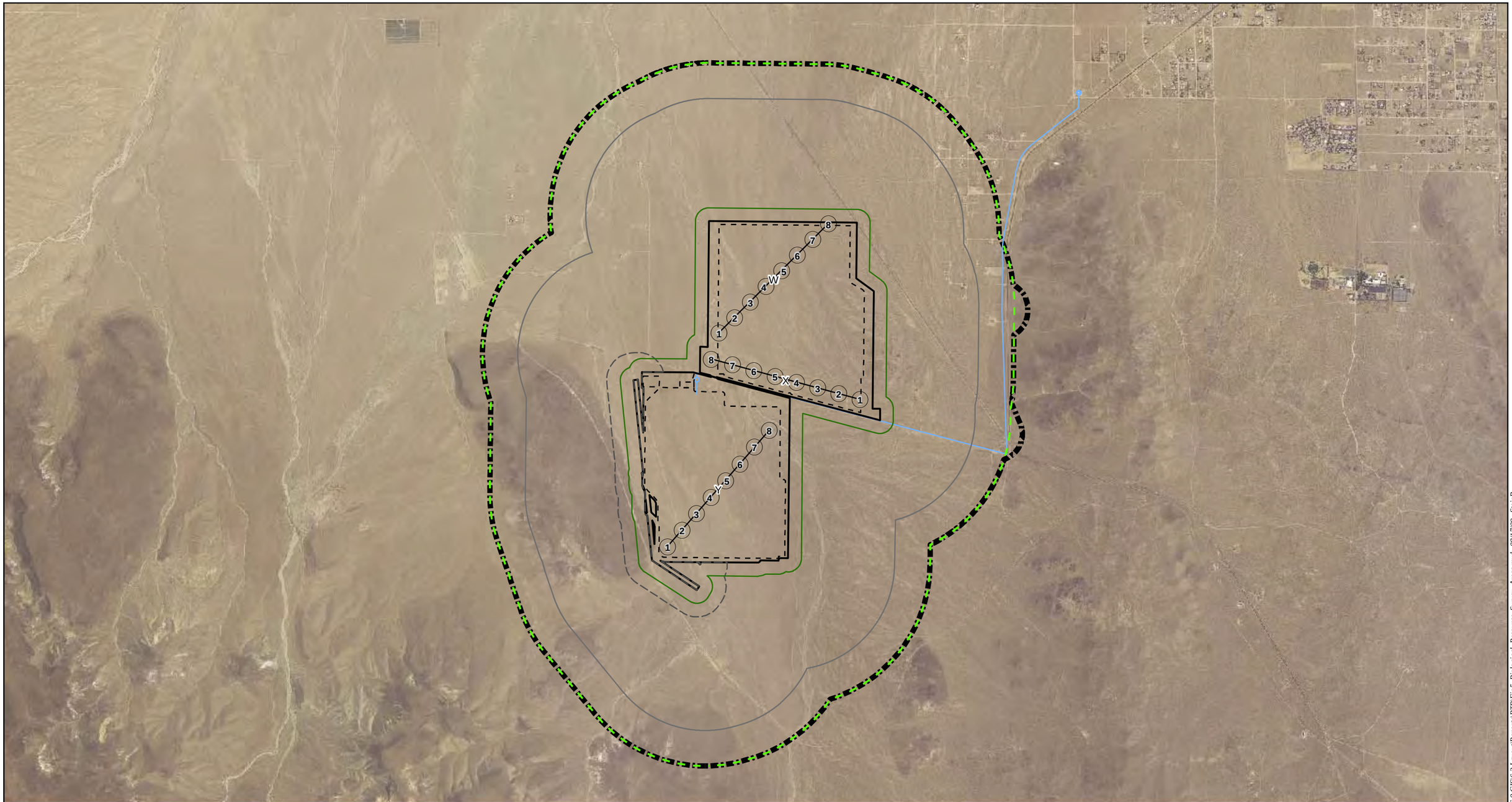

Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)

Desert Tortoise and CEC Buffer Transects

- 1-mile Transect [1]
- 0.75-mile Transect [1]
- 1,000-foot Transect (Unsurveyed)

Burrowing Owl Survey Buffer

- CBOC 492-foot

Avian Point Counts

- Transect Identifier
- Point Count Location Identifier and Buffer (Radius 328 feet)

[1] Note:
The 1-mile and ¾-mile CEC Buffer Transects on the southern side are greater than these distances from the disturbance area due to changes in project design.

Source: NAIP 2005; CNDDB 2009; AECOM 2009; EDAW 2009

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Biological Technical Report

Figure 5
Biological Resources Survey Areas

Solar Millennium

AECOM

Date: September 2009

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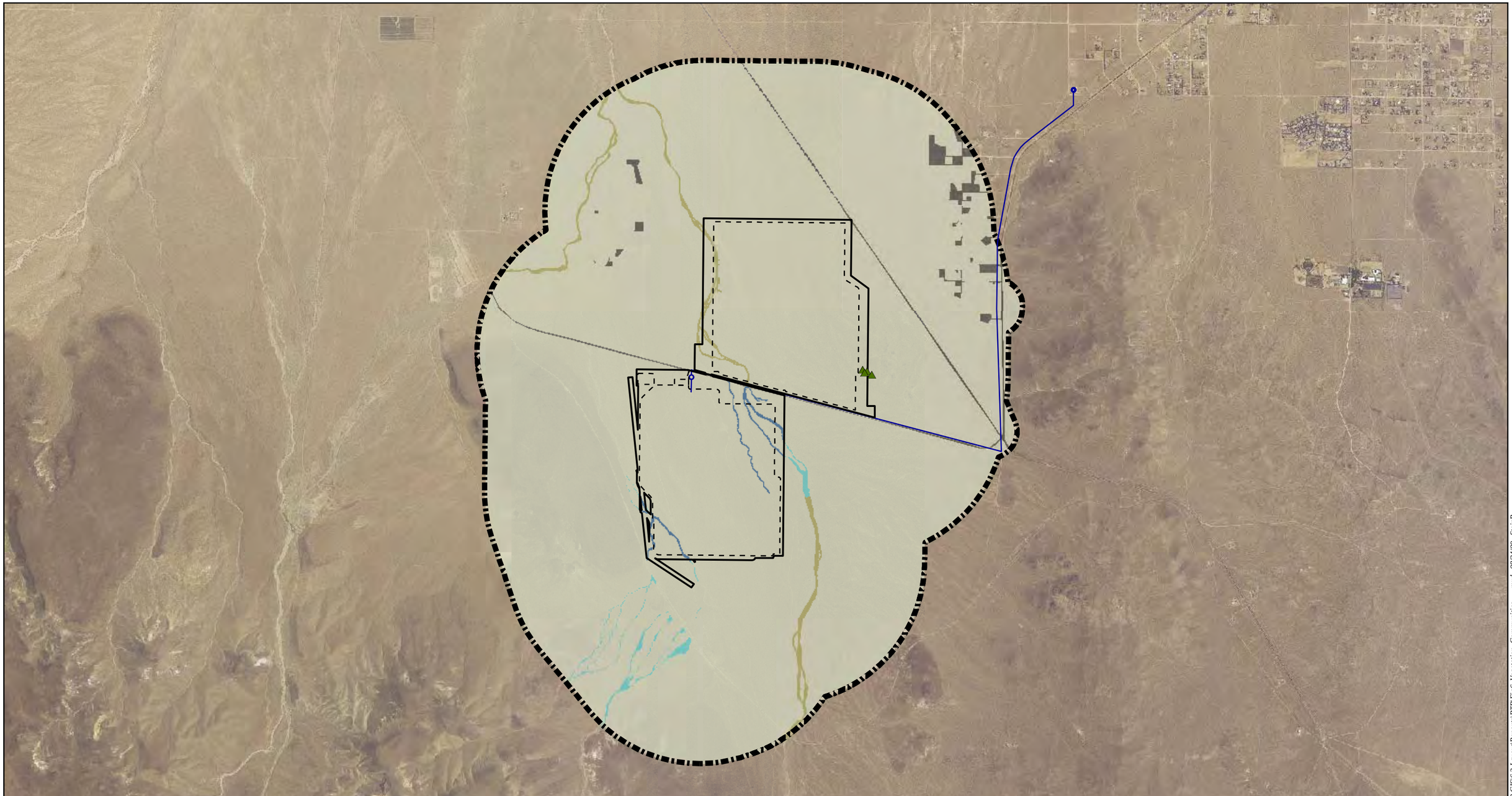

Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)

BLM Targeted Cactus Observations

- Cottontop Cactus

Source: NAIP 2005; CNDDB 2009; AECOM 2009; EDAW 2009

Vegetation Communities

Riparian

- Mojave Desert Wash Scrub
- Unvegetated Ephemeral Dry Wash
- Unvegetated Ephemeral Dry Wash (Presumed)[1]

Upland

- Mojave Creosote Bush Scrub

Other

- Developed

[1] NOTE:
Due to minimum mapping unit within buffer (1.0 mile), these areas are presumed to be unvegetated

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Biological Technical Report

Figure 6
Vegetation Communities and BLM Targeted Cactus Observations

Solar Millennium

AECOM

Date: September 2009

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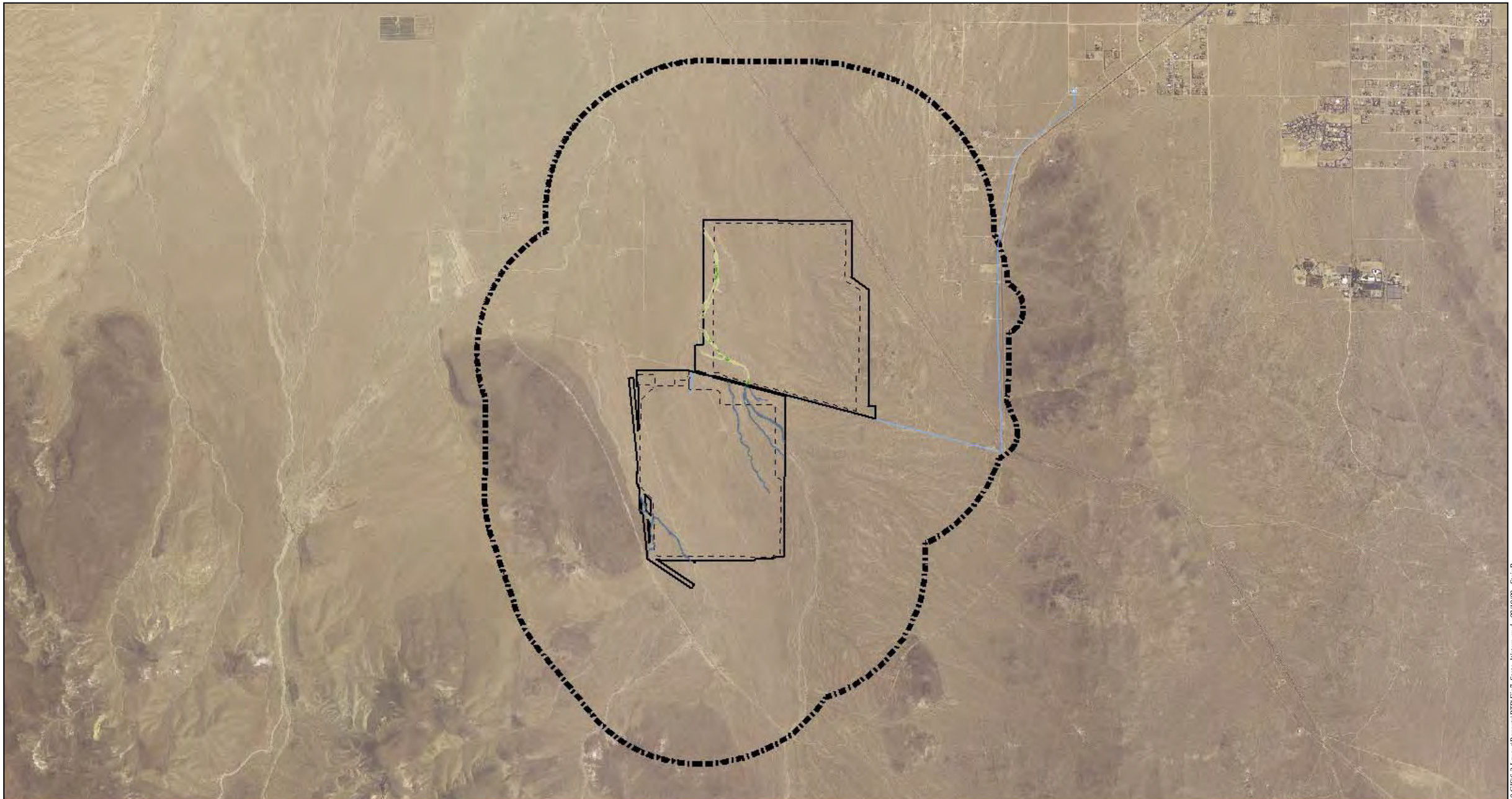

Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)

Jurisdictional Waters of the State[1]

- Wash Dependent Vegetation (Subsampled Areas)
- Vegetated Ephemeral Dry Wash
- Unvegetated Ephemeral Dry Wash

Source: NAIP 2005; AECOM 2009; EDAW 2009

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Biological Technical Report

Figure 7
State Jurisdictional Waters

Solar Millennium

AECOM

Date: September 2009

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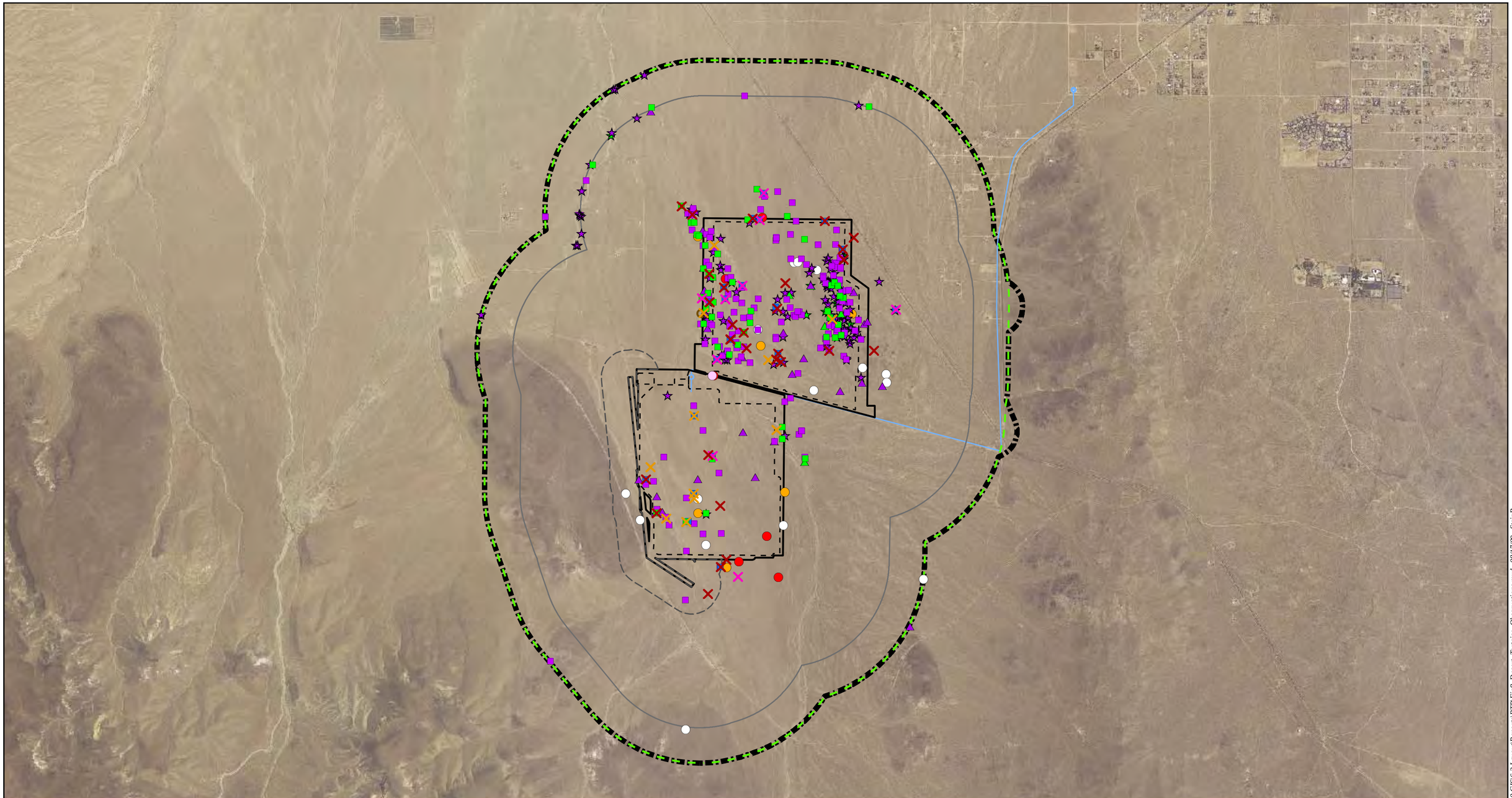

Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)

Desert Tortoise and CEC Buffer Transects

- 1-mile Transect [1]
- 0.75-mile Transect [1]
- 1,000-foot Transect (Unsurveyed)

Desert Tortoise Observations

- Adult Tortoise
- Juvenile Tortoise
- Tortoise (Unknown Age)
- Tortoise Burrow - Active
- Tortoise Burrow - Occupied
- Tortoise Burrow
- Tortoise Pallet
- Tortoise Pallet - Active
- Tortoise Scat
- Tortoise Scat - Fresh
- Tortoise Tracks
- Tortoise Bone Fragments
- Tortoise Carcass - Adult
- Tortoise Carcass - Juvenile
- Juvenile Tortoise – Vehicle Collision

Source: NAIP 2005; CNDDB 2009; AECOM 2009; EDAW 2009

[1] Note:
The 1-mile and ¾-mile CEC Buffer Transects on the southern side are greater than these distances from the disturbance area due to changes in project design.

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Biological Technical Report

Figure 8
Desert Tortoise Observations

Solar Millennium

AECOM

Date: September 2009

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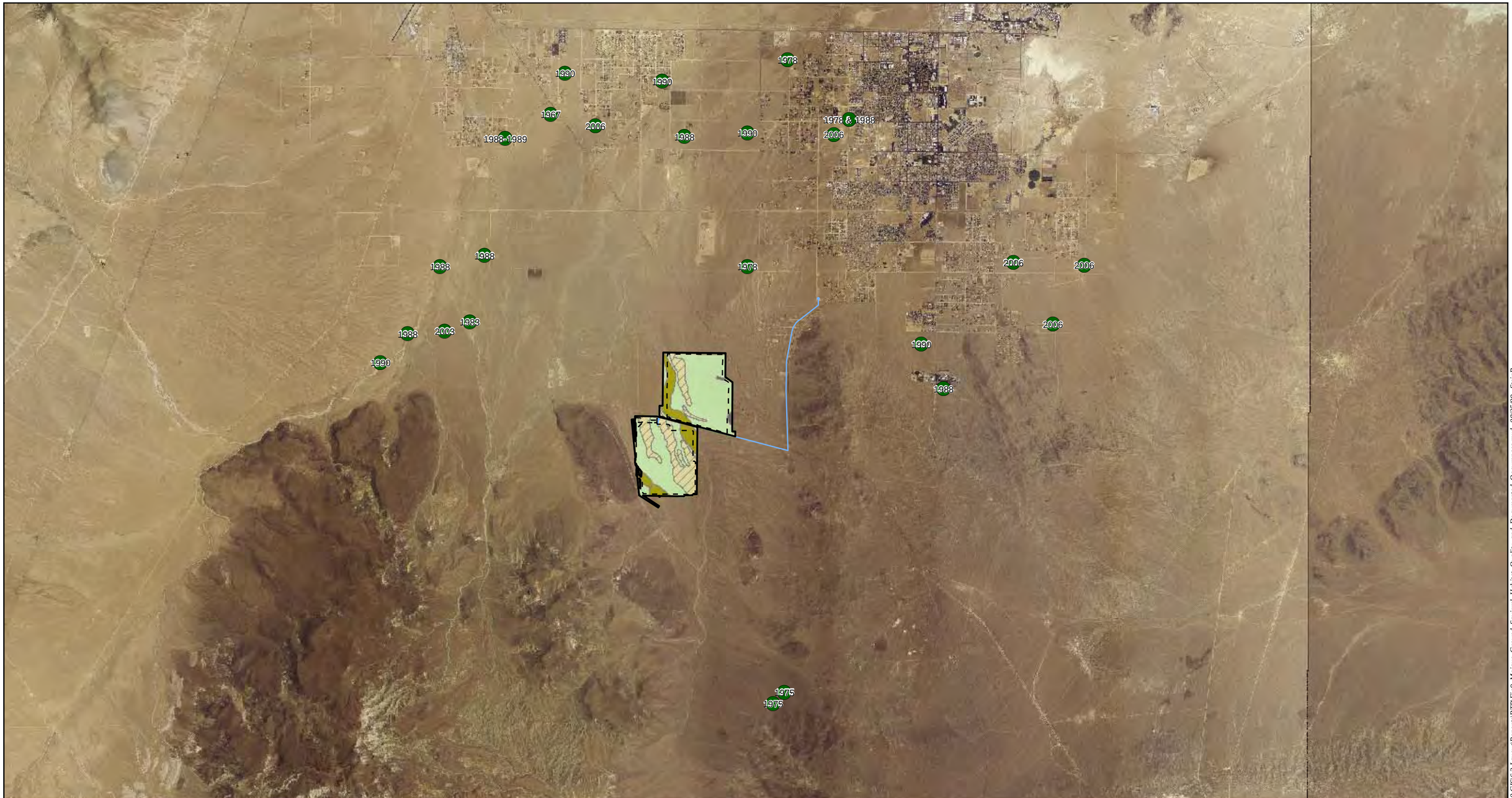


Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route

CNDDB Occurence (May 2009)

- Mojave Ground Squirrel

Mojave Ground Squirrel Habitat Quality

- High - Desert Washes and Adjacent High Diversity Creosote Bush
- Medium - Low Diversity Creosote Bush
- Low - Monotypic Creosote Bush
- Unsuitable - Rocky Terrain

Source: NAIP 2005; CNDDB 2009; AECOM 2009; EDAW 2009

N W E S

1 inch = 8,333 feet

0 8,333 16,666 Feet

Ridgecrest Solar Power Project
Biological Technical Report

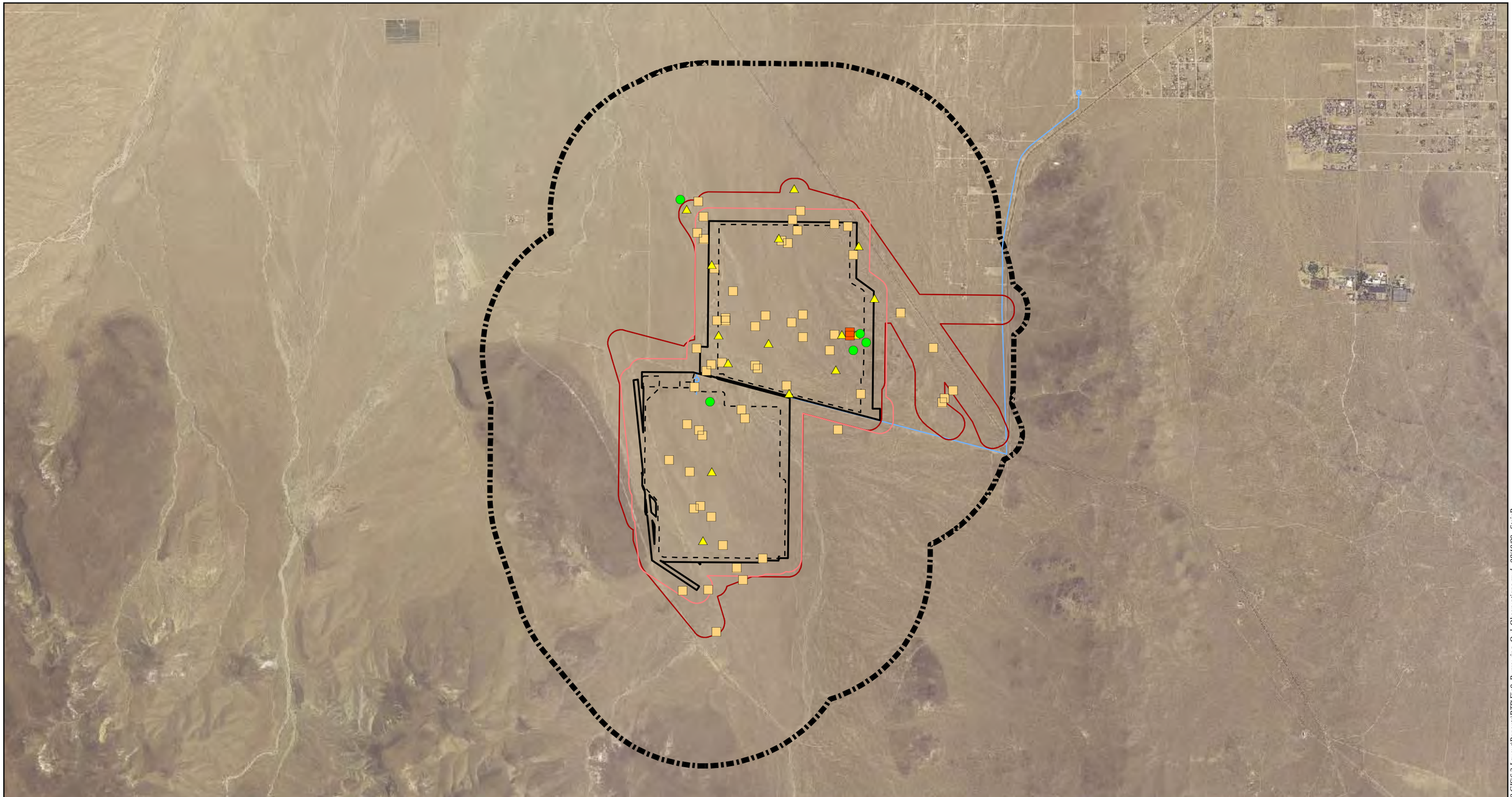
Figure 9
Mojave Ground Squirrel Habitat Quality and Documented Occurences

Solar Millennium

AECOM

Date: September 2009

Path: P:\2009\09B0080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Reports\BTR\Fig9_Mojave_Ground_Squirrel_Habitat_Quality_and_Documented_Occurences.mxd, 09/25/09, SteinB



Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)

Burrowing Owl Survey Buffer

- Previous CBOC 492-foot
- CBOC 492-foot

Burrowing Owl Observations

- Active Burrow (Main)
- Active Burrow (Satellite)
- Burrow with Abundant Sign
- Burrow with Sign

Source: NAIP 2005; AECOM 2009; EDAW 2009

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Biological Technical Report

Figure 10
Burrowing Owl Observations

Solar Millennium

AECOM

Date: September 2009

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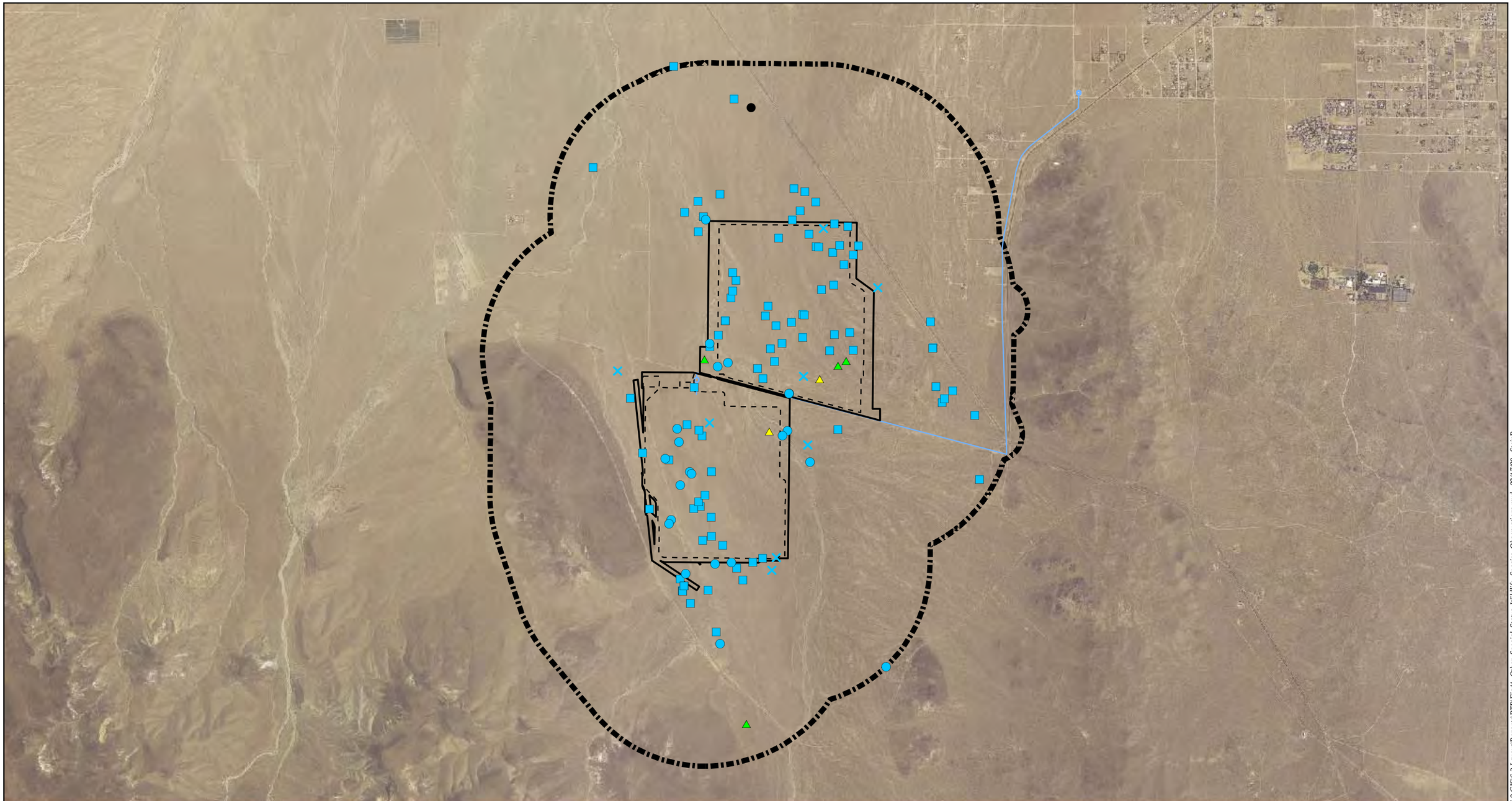

Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)

Resident Special-Status Wildlife Species Observations

- Burrow with Badger Claw Marks
- Active Kit Fox Burrow Complex
- Kit Fox Burrow
- Kit Fox Burrow Complex
- Loggerhead Shrike
- Le Conte's Thrasher

Source: NAIP 2005; AECOM 2009; EDAW 2009

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Biological Technical Report

Figure 11
Other Resident Special Status Wildlife Species Observations

Solar Millennium

AECOM

Date: September 2009

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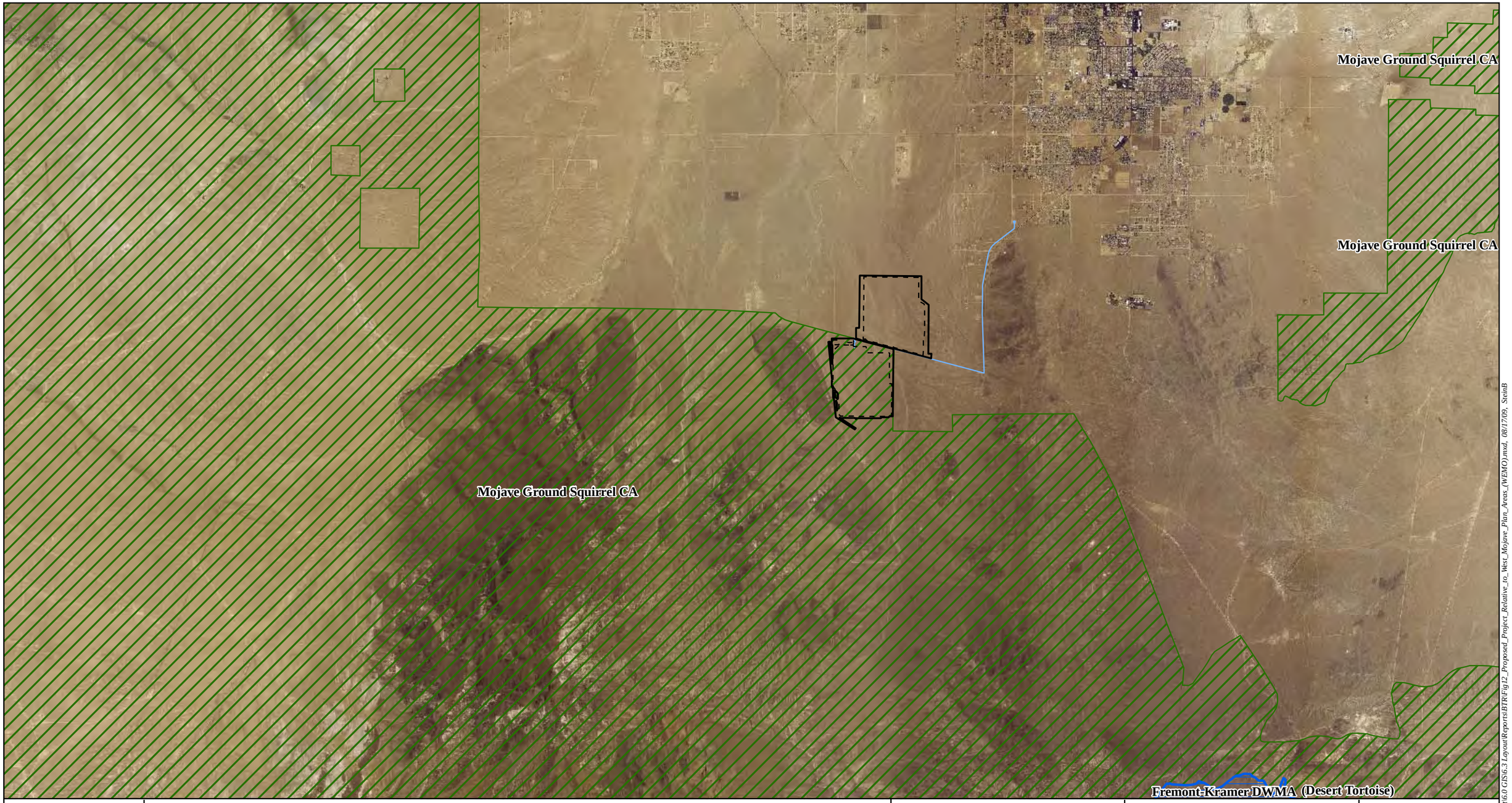

Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route

West Mojave Plan Areas

- Conservation Areas (CA)
- Desert Wildlife Management Areas (DWMAs)

Source: NAIP 2005; BLM; AECOM 2009

N W E S

1 inch = 8,333 feet

0 8,333 16,666 Feet

Ridgecrest Solar Power Project
Biological Technical Report

Figure 12
Proposed Project Relative to the West Mojave Plan Areas (WEMO)

Solar Millennium

AECOM

Date: September 2009

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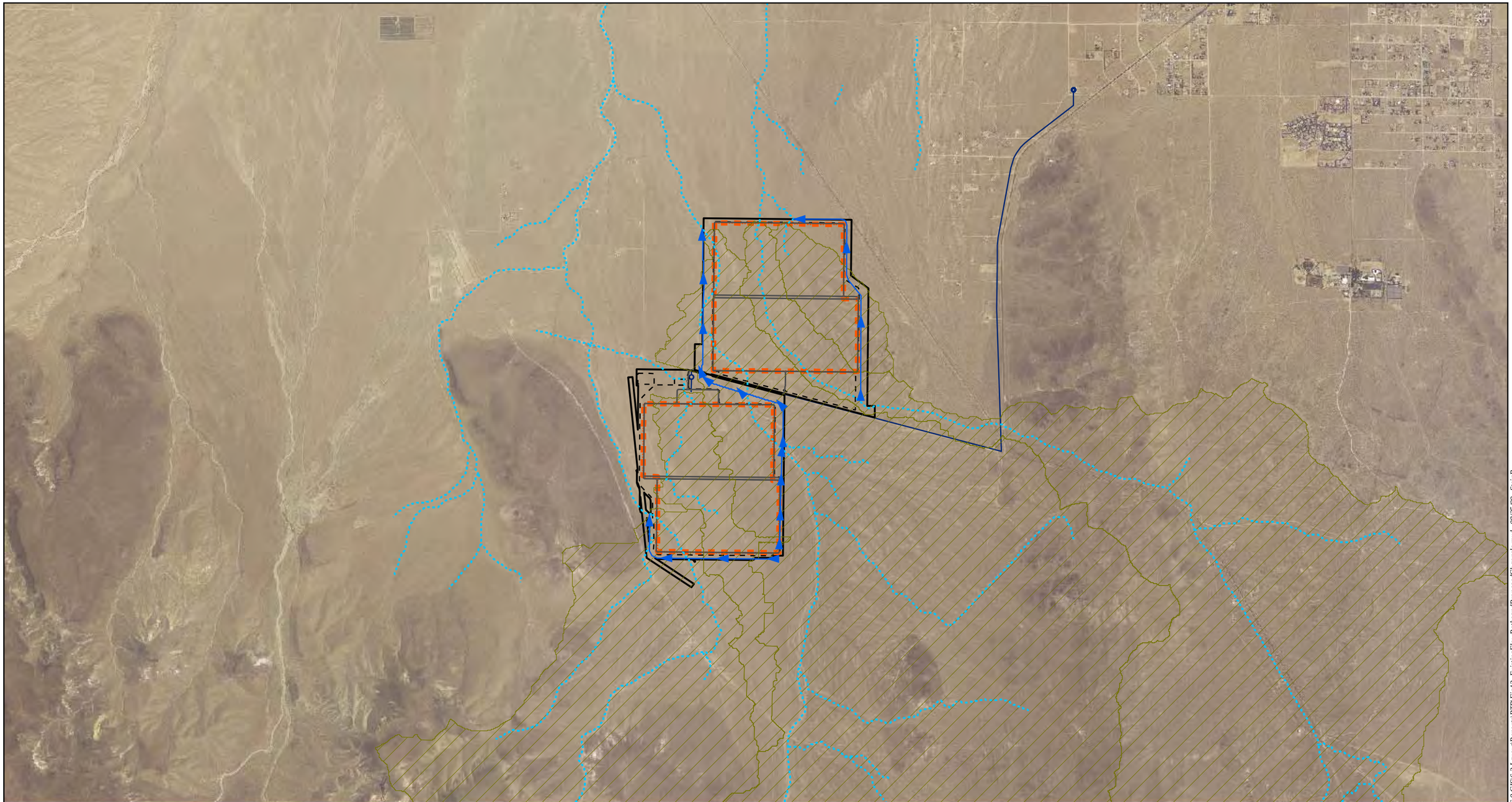

Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route

Facilities Layout

- Roads
- Solar Unit
- Rerouted Drainages

Existing Hydrology

- FlowLine
- Drainage Area

1

Source: NAIP 2005; AECOM 2009; EDAW 2009

N
W E
S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Biological Technical Report

Figure 13
Existing Flow Paths and Proposed Channels

Solar Millennium

AECOM

Date: September 2009

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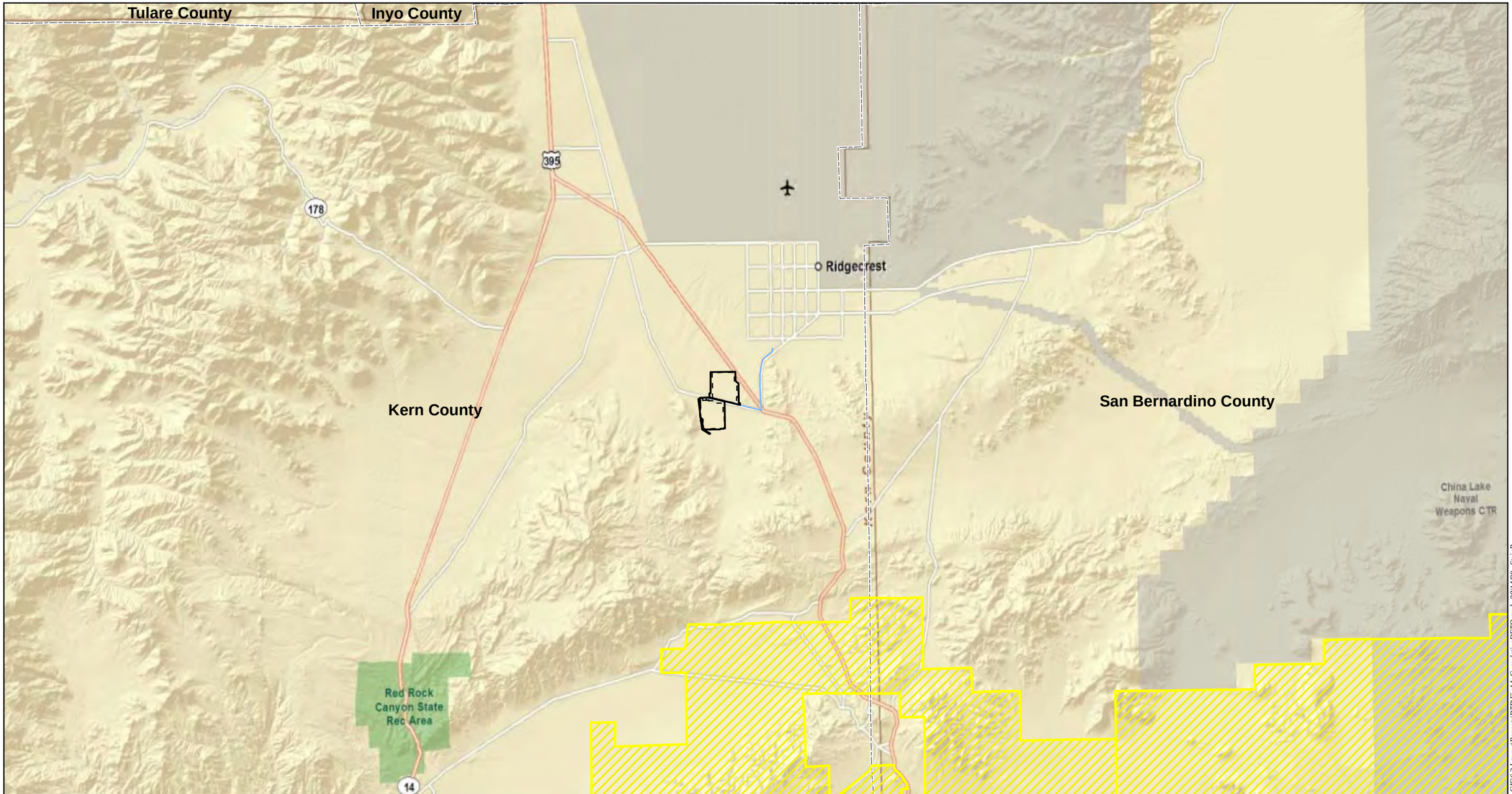

Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Desert Tortoise Critical Habitat (USFWS)

Source: ESRI 2009; USFWS 2009; AECOM 2009

N W E S

1 inch = 20,833 feet

0 20,833 41,666 Feet

Ridgecrest Solar Power Project
Biological Technical Report

Figure 14
Location of Cumulative Projects Relative to DETO Critical Habitat

Solar Millennium

AECOM

Date: September 2009

Path: P:\2009\09\80080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Reports\BTR\Fig14_CumulativeDETO.mxd, 09/14/09, SteinB

ATTACHMENT B

LIST OF FIELD BIOLOGISTS AND QUALIFICATIONS

ATTACHMENT B
LIST OF FIELD BIOLOGISTS AND QUALIFICATIONS

Name	Affiliation	Surveys Performed	Qualifications	Site		
				Palen	Blythe	Ridge.
Joshua Zinn	AECOM	Aquatic Resources/Jurisdictional Waters	BS Natural Resources MS Environmental Management Fifteen years experience as an ecologist. Formally trained in the latest federal delineation guidance and procedures (including 2008 Arid West regional supplement delineation manual). Up to date on latest regulatory framework (both State and federal) for jurisdictional waters. Formally trained in CRAM and HGM assessments for riverine wetlands. Up to date on resource agency practice, interpretation and application with regard to jurisdictional waters	X	X	X
Jason Phillips	AECOM	Aquatic Resources/ Jurisdictional Waters Western Burrowing Owl (Palen and Blythe only)	BS Biology (Ecology) MS Environmental Management (Wetland and Watershed Management) Ten years experience in the field of biology and nearly six as a biologist consultant. Regularly conducts habitat assessments and focused surveys for various sensitive fish and wildlife species, including burrowing owl. Additionally, conducts fish and wildlife exclusions and relocation for a number of	X	X	X

Name	Affiliation	Surveys Performed	Qualifications	Site		
				Palen	Blythe	Ridge.
			species including burrowing owl. Strong academic background in aquatic and wetland ecology, as well as watershed level management. Formally trained in federal delineation guidance and procedures. .			
Lindsay Teunis	AECOM	Aquatic Resources/Jurisdictional Waters	BS Biology, Marine Emphasis MS Ecology Seven years experience as a terrestrial and marine ecologist. Formally trained in the latest federal delineation guidance and procedures (including 2008 Arid West regional supplement delineation manual). Up to date on latest regulatory framework (both State and federal) for jurisdictional waters. Formally trained in CRAM and HGM assessments for riverine wetlands.	X	X	X
Fred Sproul	AECOM	Botanical	BS in Biology SDSU, education Miami U; 30 years experience conducting rare plant surveys, and mapping of vegetation including San Diego County unincorporated lands. Regional experience in Riverside, Inyo, and Kern Counties and Great Basin.	X	X	X
Lance Woolley	AECOM	Botanical	MA Botany, Humboldt State Univ. 3 years of professional experience as a botanist that includes performing rare plant surveys,	X	X	X

Name	Affiliation	Surveys Performed	Qualifications	Site		
				Palen	Blythe	Ridge.
			vegetation mapping, and habitat assessments throughout the northern and southern California regions.			
Kristen Asmus	AECOM	Botanical	BS Plant Science Landscape Horticulture Option, UC Davis, MS Botanical Science, Univ. of Hawaii, Manoa 11 years experience in vegetation mapping and rare plant surveys in Hawaii and California. Including restoration ecology and GIS, with 6 years wetland delineations. Certified as an ISA certified arborist [WE-6139A] for 8 years. Regional experience in the Sonoran desert region, northern California: Alameda, Contra Costa, Santa Clara, San Joaquin, San Benito, Santa Cruz, San Mateo, San Francisco, Marin, Mendocino, Solano, and limited experience in the northern Sierra Nevada Mountain Range	X	X	
Dana Terry	AECOM	Western Burrowing Owl	BS in Zoology, BS in Ecology & Evolution. Five years of experience conducting surveys in California for special-status wildlife species including mammals, birds, reptiles, amphibians, and invertebrates. Regularly conducts site assessments and focused surveys for burrowing owls.	X	X	
Josh Meidav	AECOM	Western Burrowing Owl	B.A. in Environmental Studies from UC Santa Cruz , and M.S. and Ph.D. from UC Davis in Restoration Ecology.	X	X	

Name	Affiliation	Surveys Performed	Qualifications	Site		
				Palen	Blythe	Ridge.
			Twelve years of experience as an ecologist/environmental scientist that includes assessment and monitoring of vegetation, wildlife, watershed factors, water quantity and quality, hydrology, geomorphology, and restoration (design and monitoring). Locales of projects include sites in Oregon, Nevada, Alaska, and Nicaragua, as well as throughout California.			
Sean Avent	AECOM	Western Burrowing Owl	BS in oceanography and marine biology from University of Washington Nine years as a biological research assistant at San Francisco State University, and 5 years performing various aquatic invertebrate, fish, mammal, bird and herpetological surveys throughout California.	X	X	
Mike Ireland	AECOM	Western Burrowing Owl	MA from UC Davis Seven years professional natural resource survey experience including over 1,500 hours of Western burrowing owl experience conducting habitat assessments, CBOC protocol surveys, passive exclusions, and preconstruction surveys in urban riparian corridors, grassland, agricultural and ranch areas, and desert areas throughout the San Francisco Bay area, Central Valley, and in Riverside County, California.	X	X	

Name	Affiliation	Surveys Performed	Qualifications	Site		
				Palen	Blythe	Ridge.
Vick Germany, AIP	AECOM	Western Burrowing Owl	MA in Resource Management and Environmental Planning from San Francisco State University BA in Biology (Ecology and Systematics) from San Francisco State University 22 years of experience as an environmental planner that includes conducting protocol and pre-construction surveys for burrowing owl, California red-legged frog and California tiger salamander in the San Francisco Bay Area.	X	X	
Robert Conohan	AECOM	Western Burrowing Owl	B.Sc. in Environmental Science Trent University Approximately eight years of professional experience working as a field biologist with an expertise in conducting avian, herpetological and small mammal surveys. He has experience conducting biological investigations in the deserts of San Bernardino, Kern, Imperial and Riverside Counties. Mr. Conohan has participated in a variety of projects including environmental assessments, environmental impact studies, natural science inventories and habitat assessments for rare and endangered species.	X	X	
Elizabeth Gruenstein	AECOM	Western Burrowing Owl	BS in Biology with a concentration in Environmental Studies from Haverford College.	X	X	

Name	Affiliation	Surveys Performed	Qualifications	Site		
				Palen	Blythe	Ridge.
			2.5 years of experience conducting wildlife surveys in the San Francisco Bay Area and the southern Sierra Nevada.			
Hildie Spautz	AECOM	Western Burrowing Owl	MA in Conservation Biology Sixteen years conducting avian surveys, botanical surveys, and vegetation assessments in Northern and Southern California. Two years conducting surveys for herps and mammals in northern California.	X	X	
Julie Roth	AECOM	Western Burrowing Owl	BS in Biology (Neurobiology and Behavior), MS in Biology Four years experience as a field research assistant in eastern California and western Nevada at the University of California, Riverside and University of Nevada, Reno. Seven years experience conducting protocol-level surveys for small mammals, birds, bats, amphibians and reptiles, including various special status species surveys in northern California.		X	X
Steve Henderson	AECOM	Western Burrowing Owl	B.S., Environmental Biology (Terrestrial Ecology), UC Davis; M.S., Biological Sciences (Ecology), Montana State University Wildlife biologist with fifteen years experience designing, conducting, and managing large-		X	X

Name	Affiliation	Surveys Performed	Qualifications	Site		
				Palen	Blythe	Ridge.
			scale avian surveys, including protocol surveys and habitat assessments for western burrowing owl and other special status species throughout California. California project experience has focused on biological inventories and analyses of desert, grassland, forest, woodland, and riparian habitats.			
Heather Valentine	AECOM	Western Burrowing Owl	B.S., Ecology, Purdue University Wildlife biologist with seven years of experience. Specializes in the implementation of focused wildlife surveys and habitat assessments, primarily for raptors, Passerine birds, and mammals. Extensive experience conducting habitat assessments and protocol surveys for several species, including spotted owl, northern goshawk, willow flycatcher, and American marten.			X
Wendy Broadhead	AECOM	Western Burrowing Owl	B.S., Plant Science, University of Nevada, Reno, 1992 B.A., Anthropology, University of Nevada, Reno, 1985 B.A., Art, University of Nevada, Reno, 1985 Has more than 17 years of experience in resource management. Her experience in the field of ecology includes: plant and wildlife baseline surveys; threatened, endangered and sensitive species surveys including focused surveys for western burrowing owl.			X

Name	Affiliation	Surveys Performed	Qualifications	Site		
				Palen	Blythe	Ridge.
Andy Hatch	AECOM	Western Burrowing Owl	M.S., Biological Sciences, Stanford University B.S., Earth Systems, Stanford University Wildlife biologist with 6 years professional experience in California with special-status wildlife species including mammals, birds, reptiles, amphibians, and invertebrates.			X
Richard Dwerlkotte	AECOM	Botanical	BS Environmental Biology and graduate studies, Humboldt State Univ. 19 years experience as a field botanist and ecologist conducting botanical resource studies on over 100 projects in the Western U.S. and northern Great Plains including rare plant surveys, vegetation mapping, wetland delineation, noxious weed surveys, biological constraints and impacts analyses on a wide variety projects, assessments of the effects of altered river hydrology on riparian and wetland vegetation.	X	X	X
Shirley Innicken	AECOM	Botanical	BS Ethanobotanical Ecology, Calif. State Univ., Chico 12 years experience in the field wildlife and botanical surveys. Conducted rare plant surveys following federal and state standards. Familiar with California floristic communities. Strong organizational skills for field work implementation.	X	X	

Name	Affiliation	Surveys Performed	Qualifications	Site		
				Palen	Blythe	Ridge.
Caesara Brungraber (Wendin)	Sub	Botanical	BS Biology, BA Economics, Bucknell Univ., MS Horticulture, UC Davis 5 years experience as a botanical consultant in southern California. 10 years in the Pacific coast of the US from Alaska to California and New England. Conducted rare plant surveys, of federal and state listed species as well as vegetation mapping, floral inventories and restoration monitoring and design.	X	X	
Martus, Carolyn	Sub	Botanical	BS Biology, Rutgers Univ., MS Biology, San Marcos State Univ. 9 years experience in vegetation mapping, rare plant surveys, and invasive plant and animal monitoring projects. Regional experience includes coastal southern California, Sonoran and Mojave desert floristic communities. She has worked on military instillations and with public utilities.	X	X	
Andrew Fisher	AECOM	Avian Point Count	BS in Wildlife, Fish, and Conservation Biology from UC Davis, 2.5 years experience conducting various bird, mammal, and herp surveys throughout San Diego County and in Imperial County.	X	X	
Shelly Dayman	AECOM	Desert Tortoise	Bachelor of Science - Ecology Shelly Dayman has 8 years of experience conducting biological surveys; vegetation mapping; construction monitoring; and wildlife	X	X	X

Name	Affiliation	Surveys Performed	Qualifications	Site		
				Palen	Blythe	Ridge.
			surveys for desert tortoise, western burrowing owl, and small mammals in the southwestern United States.			
Rob Wolfson	Sub	Desert Tortoise	Bachelor of Science Over five years of experience as a biologist and/or an environmental inspector in Nevada and California. Has worked as a desert tortoise biologist or monitor on numerous projects.	X	X	X
Charles German	Sub	Desert Tortoise	Bachelor of Science Over 14 years of experience as a biologist in southern California. Conducted DT presence/absence surveys in Nevada and California. Previously approved as a desert tortoise handler on various projects.	X	X	X
Arthur Davenport	Sub	Desert Tortoise, Botanical	Bachelor of Science Experience in southern California conducting biological surveys including focused rare plant surveys, small mammal trapping, desert tortoise surveys, sensitive bird species surveys and general biological surveys.	X	X	X
Milo Rivera	Sub	Desert Tortoise	Bachelor of Science Mr. Rivera has 11 years of applied and research experience in the field of environmental science, with particular emphasis on wildlife assessments, impact analysis and project management. He has	X	X	X

Name	Affiliation	Surveys Performed	Qualifications	Site		
				Palen	Blythe	Ridge.
			conducted focused threatened and endangered species surveys, sensitive habitat surveys as well as preparing biological reports. He holds a Memorandum of Understanding (MOU) for the DT. He has conducted and managed surveys for DT, WBO, flat-tailed horned lizard, Colorado fringed toed lizard and nesting bird surveys.			
Gregg Lukasek	Sub	Desert Tortoise	Bachelor of Science Experience in southern California conducting biological surveys including general assessments, desert tortoise and burrowing owl surveys.	X	X	X
Elias Elias	Sub	Avian Point Count, Desert Tortoise	Mr. Elias has worked conducting biological surveys for the past 14 years. His work has included wildlife censusing, including bird point count surveys and mist netting; wildlife tracking; whale surveys and herpetile searches.		X	X
James Huelsman	Sub	Desert Tortoise	Bachelor of Science Mr. Huelsman conducts presence/absence surveys for desert tortoise, coastal California gnatcatcher and Least Bell's vireo and conducts general biological assessments and focused surveys for a wide variety of special status species throughout southern California.	X	X	X
Ellen Schafhauser	Sub	Desert Tortoise	Bachelor of Professional Science Involved in DT projects for the past 17 years in		X	X

Name	Affiliation	Surveys Performed	Qualifications	Site		
				Palen	Blythe	Ridge.
			California and Arizona.			
Scott Cameron	Sub	Desert Tortoise	Bachelor of Arts Over 18 years of biological consulting experience in sensitive biological resources inventories, endangered species surveys, general wildlife biology, environmental mitigation monitoring and wildlife and botanical habitat evaluations in southern California. Experience with DT protocol surveys and preconstruction surveys.	X	X	
Andrew Forde	Sub	Desert Tortoise	Bachelor of Science Mr. Forde has been previously authorized by the USFWS to conduct presence/absence surveys for DT and monitor construction projects. He has conducted DT surveys in Riverside County, Imperial County and Yuma County (Arizona).	X	X	
Michael Gallagher	Sub	Desert Tortoise	Bachelor of Arts Mr. Gallagher has conducted clearance surveys, line distance sampling and presence/absence surveys for DT since 2004.	X	X	X
Kim Duncan	AECOM	Desert Tortoise	Bachelor of Science Ms. Duncan specializes in the biological requirements of rare and endangered species indigenous to central and northern California. She knows the survey methodologies for	X	X	X

Name	Affiliation	Surveys Performed	Qualifications	Site		
				Palen	Blythe	Ridge.
			determination of the presence of endangered species.			
Joseph Betzler	AECOM	Botanical, Desert Tortoise	BS Botany, SDSU, MS Biology-Botany, SSDU, Diploma Plant Conservation Techniques, Royal Botanic Gardens, Kew, UK 14 years experience in the field of biology. He has experience gathering data for biological assessments and evaluations, inventories, surveys, desert tortoise clearances and surveys (268 hours), and adaptive management plans. He has been a biological consultant for five years as a biologist. He specializes in the plants of the southwestern US floristic provinces.	X	X	X
Katie Hall	AECOM	Desert Tortoise, Burrowing Owl	Bachelor of Arts Ms. Hall has over 7 years of multidisciplinary experience serving as environmental scientist, ecologist, research assistant, and assistant manager on various projects. She has conducted surveys for state and federally listed plant and wildlife species. She has experience in performing protocol-level surveys for federally and state-listed threatened and endangered species including desert tortoise, Quino checkerspot butterfly, least Bell's vireo, and arroyo toad.	X	X	X
James Jennings	Sub	Desert Tortoise	Bachelor of Science Mr. Jennings is a wildlife biologist with	X	X	X

Name	Affiliation	Surveys Performed	Qualifications	Site		
				Palen	Blythe	Ridge.
			specific endangered or sensitive species survey experience with snowy plover, peregrine falcon, prairie falcon, bald eagle, Swainson's hawk, Northern goshawk, burrowing owl, loggerhead shrike, Le Conte's thrasher, sage grouse, bank swallow, yellow warbler, willow flycatcher, California gnatcatcher, least Bell's vireo, San Diego cactus wren, desert bighorn sheep, San Joaquin kit fox, giant kangaroo rat, antelope ground squirrel, desert tortoise, blunt-nosed leopard lizard, Western pond turtle, California red-legged frog, San Diego horned lizard, Belding's orange-throated whiptail and Hoover's woolly-star.			
Patricia Seamount	Sub	Desert Tortoise	Bachelor of Science Ms. Seamount has conducted clearance surveys, line distance sampling and presence/absence surveys for DT since 2004.		X	
Nicole Stephens	Sub	Desert Tortoise	Bachelor of Arts Ms Stephens has worked for one year as crew member with Peter Woodman in the Mojave Desert. She has experience recognizing, analyzing and recording desert tortoise sign and has assisted with DT health assessments, including the handling of DTs.		X	
Jonathan "Brent" Vickers	Sub	Desert Tortoise	Requested resume; not yet received		X	

Name	Affiliation	Surveys Performed	Qualifications	Site		
				Palen	Blythe	Ridge.
Ed LaRue	Sub	Desert Tortoise	Requested resume; not yet received		X	
H. Lee Jones	Sub	Avian Point Count, Western Burrowing Owl	Ph.D. in Biology, UCLA M.A. in Biology, UCLA B.S. in Zoology, NCSU An ornithologist with a Ph.D. in avian biogeography from UCLA. Has been studying birds, with a special emphasis on field identification and distribution, since the age of eight. An independent consulting biologist for the past sixteen years in the fields of environmental assessment, natural resource management, and biological research	X	X	
Jim C. Luttrell	Sub	Avian Point Count, Western Burrowing Owl, Desert Tortoise	M.S. in Environmental Studies B.Sc. Zoology An independent consulting biologist for the past fourteen years in the fields of environmental assessment, natural resource management, and biological research. Is working on an ongoing Raptor banding study including capture, banding and recording molt patterns on a variety of hawks and owls. Burrowing owl capture; passive and active relocation projects.	X	X	X

ATTACHMENT C

JURISDICTIONAL DELINEATION REPORT

RIDGECREST SOLAR POWER PROJECT
JURISDICTIONAL DELINEATION REPORT
FOR REGULATED WATERS OF THE U.S. AND STATE

Prepared for:

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I. SUMMARY

EDAW AECOM (EDAW) performed biological resources studies for Solar Millennium, LLC who is the Applicant for the proposed Ridgecrest Solar Power Project (Project or RSPP). The Project is proposed on public lands managed by the Bureau of Land Management (BLM) in Kern County, California, and the Applicants have submitted an application to BLM for a right-of-way (ROW) grant. The RSPP will be a 250-megawatt (MW) solar thermal electricity-generating facility using parabolic trough technology. The Project would be located in northeastern Kern County approximately 5 miles southwest of the City of Ridgecrest, California (Figures 1 and 2 [all figures referred to herein are included in Attachment 1]). The primary solar energy facilities and associated construction and operations footprint are located within an approximate 1,740-acre disturbance area (Figure 3).

As a component of the needed biological resources work, a formal jurisdictional delineation for regulated waters was conducted to obtain baseline information for potential jurisdictional waters of the U.S. and State occurring within the disturbance area in support of the California Energy Commission/BLM combined environmental review and permitting process. The purpose of this jurisdictional delineation is to identify boundaries and acreages of potential regulated waters of the U.S. and State (including wetlands) occurring within the approximate 1,740-acre disturbance area. Due to recent project design changes, portions of the survey area for this delineation extend beyond the current disturbance area; additionally, new areas have been added to the disturbance area that were not delineated during field surveys (see below for clarification). The Applicants are requesting a Jurisdictional Determination (JD) of isolated waters (nonjurisdictional waters of the U.S.) from the U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (USEPA) (Attachment 2), and the verification of the location, type, size, and extent of jurisdictional waters of the State under regulatory administration by the California Department of Fish and Game (CDFG).

This jurisdictional delineation report (JDR) summarizes the methodologies employed in conducting a formal jurisdictional delineation of waters of the U.S. and State, the results of the fieldwork, and the existing conditions of the surveyed portions of the disturbance area where potential jurisdictional waters occur. For this project, it was determined that there are no potential jurisdictional waters of the U.S. (0.0 acre)[1] and 16.6 acres that would be considered

[1] Final acreages of jurisdictional waters of the U.S. will be based upon the Jurisdictional Determination (JD) process per the March 30, 2007, U.S. Army Corps of Engineers Jurisdictional Determination Form Guidebook; the June 5, 2007, Approved JD Form; the June 5, 2007, Joint Guidance Memorandum; the December 2, 2008, Guidance Memorandum; or Regulatory Guidance Letter (RGL) 08-02 (if RGL 08-02 is deemed applicable and

potential jurisdictional waters of the State exclusively[2] that occur within the surveyed portion of the disturbance area.

II. INTRODUCTION

A. Project Location

The proposed RSPP is located in the southern edge of the Indian Wells Valley and north of the El Paso Mountains in northeastern Kern County, California, approximately 5 miles southwest of the City of Ridgecrest. Elevation within the disturbance area ranges from approximately 2,600 to 2,800 feet above sea level (USGS 1972, 1973). From the intersection of US-395 and South China Lake Boulevard turn southwest onto Brown Road and continue northwest for approximately 1.90 miles to reach the BLM ROW and proposed RSPP disturbance area (Figures 2 and 3).

B. Description of Project

The Applicant is proposing to construct a commercial solar thermal electric power generating project. The RSPP would be located in the high northern Mojave Desert in northeastern Kern County, California, approximately 5 miles southwest of Ridgecrest, California. The Project would be located on a 3,920-acre ROW owned by the Federal government and leased by the Applicant from BLM. The Project facilities would occupy approximately 1,440-acres of the ROW (referred to as the facility footprint). In addition to solar fields and a main power generating facility (power block), the site would include a main office building and parking lot, a main warehouse with laydown area, onsite access roads, a tie-in switchyard, and a bioremediation area.

The Project would have a nominal output of 250 MW. The Project would utilize solar parabolic trough technology to generate electricity. With this technology, arrays of parabolic mirrors collect heat energy from the sun and refocus the radiation on a receiver tube located at the focal point of the parabola. A heat transfer fluid (HTF) is heated to high temperature (750° F) as it circulates through the receiver tubes. The heated HTF is then piped through a series of heat exchangers where it releases its stored heat to generate high-pressure steam. The steam is then fed to a traditional steam turbine generator where electricity is produced.

appropriate [i.e., the permit applicant, or other "affected party" can decline to request and obtain an Approved JD and elect to use a Preliminary JD instead]).

[2] Relevant to CDFG permitting only.

The Project would include two solar fields, each occupying roughly 700 acres and composed of piping loops arranged in parallel groups connected to supply and return header piping. The power block would be located south of Brown Road, just north of the southern solar field. The power block would be composed of its own administration, control, warehouse, maintenance, and lab buildings; an HTF pumping and freeze protection system; steam generator; propane-fired auxiliary boiler; one steam turbine generator; an air-cooled condenser; generator step-up transformer, transmission lines and related electrical system; and auxiliary equipment (i.e., water treatment system, diesel-powered emergency generator, and firewater system). A new 12-inch-diameter, approximately 5-mile-long water pipeline would be installed within the Brown Road and China Lake Boulevard ROWs to connect the Project with the Indian Wells Valley Water District supply. Designs for this new water line have not been finalized (see below). A new 230-kilovolt (kV) transmission line from the turbine generator to a new nearby switchyard would interconnect with Southern California Edison's existing 230-kV Inyokern/Kramer Junction transmission line passing west of the Project site. The transmission line would be approximately 0.5 mile long and located within the disturbance area.

Access to the RSPP would be provided by a new 700-foot-long, 24-foot-wide paved access road from Brown Road, located approximately 2.25 miles west of the intersection of Brown Road with U.S. Highway 395. Only a small portion of the overall disturbance area would be paved, primarily the site access road, the service road to the power blocks, and portions of the power block. The remaining portions of the power block would be gravel surfaced. In total, the area of the power block area would be approximately 18 acres, with approximately 6 acres of paved area. The solar field would remain unpaved and without a gravel surface to prevent rock damage from mirror wash vehicle traffic. A dust suppression coating would be used on the dirt roadways within and around the solar field. The Project solar field and support facilities perimeter would be secured with chain-link metal-fabric security fencing. Along the north and south sides of the facility, the fence would be 8 feet tall, with 1-foot barbed wire or razor wire on top. Thirty-foot tall wind fencing, comprised of A-frames and wire mesh, would be installed along the east and west sides of each solar field. Controlled access gates would be located at the site entrance.

Project construction is scheduled to begin in late 2010 and continue into 2013.

Following completion of spring 2009 surveys, several changes were made to the disturbance area limits. First, a conceptual footprint of a possible water line was identified (Figure 2). The final Project water line route has not yet been selected. The possible water line route would be approximately 5 miles long outside the currently proposed disturbance area; the construction footprint of this possible water line outside the currently proposed disturbance area would be approximately 20 acres. The possible water line footprint has not yet been surveyed and,

therefore, is not discussed in this report. Surveys for the possible water line will be conducted following selection of the final water line route (anticipated spring 2010).

In addition, several portions of the disturbance area, totaling approximately 288 acres, are no longer a part of the proposed Project and have been removed from the disturbance area (Figure 2). However, because the 288 acres were included in the spring 2009 surveys, in the interest of contributing to the body of scientific information, survey results for these areas are included in this document. Also, as a result of the changes to the proposed disturbance area, approximately 15 acres have not yet been surveyed. Surveys for the additional 15 acres will be completed following final Project design (anticipated spring 2010).

III. REGULATORY FRAMEWORK

Jurisdictional waters (including wetlands and other aquatic environments/habitats) occurring within the United States and California are regulated under the following Federal and State laws, as applicable to the Project.

A. Federal Regulations

Pursuant to Section 404 of the Clean Water Act (CWA), USACE is authorized to regulate any activity that would result in the discharge of dredged or fill material into jurisdictional waters of the U.S., which include those waters listed in 33 Code of Federal Regulations (CFR) 328.3 (Definitions). USACE, with oversight by USEPA, has the principal authority to issue CWA Section 404 Permits.

Pursuant to Section 401 of the CWA, the Regional Water Quality Control Board (RWQCB) certifies that the discharge will comply with State water quality standards. RWQCB, as delegated by USEPA, has the principal authority to issue a CWA Section 401 water quality certification or waiver.

B. State Regulations

Pursuant to Section 1600 et seq. of the California Fish and Game Code (CFGC), CDFG is authorized to regulate any activity that would alter the flow, bed, channel, or bank of streams and lakes. Jurisdictional waters of the State include the channel bed and bank of a lake, river, or stream. In practice, CDFG usually extends its jurisdictional limit to the top of the bank of a stream or lake, or to the continuous outer edge of its riparian extent, whichever is wider.

Pursuant to Section 13000 et seq. of the California Water Code (the 1969 Porter-Cologne Water Quality Control Act), RWQCB is authorized to regulate activity that would result in discharges of waste and fill material to waters of the State, including "isolated" waters and wetlands (e.g., vernal pools and seeps) and groundwater within the boundaries of the State.

C. Purpose of Assessment

The purpose of performing a formal jurisdictional delineation is to identify, verify, and determine potential boundaries, acreages, and types of regulated waters of the U.S. and State (including wetlands) occurring within the approximately 1,740-acre disturbance area, which USACE,[3] CDFG, RWQCB, and the State will assert jurisdiction over.[4] The proposed RSPP has the potential to result in the loss of jurisdictional waters. This JDR will be suitable for support and agency documentation in the process of obtaining the following:

1. Certification of compliance under Section 401 of the CWA (as regulated by RWQCB),
2. Review of regulatory administration and/or authorization under Section 404 of the CWA (as regulated by USACE), and
3. Permitting under Section 1600 et seq. of the CFGC (as regulated by CDFG).

IV. PROJECT SETTING

In addition to the delineations described in this report, EDAW conducted plant community mapping and other biological surveys within the disturbance area and ROW (EDAW 2009). A summary of the parameters relevant to the presence and extent of potential jurisdictional waters in the form of wetlands (vegetation, hydrology, and soils) is provided below.

A. Xeric Riparian Plant Communities

The field delineation used the Holland Code Classification System for vegetation communities (Holland 1986) for identifying xeric riparian vegetation associated with all washes occurring within the disturbance area (Table 1). Only wash-dependent plant species were mapped (Table 2). Where vegetation contains a mixture of upland and wash-dependent indicator species from two or more Holland vegetation communities, the indicator species that appears with the greatest vegetation coverage (absolute dominance based on percent cover) was used to identify

[3] Verification of the presence or absence of Federal waters by USACE will be based on the findings in this JDR and the JD process (Attachment 2).

[4] Federal and State jurisdictions may overlap but will remain distinct for authorization/permitting requirements.

the vegetation community. The minimum mapping unit (MMU) for xeric riparian vegetation used for the field delineation was 0.10 acre.

Table 1
Xeric Riparian Plant Communities Occurring within the Survey Area[a]

Xeric Riparian Plant Communities	Acres		
	Disturbance Area[b]	Surveyed, No Longer a Part	Total Survey Area
Mojave Desert Wash Scrub (Holland Code 63700)	8.2	1.3	9.5
Grand Total	8.2	1.3	9.5

[a] Acreage of the plant communities occurring within the survey area was determined by utilizing the Geographic Information System (GIS) program ArcGIS. All acreages are rounded to the nearest tenth.

[b] Disturbance area is based on the August 10, 2009 Project design.

Table 2
Wash-Dependent Plant Species Observed within the Survey Area[a]

Scientific Name	Common Name	Region 0 (California) Indicator Status[a]
Shrub Species		
Lepidospartum squamatum	scale-broom	Not Listed (NL)
Senna armata[b]	spiny senna	NL

[a] Based on *National List of Vascular Plant Species That Occur in Wetlands (*Reed1988). If a species does not occur in wetlands in any region, it is not on the National List.

[b] Spiny senna was observed to be incidental and of low occurrence and was not included in the subsampling (see below).

The plant community mapping for the disturbance area project is provided in Figure 4. Although the xeric riparian, upland, and other cover types are displayed in Figure 4, only the xeric riparian plant communities are the focus of the following discussion. The one xeric riparian vegetation community occurring within the disturbance area has been identified as Mojave Desert wash scrub (Holland Code 63700). Although Mojave Desert wash scrub is a nonhydrophytic (nonwetland) plant community, it is still relevant to potential jurisdictional waters and thus is discussed in this JDR.

Mojave Desert Wash Scrub (Holland Code 63700)

Mojave Desert wash scrub can be described as a low scrubby, remarkably diverse scrub, often characterized by claw acacia (*Acacia greggii*), desert willow (*Chilopsis Linearis*), California jointfir (*Ephedra californica*), New Mexico privit (*Forestiera neomexicana*), Desert barberry (*Berberis haematocarpa*), and smoke tree (*Psorothamnus spinosus*) (Holland 1986; CDFG

1988). Mojave Desert wash scrub is similar to southern alluvial fan scrub (Holland Code 63330) and desert dry wash woodland (Holland Code 62200) but lacking the conspicuous microphyllous trees of desert dry wash woodland (this vegetation community does experience winter frost, which appears to keep out the fabaceous trees).

Mojave Desert wash scrub is distributed along the larger drainages of the southeastern Mojave Desert south through the Sonoran Desert into Mexico (USDA 1980). This vegetation community occupies dry, sandy, or gravelly washes and arroyos of the lower Mojave and Sonoran deserts, which usually occur below 5,000 feet. These washes and arroyos typically have braided channels that substantially rearrange with every surface flow event. Mojave Desert wash scrub is typically an open to moderately dense, broad-leaved phreatophytic evergreen scrub that attains a height of 3 to 6 feet. The open understory areas are typically dominated by ruderal herbaceous species (native and nonnative) usually associated with grassland communities (Holland 1986). The time required for desert wash habitats to progress through successional stages is not known but probably depends on water availability (e.g., precipitation, groundwater). Stand/canopy development and density are variable and depends on water supply and other site characteristics. In very dry areas, stands may persist as underdeveloped stages (e.g., medium tree/shrub stage) rather than progressing to the large tree stage (CDFG 1988).

Within the disturbance area the dominant and indicator plant of this community is scale-broom which occurs in monotypic patches throughout the El Paso Wash (the primary drainage feature occurring within the disturbance area). Scale-broom is also intermixed with creosote bush (*Larrea tridentata*), spiny senna (*Senna armata*), cheesebush (*Hymenoclea salsola*), burroweed (*Ambrosia dumosa*), brittlebush (*Encelia virginensis*), and rayless goldenhead (*Acamptopappus sphaerocephalus*).

B. Hydrology

The disturbance area occurs within the 2020-square-mile Indian Wells-Searles Valleys Watershed (HUC: 18090205) and is located within the RWQCB Region 6, South Lahontan Hydrologic Basin Planning Area, Indian Wells Hydrologic Unit (624.00), China Lake Hydrologic Area (624.20) (Figure 5). The rainfall pattern is bimodal with a rainy season in both summer and winter (December through March and July through September [the commonly wetter of the two]). Average annual rainfall for the disturbance area (China Lake Hydrologic Area) is approximately 3.7 inches (Table 3) (NOAA 2009b).

Table 3
Survey Area Annual Precipitation Data from Base Weather Station 2008[a]

Time Period	Historical Average[b] (inches)	Past Year[b] (inches)
June	0.03	0.00
July	0.27	0.45
August	0.64	1.75
September	0.44	0.43
October	0.20	0.00
November	0.20	0.51
December	0.48	2.36
January	0.50	0.00
February	0.43	0.53
March	0.34	0.00
April	0.10	0.00
May	0.04	0.00
Annual Total	**3.67**	**6.03**

[a] Western Regional Climate Center 2008
[b] National Oceanic & Atmospheric Administration, National Climatic Data Center 2008, 2009a, 2009b.

Surface hydrology of the disturbance area is influenced by the surrounding mountain ranges during storm events. The disturbance area is located on the southern edge of the Indian Wells Valley and north of the El Paso Mountains. The general stormwater flow pattern is from the higher elevations in the mountains located approximately 6 miles south to the lower elevations in Indian Wells Valley to the north. The stormwater from the disturbance area flows northeast and eventually to China Lake, which is a depression in the Indian Wells Valley with no identifiable outlet. Storm flows generated by the existing site itself generally sheet to washes in the northeast and northwest directions (Figure 6). Offsite hydrology drains a combined set of distinct watersheds totaling approximately 37 square miles, which generally drains from local topographic highs located south of the disturbance area northward to relatively more gradually-sloped areas at the southern and northern solar fields.

Although there are several large swales that drain the disturbance area the major watercourse in the project area is El Paso Wash, which is an ephemeral wash that drains approximately 20 square miles from the El Paso Mountains and exits the mountains to the south of the site. Flows from El Paso Wash and adjacent unnamed watersheds are conveyed over the proposed Southern Solar Field, over the surface of South Brown Road and then over the Northern Solar Field, ultimately to China Lake. El Paso Wash drains 22 square miles upstream of the disturbance area and runs approximately through the center of the disturbance area. This wash drains water from the south hills and crosses Brown Road inside the property boundary. Currently, El Paso Wash flows over Brown Road at a low point in the road and continues sloping in a northwest direction

along the project site (Figure 6). Drained water crosses U.S.-395 at several points in both east-west and west-east directions, hydraulically connecting all the catchments in this drainage area. The railroad grade interrupts several natural drainage paths concentrating flows to several water courses that cross the railroad grade through pipes, concrete culverts, and timber bridges, which have altered existing flow patterns in the disturbance area drainage area and water crossings beneath U.S.-395 (AECOM 2009) (Figure 7).

Ephemeral stream channels are commonly linear features that are straight to slightly meandering (Whitford 2002; High and Picard 1973). As they flow eastward from the base of the El Paso Mountains, the ephemeral channels generally convert from sparsely vegetated slightly meandering to an anastomosed morphology, presented as semibraided beds with regular incised compound channels and multiple relic channels. Compound channels are considered the most common channel types in arid regions and are characterized by a single, low-flow meandering channel inset into a wider braided channel network (Tooth 2000; Graf 1988). These channels are highly susceptible to widening and avulsions (i.e., rapid changes in channel position and/or channel relocation) during moderate to high discharges, reestablishing a low-flow channel during subsequent low flows (USACE 2008).

The ephemeral washes occurring within the disturbance area present themselves as micro-floodplains with compound channels, which is a common arid stream system (USACE 2008). With any compound/anastomosing ephemeral stream system in arid regions, the riparian corridor can be populated and lined with adapted riparian vegetation, unvegetated areas such as recently created swales and terraces (interfluves), or a mosaic of these types (Bendix and Hupp 2000). Within the disturbance area extended portions, the ephemeral drainage features are composed of very shallow compound channels with noncohesive sandy banks. The sandy substrate is composed of entisols and presents a high infiltration rate (see Section C [Soils] below). Surface hydrology can vary from perennial to intermittent and, after a flooding event, water tables can drop quickly to low levels due to the permeability of the sandy substrate (Environmental Laboratory 2008).

As rainfall in arid regions is the primary source of water for the majority of the rivers and streams existing within these climactic regions, river and stream complexes are intermittent or ephemeral in character, flowing only during storm events and remaining dry for most of the year. As a result, the analysis of streamflow and changes in compound channel morphology in arid fluvial systems emphasizes flood events (Graf 1988). Flood events and the resulting channel avulsion that occur within arid river systems generally consist of four types:

1. Flash floods,
2. Single peak events,
3. Multiple peak events, and
4. Seasonal floods.

These flood events are partly scale dependent, with flash floods occurring on smaller stream systems (tributaries) and seasonal floods characteristic of large through-flowing rivers (Graf 1988). In arid fluvial systems, flood events are the physical factors that convert usually single, meandering channels to a compound/anastomosing morphology (semibraided [with regular incised channels and multiple relic channels]) (Dunne and Leopold 1978). In several arid regions, large storm events have been responsible for changing the dominant channel configuration from meandering to braided in watersheds of varying sizes (Bendix and Hupp 2000).

Because compound channel fluvial systems, such as the ephemeral washes occurring within the disturbance area, are subject to very wide fluctuations in discharges over a short period of time, their channels can frequently change configuration to accommodate large variations in surface flow as a result of storm events. As a result, arid fluvial systems usually exhibit long periods of little morphologic change interspersed with short-term dramatic changes in channel configuration. Therefore, arid stream geometry is more likely to be influenced strongly by a large event of low recurrence frequency (Allen 1999). The ephemeral washes do not support wetland hydrology because, outside of (remote) flooding events, the hydrology for the ephemeral washes occurring within the disturbance area is generally predictable (AECOM 2009) (Figure 7). The portion of the disturbance area within El Paso Wash presents a 1 percent chance of flood hazards, with unknown Base Flood Elevations (FEMA Flood Zone Designation A). The remainder of the disturbance area is outside the 0.2 percent annual chance floodplain (FEMA Flood Zone Designation X) (FEMA 2009).

C. Soils

The Arid West region is dominated by watersheds that have a high frequency of intermittent and ephemeral dry washes, such that many aquatic resources within the watersheds actually lack the three characteristic features of a wetland (see below). Due to arid climatic conditions and the uneven distribution of precipitation events over time, hydric soils rarely develop (Boettinger 1997; USACE 2007). No detailed soil survey exists for the disturbance area (NRCS 2009a, 2009b). The California Soil Resources Lab mapped two soil complexes occurring within the disturbance area (U.C. Davis 2009a):

1. Cajon-Wasco-Rosamond, and
2. Trigger-Sparkhule-Rock Outcrop

The two soil complexes are generally mapped having a shared boundary. The Cajon-Wasco-Rosamond complex occupies most of the disturbance area. The Trigger-Sparkhule-Rock Outcrop complex is located only in the southwestern portion of the disturbance area, in association with the taller rock outcroppings. The Cajon-Wasco-Rosamond complex covers all remaining areas of the disturbance area, which are associated with a large, alluvial fan (Figure 8). Among these two complexes, eight soil series are listed as hydric on the National Hydric Soils List (NRCS 2009c).

Only soils that are listed as hydric, have diagnostic hydric properties and/or features, have hydric inclusions, meet the criteria and/or definition for a hydric soil, or have the potential for being hydric by definition are addressed herein. The National Technical Committee for Hydric Soils (NTCHS) defines a hydric soil as "a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (NRCS 2009b). The NTCHS definition identifies general soil properties that are associated with wetness. Additionally, specific criteria that identify those estimated soil properties unique to hydric soils have been established by NTCHS (1995). Therefore, hydric soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

Hydric soil definitions and NTCHS approved hydric soil criteria are used to generate hydric soil lists (Environmental Laboratory 2008). The National Hydric Soils List (NRCS 2009c), primarily used as an offsite assessment tool, contains a listing of soils that have a probability of being hydric. Hydric soil indicators are primarily morphological indicators used for field identification of hydric soils and/or soils meeting the hydric soil definition. These hydric soil indicators are a subset of the NTCHS *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils, Version 6.0* (USDA 2006). Hydric soil indicators are not intended to replace or relieve the requirements contained in the definition of a hydric soil. Therefore, a soil that meets the definition and/or criteria of hydric can be considered hydric whether or not it exhibits diagnostic field indicators (e.g., the presence of mottles or gleying [redoximorphic features]) at the point of subsurface investigation.

Six soils listed as hydric by the National Hydric Soils List (NRCS 2009c) occurring within the survey area are within the entisol soil order. Entisols are young soils primarily originating from sediments and alluvium that show little alteration of the parent material from which they were

derived, and that exhibit little pedogenesis (soil formation process) (Brady 1990). Since entisols are associated with fluvial processes, they are by nature dynamic and do not have the ability to develop buried soil horizons, which in turn contribute to *in situ* development of redoximorphic features when conditions are hydric over the appropriate temporal frame. Two soils listed as hydric by the National Hydric Soils List (NRCS 2009c) occurring within the survey area are within the aridisol soil order. Aridisols are the product of extreme xeric conditions, and can form a nearly impervious pavement that facilitates surface sheet flow of stormwater. However, the two aridisols discussed below are well-drained, sandy, alluvial soils associated with depositional events and alluvial features within the disturbance area. One soil series (the Neuralia Series) is only considered hydric when complexed with soils other than the ones present within the disturbance area.

The National Hydric Soils List (NRCS 2009c) lists the following soil series as being associated with the general region but not the disturbance area; primarily, these soils are listed in association with Antelope Valley, the Mojave River, and western portions of Inyo and San Bernardino counties. This hydric soils list does not include any series from northeastern Kern County. Although not mapped in detail, the eight listed hydric soils occurring within the disturbance area are typically associated with drainage features and are described below.

Arizo Soil Series

The Arizo series are sandy-skeletal, mixed, hyperthermic Typic Torriorthents. They consist of very deep, excessively drained soils that formed in mixed alluvium. Arizo soils are on recent alluvial fans, inset fans, fan apron, fan skirts, stream terraces, floodplains of intermittent streams, and channels. They occur on slopes ranging from 0 to 15 percent. The mean annual precipitation for these soils is approximately 7 inches. Arizo gravelly loamy sand, 0 to 5 percent slopes and Arizo loamy fine sand, 0 to 2 percent slopes are on the National List of Hydric Soils (NRCS 2009a, 2009c, 2009d).

Cajon Soil Series

The Cajon series are loamy, mixed, thermic Typic Torripsamments. They consist of very deep, somewhat excessively drained soils that formed in sandy alluvium from dominantly granitic rocks. Cajon soils are found on alluvial fans, fan aprons, fan skirts, inset fans and river terraces. The mean annual precipitation for these soils is less than 6 inches. Cajon loamy sand, 0 to 2 percent slopes and Cajon loamy sand, loamy substratum, 0 to 2 percent slopes are on the National List of Hydric Soils (NRCS 2009a, 2009c, 2009d).

Manet Soil Series

The Manet series are sandy, mixed, thermic Typic Torrifluvents, They consist of deep, well-drained soils that formed in alluvium derived mainly from mica-rich, dark-colored minerals. Manet soils are on alluvial fans and have slopes of 0 to 9 percent. The mean annual precipitation for these soils is about 4 inches. Manet cobbly coarse sand, 2 to 9 percent slopes and Manet loamy sand, loamy substratum, 0 to 2 percent slopes are on the National List of Hydric Soils (NRCS 2009a, 2009c and 2009d).

Rosamond Soil Series

The Rosamond series are fine-loamy, mixed, superactive, calcareous, thermic Typic Torrifluvents. They consist of deep, well drained soils that formed in material weathered mainly from granitic alluvium. Rosamond soils are on the lower margin of the alluvial fans between the sloping fans and the playas and have slopes of 0 to 2 percent. The mean annual precipitation for these soils is about 5 inches. Multiple Rosamond soils are on the National List of Hydric Soils (NRCS 2009a, 2009c, 2009d).

Rositas Soil Series

The Rositas series are mixed, hyperthermic Typic Torripsamments. They consist of very deep, somewhat excessively drained soils formed in sandy eolian material. Rositas soils are on dunes and sand sheets. A typical Rositas pedon is composed of fine sand rangeland. Slope for this soil ranges from 0 to 30 percent with hummocky or dune micro relief. The mean annual precipitation for this soil is approximately 4 inches (NRCS 2009c). Rositas silty clay loam, wet, 0 to 2 percent slopes is on the National List of Hydric Soils (NRCS 2009a, 2009c, 2009d).

Sunrise Soil Series

The Sunrise series are fine-loamy, carbonatic, thermic Typic Haplocalcids. They consist of deep, well-drained soils that formed in material from mixed alluvium. Sunrise soils are on floodplains and in basins and have slopes of 0 to 9 percent. The mean annual precipitation for these soils is about 5 inches. Multiple Sunrise soils are on the National List of Hydric Soils (NRCS 2009a, 2009c, 2009d).

Tray Soil Series

The Tray series are coarse-loamy, mixed, superactive, thermic Typic Haplargids. They consist of very shallow and shallow, somewhat excessively alkaline soils that formed in alluvium from rhyolite and related volcanic rocks. Hyder soils are on alluvial fans and hills. A typical Hyder pedon is composed of extremely gravelly sandy loam rangeland. Slopes for this soil range between 1 to 15 percent. The mean annual precipitation for this soil is approximately 7 inches (NRCS 2009a, 2009d). Multiple Tray soils are on the National List of Hydric Soils (NRCS 2009a, 2009c, 2009d).

Wasco Soil Series

The Wasco series are coarse-loamy, mixed, superactive, nonacid, thermic Typic Torriorthents. The consist of very deep, well-drained soils on recent alluvial fans and floodplains. These soils formed in mixed alluvium derived mainly from igneous and/or sedimentary rock sources. Slope is 0 to 5 percent slopes. The mean annual precipitation is about 6 inches. Multiple Wasco soils (usually in complexes) are on the National List of Hydric Soils (NRCS 2009a, 2009c, 2009d).

V. METHODOLOGY

This jurisdictional delineation applied presurvey investigations and field surveys to determine the presence (type, area, and extent) or absence of jurisdictional waters of the U.S. and State.

A. Presurvey Investigations

Prior to conducting the field delineation, EDAW ecologist Joshua Zinn reviewed and identified areas with topographical configurations and vegetative signatures occurring within the disturbance area that may suggest the potential or presence of jurisdictional waters. This information was evaluated by consulting the following available sources:

- 7.5 U.S. Geological Survey (USGS) InyoKern Southeast (1972) and Ridgecrest (1973) topographic quadrangles,
- 2005 Aerial Maps of the Biological Resource Study Area (BRSA) (USDA 2005),
- The National Wetlands Inventory (NWI) Interactive Wetlands Mapper (USFWS 2009),
- The California Environmental Resources Evaluation System California Wetlands Information System Wetland Databases and Inventories (CERES 2009),
- California Online Soil Survey Manuscripts (NRCS 2009a),

- The Natural Resource Conservation Service Web Soil Survey (NRCS 2009b),
- The National List of Hydric Soils (NRCS 2009c),
- The California Soil Resource Lab (U.C. Davis 2009a),
- The Information Center for the Environment (ICE) (U.C. Davis 2009b),
- The California Watershed Network (CWN 2009),
- The California Watershed Portal (CalEPA 2009),
- The Office of Water Programs Water Quality Planning Tool (CSU Sacramento 2009),
- The Digital Watershed (USEPA 2009), and
- The National Weather Service Climate Office (NOAA 2009a)

B. Field Survey

EDAW ecologists Jason Phillips, Lindsay Teunis, and Joshua Zinn, and AECOM Environment ecologist Jessica Wilson conducted field assessments and surveys for 5 days (18 person-days) from March 6 through March 11, 2009 (Table 4), to formally delineate all potential jurisdictional waters of the U.S. and State (jurisdictional waters) occurring within the disturbance area.[5] The newly proposed conceptual water line was added to the disturbance area following completion of spring 2009 surveys and, therefore, has not yet been surveyed. Surveys for this additional area will be conducted following completion of project design (anticipated spring 2010).

Table 4
Survey Dates and Personnel Conducting Jurisdictional Delineations

Date	Survey Personnel	Survey Activity
03-06-2008	Jason Phillips and Joshua Zinn	Site reconnaissance and field delineation
03-07-2008	Jason Phillips, Lindsay Teunis, Jessica Wilson, and Joshua Zinn	Field delineation and vegetation subsampling
03-08-2008	Jason Phillips, Lindsay Teunis, Jessica Wilson, and Joshua Zinn	Field delineation and vegetation subsampling
03-09-2008	Jason Phillips, Lindsay Teunis, Jessica Wilson, and Joshua Zinn	Field delineation and vegetation subsampling
03-10-2008	Jason Phillips and Joshua Zinn	Field delineation and groundtruthing features
03-11-2008	Jason Phillips and Joshua Zinn	Field delineation and groundtruthing features

[5] Through field surveys, topographical and hydrological investigation, and analysis, EDAW determined that the facility footprint does not support jurisdictional waters of the U.S. A formal determination for the absence of Federal waters occurring within the facility footprint is currently being pursued through documentation (Jurisdictional Determination) with USACE.

Field delineation at the site involved two field teams, each with two ecologists. Teams recorded the presence (including extents, types, and boundaries) of jurisdictional waters with two Trimble XH sub-foot accuracy Global Positioning System (GPS) units. At the close of each field day, all acquired field data were submitted via the internet to EDAW San Diego's geographic information systems (GIS) specialists for post-field processing using Trimble GPS Analyst (Version 2.1) GIS software. Post-field analysis to code, define, designate, and edit all acquired GPS field data representing jurisdictional waters occurring within the disturbance area was conducted in tandem with an EDAW GIS specialist and the ecologists who performed the fieldwork.

Jurisdictional Waters of the U.S.

Jurisdictional waters of the U.S. are defined in 33 CFR. 328.3 (Definitions). The disturbance area has the potential for the presence of, at a minimum, two types of federally regulated waters, warranting the following:

1. Formal delineations for waters of the U.S. in the form of wetlands based on the three-parameter method.[6] The three-parameter method for identifying and delineating wetlands is outlined in and in accordance with Federal guidance and procedure following the *Corps of Engineers Wetlands Delineation Manual* (Manual) (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (2008 Supplement) (Environmental Laboratory 2008).[7]
2. Formal delineations for other waters of the U.S. to define and identify the jurisdictional lateral extent of nonwetland waters using field indicators of ordinary high water mark (OHWM) as defined by 33 CFR 238.3(e), Federal guidance and procedure outlined in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual* (USACE 2008),[8] and other relevant Federal guidance and procedural documents (see below).

This jurisdictional delineation applied two field methodologies in delineating potential jurisdictional waters of the U.S. as described below. All potential waters of the U.S. were delineated to their jurisdictional limits as defined by 33 CFR 328.4 (Limits of Jurisdiction).

[6] The three-parameter method is the simultaneous presence (co-occurrence) of wetland hydrology, hydric soil, and hydrophytic vegetation.

[7] The Manual and 2008 Supplement are guidance documents for delineating jurisdictional waters in the form of wetlands only.

[8] Datasheets from this field delineation manual were used as guidance documents for this delineation and are not included in this JDR.

Methodology One: To make a determination that an area is a wetland, the Manual requires that under "normal circumstances" a minimum of one primary wetland indicator be confirmed for each of the three wetland parameters (Environmental Laboratory 1987). Pre-field surveys and a detailed field reconnaissance were conducted to ascertain and confirm the presence or absence of any one of the three wetland parameters occurring within the disturbance area (Table 5). Once pre-field surveys and field reconnaissance were completed, it was determined that no hydrophytic vegetation or wetland hydrology occurred within the disturbance area. Therefore, it was determined that a formal delineation for wetlands would not be required, as no potential for jurisdictional waters of the U.S. in the form of wetlands was present within the disturbance area. However, the Arid West region is dominated by watersheds with intermittent and ephemeral dry washes, such as the one occurring within the disturbance area. Consequently, many aquatic resources lack the three characteristic features of a wetland, but they still perform important wetland functions (USACE 2007).[9]

Table 5
Survey Results for Potential Jurisdictional Waters of the U.S. in the Form of Wetlands[a] Occurring within the Survey Area

Vegetation Community	Hydrophytic Vegetation	Hydric Soils	Wetland Hydrology	Potential Federal Waters	Potential State Waters	Comments
Mojave Desert Wash Scrub	No	Likely (soil polygons and mapping are unconfirmed by NRCS)	No	No	Yes	Confirm Federal jurisdictional status with JD

[a] As defined by 33 CFR 328.3(b); 40 CFF 230.3(t); the Manual; and the 2008 Supplement.

Methodology Two: OHWM indicators were used to delineate the lateral jurisdictional extent of potential waters of the U.S. Lateral jurisdictional limits were established for all drainage features/channels occurring within the disturbance area in conjunction with field verification for a determination of the OHWM, which provides an acceptable estimate for the lateral jurisdictional limits. The OHWM of the drainage features/channels was identified on the basis of the following:

[9] Based upon field reconnaissance. Wetland Determination Data Forms were used as guidance documents for this delineation and are not included in this JDR, as the survey area did not support any one of the three wetland parameters.

- Water marks within their respective channel banks established by the fluctuations of water and indicated by physical characteristics such as clear, natural lines impressed on the banks;
- Scour and shelving, local deposition, distinct and indistinct terraces, and changes in the character of soil;
- The presence of developed longitudinal bars within channel margins;
- Type, abundance, and relative age of vegetation and/or destruction of terrestrial vegetation, and the presence and absence of litter and debris within the channels;
- Channel configuration, estimated streamflow behavior, and other subtle geomorphic evidence indicative of regular flow levels;
- Consideration of precipitation patterns and lack of consistent flow;
- Geomorphic OHWM indicators (e.g., surface relief, cobblebars, benches, crested ripples, particle size distribution, gravel sheets, desert pavement, and dunes); and
- Pattern and location of relictual channels and discontinuous drainage features.

The criteria for frequency and duration of the OHWM have not been defined under the CWA or under any guidance from USACE for field delineators; therefore, identifiable field indicators and characteristics of OHWM, best professional judgment, interpretation of 33 CFR 328.3(e), and appropriate Regulatory Guidance Letters (RGLs) were applied to determine the potential jurisdictional extent of OHWM within the disturbance area. Arid West channels have recently been described as "ordinary" when they typically correspond to a 5- to 8-year event, and typically have an active floodplain with sparse vegetation cover, shifts in soil texture, and occasional alignment with distinctive bed and bank features (USACE 2007). However, modeling has shown that slightly larger events (5- to 10-year recurrence) may be necessary to engage the active floodplain in arid systems (Lichvar et al. 2006).

OHWM and the limits of jurisdiction are discussed in the Preamble to the USACE November 13, 1986, Final Rule, Regulatory Programs of the Corps of Engineers, Federal Register Volume 51, No. 219, page 41217, which discusses the proper interpretation of 33 CFR Part 328.4 (c)(1) as follows:

> Section 328.4: *Limits of Jurisdiction.* Section 328.4 (c)(1) defines the lateral limit of jurisdiction in non-tidal waters as the OHWM provided the jurisdiction is not extended by the presence of wetlands. Therefore, it should be concluded that in the

> absence of wetlands the upstream limit of Corps jurisdiction also stops when the OHWM is no longer perceptible.

In addition, RGL 88-06, issued June 27, 1988, discussed the OHWM as follows:

> OHWM: The OHWM is the physical evidence (shelving, debris lines, etc.) established by normal fluctuations of water level. For rivers and streams, the OHWM is meant to mark the within-channel high flows, not the average annual flood elevation that generally extends beyond the channel.[10]

RGL 05-05, issued December 7, 2005, discusses the field practice and practicability of identifying, determining, and applying the OHWM for nontidal waters under Section 404 of the CWA (and under Sections 9 and 10 of the Rivers and Harbors Act of 1899), and states the following:

> Where the physical characteristics are inconclusive, misleading, unreliable, or otherwise not evident, districts may determine OHWM by using other appropriate means that consider the characteristics of the surrounding areas, provided those other means are reliable.[11] Such other reliable methods that may be indicative of the OHWM include, but are not limited to, lake and stream gage data, elevation data, spillway height, flood predictions, historic records of water flow, and statistical evidence.

Many stream channels in arid regions are dry for much of the year and, at times, may lack hydrology indicators entirely or exhibit relic OHWM features from exceptional hydrological events. RGL 05-05 further states the following:

> When making OHWM determinations, districts should be careful to look at characteristics associated with ordinary high water events, which occur on a regular or frequent basis. Evidence resulting from extraordinary events, including major flooding and storm surges, is not indicative of OHWM. For instance, a litter

[10] Following RGL 05-06 (Expired RGLs). Unless superseded by specific provisions of subsequently issued regulations or RGLs, the guidance provided in RGLs generally remains valid after the expiration date as discussed in the Federal Register notice on RGLs of March 22, 1999, FR Vol. 64, No. 54, page 13783.

[11] In some cases, the physical characteristics may be misleading and would not be reliable for determining the OHWM. For example, water levels or flows may be manipulated by human intervention for power generation or water supply. For such cases, districts should consider using other appropriate means to determine the OHWM (RGL 05-05).

or wrack line resulting from a 200-year flood event would in most cases not be considered evidence of an OHWM.

Jurisdictional Determination

Determining whether the delineated waters within the disturbance area are in fact jurisdictional waters of the U.S. and under the regulatory administration of USACE (including the final acreages and types of jurisdictional waters of the U.S.) is primarily based on the procedural changes and Federal guidance outlined by the following:[12]

a. The June 5, 2007, USACE/USEPA Memorandum Re: Jurisdiction Following The U.S. Supreme Court Decision In *Rapanos v. United States* on the interpretation of the *Rapanos* Supreme Court case for making a Jurisdictional Determination (JD) for waters of the U.S. (including wetlands) (USEPA/USACE).[13,14] This memorandum provides guidance to USEPA and USACE on implementing the *Rapanos* Supreme Court decision.

b. The June 5, 2007, USEPA/USACE Memorandum for the Field: Coordination on JDs under CWA in light of *SWANCC*[15] and *Rapanos* Supreme Court decisions.[16] This memorandum outlined procedures that replace the coordination procedures contained in the January 2003 USEPA/USACE guidance implementing the *SWANCC* decision (but leaves the remainder of that guidance unaffected) and articulates new coordination procedures for JDs affected by *Rapanos* (USEPA/USACE).[17]

c. The May 5, 2007, USACE *Jurisdictional Determination Form Instructional Guidebook* (USACE/USEPA 2007) and the Approved JD Form.

d. The January 28, 2008, Coordination Memorandum. This memorandum outlined the process for coordinating JDs with USEPA and USACE.

e. The June 26, 2008, USACE RGL 08-02. This RGL explains the differences between Approved JDs and Preliminary JDs, and provides guidance on when an Approved JD is

[12] This delineation followed these procedural guidance documents to ascertain the jurisdictional status of all delineated waters occurring within the facility footprint.
[13] "Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States & Carabell v. United States*" (June 5, 2007).
[14] 126 S. Ct 2208 (2006). This case was consolidated with *Carabell v. United States*.
[15] *Solid Waste Agency of Northern Cook County [SWANCC] v. United States Army Corps of Engineers* (531 U.S. 159, 121 S Ct 675 [2001]).
[16] "Memorandum for Director of Civil Works and US EPA Regional Administrators" (June 5, 2007).
[17] "Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States & Carabell v. United States*" (June 5, 2007).

required and when a landowner, permit applicant, or other "affected party" can decline to request and obtain an Approved JD and elect to use a Preliminary JD instead.[18]

f. The December 2, 2008, USACE Guidance Memorandum Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision In *Rapanos v. United States* & *Carabell v. United States*. This guidance incorporates revisions to the USEPA/USACE Memorandum originally issued on June 6, 2007, after careful consideration of public comments received and based on the agencies' experience in implementing the *Rapanos* decision.

g. The December 2, 2008, USACE Response To Comments "Clean Water Act Jurisdiction Following The Supreme Court's Decision In *Rapanos v. United States & Carabell v. United States Guidance*" Issued June 5, 2007.

h. The December 2, 2008, USACE Questions and Answers Regarding the Revised *Rapanos & Carabell* Guidance.

For this JDR, the formal procedure for a JD requires the submittal of an Approved JD Form (Attachment 2) to USACE (Los Angeles District, South Coast Branch) following Federal guidance, as applicable. Based on the results of the delineation and Federal guidance outlined above, this JDR was prepared to provide support to USACE in formal determination of all waters delineated within the disturbance area as isolated waters, and thus not under regulatory administration by USACE for the following reasons:

1. All ephemeral washes delineated within and beyond the disturbance area abate into the landscape north of U.S.-395 and become a discontinuous ephemeral wash.

2. No ephemeral wash delineated within the disturbance area directly connected with the China Lake which is itself a desert sink with no identifiable outlet.

3. The lack of hydrological connectivity of the ephemeral washes into storm drains, culverts, or ditches (no storm drains are present within the disturbance area).

4. The lack of hydrological connectivity (presenting a significant nexus [SNX] to any traditional navigable waterbody [TNW]) for washes occurring within the disturbance area.

[18] RGL 08-02 outlines that Preliminary JDs cannot be appealed.

5. The evaluation of the ephemeral washes not presenting an SNX to a TNW include the volume, duration, and frequency of the flow of water to a TNW (the Mojave River is approximately 45 miles southwest of the disturbance area).

6. Examination of the flow characteristics and functions of ephemeral washes (which do not support adjacent wetlands) has been determined not to present a significant effect on the chemical, physical, and biological integrity of downstream TNWs.

7. Lack of an ecological connection to TNWs. The ephemeral washes present a low to no potential or capacity to transfer nutrients and organic carbon (vital to support downstream foodwebs [e.g., macroinvertebrates] present in headwater streams or to convert carbon in leaf litter making it available to species downstream), and do not present habitat services such as providing spawning areas for recreationally or commercially important species in downstream waters.

Jurisdictional Waters of the State

Under Section 1600 et seq. of the CFGC, the CDFG regulates activities that would alter the flow, bed, channel, or bank of streams and lakes. The limits of CDFG jurisdiction are defined in CFGC Section 1600 et seq. as the "bed, channel or bank of any river, stream or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit."[19] However, in practice, CDFG usually extends its jurisdictional limit and assertion to the top of a bank of a stream, the bank of a lake, or outer edge of the riparian vegetation, whichever is wider.

Boundaries for xeric riparian waters of the State were determined (and recorded) by the presence of shelving and/or scour resulting in an established bank, bed, and channel of an ephemeral wash feature and its associated riparian areas (where applicable). In specific areas within the ephemeral wash channels, where evidence of shelving or scour was absent, subsurface investigations were undertaken to identify established channel banks. Although some portions of the ephemeral washes present shelving with smooth-toe transitions, these features are composed of friable sand and are evidence of recent sand deposition covering the bank features.

For wetlands and other aquatic habitats occurring in California, CDFG relies on the U.S. Fish and Wildlife Service (USFWS) wetland definition and classification system, which is based on

[19] The California Code of Regulations (Title 14 CCR 1.72) defines a stream as: "…a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation."

Classification of Wetland and Deepwater Habitats of the United States (Cowardin et al. 1979). Therefore, jurisdictional wetland delineations within the disturbance area have been conducted based on the one-parameter[20] method outlined in CDFG/USFWS guidance documents and classification manual(s) to define presence and State jurisdictional extent. The Cowardin method requires diligence to avoid false positive conclusions (e.g., concluding that an area with no transitional relation to the aquatic system is a wetland based on presence of vegetation equally likely to be found in wetland or nonwetland circumstances).[21]

Based on the CFGC Section 1600 et seq. definition and CDFG regulatory practice, field diagnostic features were used to determine and delineate the presence of two types of jurisdictional waters, which collectively and individually represent the jurisdictional extent, occurring within the disturbance area:

1. Mojave Desert Wash Scrub and
2. Unvegetated Ephemeral Dry Wash.

<u>Mojave Desert Wash Scrub</u>

The jurisdictional limits of Mojave Desert wash scrub was considered, recorded, and mapped for areas within all washes and wash features where the association of wash-dependent vegetation *was* present and/or where Mojave creosote bush scrub (Holland Code 34100) was not established at more than 5 percent absolute cover. The jurisdictional linear and lateral extent of Mojave Desert wash scrub occurring within the disturbance area is collectively composed of three xeric riparian features:

i. Wash-dependent vegetation,
ii. Vegetated ephemeral dry wash, and
iii. Riparian interfluves.

Wash-Dependent Vegetation

[20] For Federal jurisdictional waters, a determination for the presence of wetland is based on the presence of three parameters occurring simultaneously at the area of investigation and study. These three wetland parameters are 1) hydrophytic vegetation, 2) hydric soils, and 3) wetland hydrology. Therefore, for State-defined wetlands, only one of these three wetland criteria is required to be present for the State to consider an aquatic feature a wetland.

[21] Although aquatic features can be delineated and defined as wetlands under the Cowardin Classification System, they are not necessarily *jurisdictional* waters of the U.S. or State.

Wash-dependent vegetation was considered, recorded, and mapped for ephemeral washes and Mojave Desert wash scrub occurring within the disturbance area. Subsampling of wash-dependent vegetation occurred for five selected portions (reaches) of the El Paso Wash occurring throughout the disturbance area (Table 6) (Figure 9) (Attachment 3). The MMU used for the wash-dependent vegetation subsampling was 0.01 acre. The wash-dependent vegetation occurring within Mojave Desert wash scrub is composed of one plant species[22]: scale-broom (*Lepidospartum squamatum*).

Table 6
Primary Ephemeral Wash-Dependent Vegetation Cover Subsampling[a]

Subsampling Area	Vegetated[b] Ephemeral Dry Wash (DDWW)	Sampled[b] Wash-Dependent Vegetation (DDWW)	Riparian[b] Interfluve (DDWW)	Total[b] Subsample Area (ωi)	% Cover Wash-Dependent Vegetation (χi)	(ωi*χi)
1	0.32	0.02	0.34	0.06	0.02	1
2	1.33	0.05	1.38	0.04	0.05	2
3	0.61	0.01	0.62	0.02	0.01	3
4	0.57	0.04	0.61	0.07	0.04	4
5	0.29	0.02	0.31	0.06	0.02	5
*SUM(ωi*χi)*						*0.14*
SUM ωi						*3.26*
Weighted Mean = SUM (ωi*χi)/SUM ωi						**0.043**

[a] A weighted arithmetic mean was calculated where the estimate of absolute cover (χ) equals the sum of each sample of absolute cover (χi) multiplied by the area of each sample, or the weight (ωi), divided by the sum of all weights. The formula used was: $\chi = \sum\omega i(\chi i)/\sum\omega i$ OR $X = \omega 1(\chi 1) + \omega 2(\chi 2) + \omega 3(\chi 3)\ldots / \omega 1 + \omega 2 + \omega 3\ldots$
[b] In acres.

Using GPS units, field data points were taken for the one wash-dependent plant species occurring within the five designated subsampling areas of the Mojave Desert wash scrub. Their canopy diameters (individuals and mixed/monotypic stands) were recorded for absolute cover. For the five subsample areas within the El Paso Wash, a weighted arithmetic mean of percent cover for wash-dependent vegetation was calculated by dividing the total acres of the subsample area by the acres of mapped wash-dependent vegetation. An overall mean of the five subsample

[22] Spiny senna (*Senna armata*) was observed in the El Paso Wash. However, occurrence was determined to be incidental and of low density. Additionally, the occurrence of spiny senna was less than the MMU (0.01) utilized for subsampling and thus was not included in determining the weighted average and absolute cover for wash-dependent vegetation occurring within the El Paso Wash.

areas was then calculated. This percent cover was extrapolated to estimate total cover of wash-dependent vegetation occurring within Mojave Desert wash scrub of this primary wash.

As noted above in the project description, several modifications were made to the disturbance area after completion of spring 2009 surveys. The wash-dependent vegetation subsampling areas were initially chosen to obtain a comprehensive ecological perspective, with regard to the composition and distribution of the wash-dependent vegetation (as a component of Mojave Desert wash scrub) occurring within the original disturbance area. Considering the recent project footprint changes that have resulted in avoiding Mojave Desert wash scrub, the latest disturbance area now excludes subsampling area 1 and a small portion of subsampling area 5. Subsampling area 1 was located within the northern portion of the original disturbance area, and subsampling area 5 was located within the center of the original disturbance area [Figure 9]).

The now excluded portions of subsampling areas 1 and 5 were observed to contain densities of wash-dependent vegetation consistent with those present on site. Retaining these data creates a more conservative estimate of the wash-dependent vegetation acreage within the new disturbance area and preserves the statistical integrity of the original subsampling model. This is the rationale for retaining the weighted arithmetic mean depicted in Table 6, despite the aforementioned disturbance area modifications.

Vegetated Ephemeral Dry Wash

Vegetated ephemeral dry washes are desert washes that present an established bed, bank, and channel that support wash-dependent vegetation (see methodology for delineating unvegetated ephemeral dry wash, below).

Riparian Interfluves

Riparian interfluves are islands or terraces populated by wash-dependent vegetation or an intermix of wash-dependent vegetation and Mojave creosote bush scrub that are encompassed by vegetated and/or unvegetated ephemeral dry wash (see below) and Mojave Desert wash scrub (the xeric riparian extent). Riparian interfluves are considered a jurisdictional water (as a component of Mojave Desert wash scrub).

Unvegetated Ephemeral Dry Wash

Unvegetated ephemeral dry washes make up the other component of jurisdictional waters within the disturbance area. They are defined by shelving and/or scour resulting in an established bed, bank, and channel. In areas where evidence of distinct shelving and/or scour was absent, but some indication of past surface waterflow could be observed, it was ascertained that these features were either swales (that support low volume and duration surface flow and/or were low-lying, undefined, relatively linear features in the landscape that are unvegetated or primarily populated exclusively by Mojave creosote bush scrub) or eroded relictual washes (that support sheetflow) during rain events. Unvegetated ephemeral dry wash primarily does not support wash-dependent vegetation. There are sporadic occurrences of scale-broom individuals; however, based on the minimum mapping unit of 0.01 acre, these areas are unvegetated.

Jurisdictional lateral extents of the washes were determined by the farthest extents of the respective established channel bed and banks (including shelving and scouring) of each subchannel. The delineation of unvegetated ephemeral washes collectively includes all respective subchannels of each larger wash into linear ephemeral wash features for jurisdictional waters (see below). Jurisdictional linear extents of the washes were determined by the farthest extents of the established channel bed and banks (including shelving and scouring). When the established channel bed and banks began to transition into less distinct features, such as features that only support sheet flow, and/or features that began to blend into the landscape and/or reflect the features of a swale or relictual channel, jurisdictional linear extent(s) ceased.

All washes occurring within the disturbance area are generally linear. However, the washes are collectively made up of multiple subchannels of varying sizes, which exhibit sinuosity and interface, resulting in compound channel/anastomosed morphology. By virtue of the compound channel/anastomosed morphology occurring within the washes, there are interfluves that have been formed by these multiple subchannels. Within the unvegetated ephemeral dry wash, there are interfluves of Mojave creosote bush scrub habitat between the channels of the dry washes. These interfluves are upland features, encompassed by unvegetated ephemeral dry wash, and are not considered jurisdictional. In some cases channels appear to remain visible on a recent aerial map of the disturbance area (USDA 2005) beyond what was delineated. However, these areas were ground-truthed during spring 2009 to confirm that all evidence of bed, banks, scour, and shelving has abated within or beyond the disturbance area and/or the vegetation associated with swales occurring within the disturbance area is Mojave creosote bush scrub.

VI. RESULTS

A. Jurisdictional Waters of the U.S.

The disturbance area does not support or contain jurisdictional waters of the U.S. (Table 7). A summary of jurisdictional waters of the U.S. delineated within the disturbance area is provided in Table 8.

Table 7
Potential Jurisdictional Waters of the U.S. and State Occurring within the Survey Area[a]

Type of Jurisdictional Waters	Type of Habitat (Holland 1986)	Type of Habitat (Cowardin et al. 1979)	Area of Aquatic Resource (ac)[b]		
			Disturbance Area[c]	Surveyed, No Longer a Part	Total Survey Area
Jurisdictional Waters of the U.S.					
None	N/A	N/A	0.0	0.0	0.0
		Total USACE Waters =	*0.0*	*0.0*	*0.0*
		Subtotal Jurisdictional Waters of the U.S.	***0.0***	***0.0***	***0.0***
Jurisdictional Waters of the State					
Xeric Riparian Extent	Mojave Desert wash scrub (Holland Code 63700)	Palustrine; Scrub/Shrub, Broad-Leaved, Evergreen, Intermittently Flooded/ Temporary, Well Drained/Fresh, Alkaline	8.2	1.3	9.5
Ephemeral Channel	Unvegetated Ephemeral Dry Wash (e.g., Nonvegetated Channel [Holland Code 64200])	Riverine; Unconsolidated Bottom, Sand, Intermittently Flooded, Temporary, Well Drained/ Fresh, Alkaline	8.4	2.0	10.4
		Total CDFG Waters =	*16.6*	*3.3*	*19.9*
		Subtotal Jurisdictional Waters of the State	***16.6***	***3.3***	***19.9***
Grand Total Jurisdictional Waters			**16.6**	**3.3**	**19.9**

[a] Based on the total area of jurisdictional waters delineated within the disturbance area. Final acreages of jurisdictional waters of the U.S. will be based on the JD process undertaken by the USACE/USEPA to confirm the findings of this JDR (see table above). The total area of federally regulated waters may change after the formal JD process.

[b] Acreage of all jurisdictional waters occurring within the disturbance area was determined by using the GIS program ArcGIS. All acreages are rounded to the nearest tenth.

[c] Disturbance area is based on the August 10, 2009 Project design.

Table 8
Summary of Potential Jurisdictional Waters of the U.S. Occurring within the Survey Area

Form of Jurisdictional Waters of the U.S.	Federal Regulatory Authority	Type of Habitat	Acres within the Survey Area		
			Disturbance Area[a]	Surveyed, No Longer a Part	Total Survey Area
None	N/A	N/A	0.0	0.0	0.0
Total			**0.0**	**0.0**	**0.0**

[a] Disturbance area is based on the August 10, 2009 Project design.

B. Jurisdictional Waters of the State

All Mojave Desert wash scrub and unvegetated ephemeral dry desert washes within the disturbance area were delineated as waters of the State. Jurisdictional waters were mapped on a current aerial photograph at a scale of 1 inch = 750 feet (Figure 10).); an enlarged map at a scale of 1 inch = 500 feet is also provided (Figure 11). Photo locations occurring within the disturbance area are included in Figure 12. Survey area photos are included in Figures 13 through 18. Waters of the State were not delineated outside of the disturbance area.

There are smaller ephemeral washes occurring within the disturbance area. These ephemeral washes primarily parallel the El Paso Wash and could be considered a component of this large ephemeral wash. Virtually all the ephemeral washes occurring within the disturbance area exhibit a southeast to northeast flow orientation with the El Paso Wash extending up to approximately 17,000 feet. All ephemeral washes occurring within the disturbance area eventually abate (terminate) into the desert landscape. The El Paso Wash is the only feature that supports Mojave Desert wash scrub within the disturbance area. Unvegetated ephemeral dry wash, which is primarily devoid of wash-dependent plant species due to less availability of surface and subsurface hydrology, primarily occurs within the east and southeast portions of the disturbance area.

The total area of all waters of the State delineated within the disturbance area is 16.6 acres (Table 7). A summary of jurisdictional waters of the State delineated within the disturbance area is provided in Table 9. Of the 16.6 acres of jurisdictional waters of the State, 8.2 acres are composed of Mojave Desert wash scrub and 8.4 acres are composed of unvegetated ephemeral dry wash. Based on wash-dependent vegetation subsampling for the primary wash (4.3 percent absolute cover [0.4 acre wash-dependent vegetation]) the 8.2 acres of Mojave Desert wash scrub occurring within the disturbance area is composed of 0.4 acre of wash-dependent vegetation

(Attachment 3). The 0.4 acre absolute cover of wash-dependent vegetation is a separate component of the Mojave Desert wash scrub, which is distributed throughout the 7.8 acres of vegetated ephemeral dry wash occurring (Table 10). No riparian interfluves were mapped within the Mojave Desert wash scrub.

Table 9
Summary of Potential Jurisdictional Waters of the State Occurring within the Survey Area[a]

Form of Jurisdictional Waters of the State	Regulatory Authority	Type of Habitat	Acres within the Survey Area		
			Disturbance Area[b]	Surveyed, No Longer a Part	Total Survey Area
Xeric Riparian Extent	CDFG, RWQCB	Mojave Desert wash scrub	8.2	1.3	9.5
Unvegetated Washes	CDFG, RWQCB	Ephemeral Drainage Features	8.4	2.0	10.4
Total			**16.6**	**3.3**	**19.9**

[a] Acreage of all jurisdictional waters occurring within the disturbance area was determined by utilizing the GIS program ArcGIS. All acreages are rounded to the nearest tenth.
[b] Disturbance area is based on the August 10, 2009 Project design.

Table 10
Components of Jurisdictional Waters of the State Occurring within the Disturbance Area[a]

Type of Jurisdictional Waters	Acres
Unvegetated Ephemeral Dry Wash	8.4
Mojave Desert Wash Scrub	8.2
Wash-Dependent Vegetation	*0.4*[b]
Riparian Interfluve	*0.0*[b]
Vegetated Ephemeral Dry Wash	*7.8*[b]
Total	**16.6**

[a] Disturbance area is based on the August 10, 2009 Project design. Acreage of all components of jurisdictional waters occurring within the disturbance area was determined by utilizing the GIS program ArcGIS. All acreages are rounded to the nearest tenth.
[b] Acreage for wash-dependent vegetation occurring within the primary wash was extrapolated based on weighted mean cover obtained through subsampling of 8.2 acres of Mojave Desert wash scrub and multiplying this figure by the 4.3 percent weighted average of wash-dependent vegetation, which resulted in 0.4 acre of wash-dependent vegetation occurring within the disturbance area (Table 10). The portion of wash-dependent vegetation that was mapped as riparian interfluves or vegetated ephemeral dry wash in the field was deleted from the acreages for riparian interfluves and vegetated ephemeral dry wash to accurately reflect the acreage of the components of Mojave Desert wash scrub. Of the 0.4 acre of wash-dependent vegetation, approximately 0.1 acre was physically mapped as a part of field subsampling, no extrapolated area was subtracted from riparian interfluves since none were present, and the remaining 0.3 acre of extrapolated area was subtracted from vegetated ephemeral dry wash (an expanded methodology is located in Attachment 3).

C. Discussion

Within the disturbance area, 16.6 acres of jurisdictional waters of the State have been delineated. For any activity proposing to adversely impact and discharge waste that could affect waters of the State, but do not affect Federal waters, issuance of the following permits by the requisite State resource agencies are required:

1. CFGC Section 1602 Lake and Streambed Alteration Agreement. CDFG regulates activities that would alter the flow, bed, channel, or bank of streams and lakes. As conditional to this permit, mitigation will be required. Mitigation for unavoidable permanent impacts to jurisdictional waters within the disturbance area could be mitigated via a combination of methods. The mitigation could occur in the form of approved mitigation bank credits, an approved in-lieu fee program, conservation easement(s), and/or jurisdictional habitat creation-restoration (that results in a net increase in jurisdictional habitat acreage), enhancement, or creation-restoration combined with enhancement; however, the mitigation could not result in a net loss of jurisdictional habitat or wetland functions and values. Project compliance with State policy, i.e., California Wetlands Conservation Policy (EO W-59-93), provides for "no overall net loss" of wetlands and achieving a "long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California." Therefore, a minimum 1:1 creation-restoration ratio would be applied toward any impacts to jurisdictional waters. Project-specific mitigation ratios would be developed in consultation with CDFG.

   As a requirement of the 1602 permit application, the development of a conceptual mitigation, maintenance, and monitoring plan would be required for the mitigation, which is a requirement of both the State 1602 permit applications. This plan should include details regarding site preparation (e.g., grading), planting specifications, and irrigation design, as well as maintenance and monitoring procedures. The plan should outline yearly success criteria and remedial measures should the mitigation effort fall short of the success criteria. Any riparian mitigation that cannot be achieved through onsite creation-restoration and enhancement should be performed off site, typically per agency guidance within the same hydrologic unit (watershed) where impacts occur. Alternatively, the mitigation obligations may also be satisfied by participating in a fee-based mitigation program through a wetland mitigation bank. The proposed mitigation is subject to the resource agencies' review and discretion; thus, the mitigation obligations for the impacts to jurisdictional wetland habitats may change from those recommended here.

2. CWC Section 13000 et seq. (Porter-Cologne) Waste Discharge Requirement (WDR). RWQCB regulates the "discharge of waste" to waters of the State.[23] The definition of the waters of the State is broader than that for waters of the U.S. in that all waters are considered to be a water of the State regardless of circumstances or condition. The term "discharge of waste" is also broadly defined in Porter-Cologne, such that discharges of waste include fill, any material resulting from human activity, or any other "discharge" that may directly or indirectly impact waters of the State. As conditional to this permit, Best Management Practices (BMPs) will be required to ensure compliance with State water quality standards. BMPs can also be specified by RWQCB, based on the report of waste discharge (ROWD) (filed with RWQCB by the applicant), which is authorized to regulate discharges of waste and fill material to waters of the State (including "isolated" waters and wetlands), through the issuance of a WDR.[24] WDRs are commonly issued based on the threshold of allowable pollutants into waters of the State.

   Under Porter-Cologne, all applicants proposing to discharge waste that could affect the quality of waters of the State, other than into a community sewer system, shall file with the appropriate RWQCB an ROWD containing such information and data as may be required by RWQCB.[25] RWQCB will then respond to ROWD by issuing a WDR in a public hearing, or by waiving WDRs (with or without conditions) for that proposed discharge. RWQCB has a statutory obligation to prescribe WDRs, except where RWQCB finds that a waiver of WDRs for a specific type of discharge is in the public interest.[26] Therefore, all parties proposing to discharge waste that could affect waters of the State, but do not affect Federal waters (which requires a CWA Section 404 permit and CWA Section 401 Certification) must file an ROWD with the appropriate RWQCB prior to issuance of the WDR.[27]

[23] "Waters of the State" is defined in CWC Section 13050(e).
[24] Section 13263 of Porter-Cologne. "Waters of the State" is defined in CWC Section 13050(e).
[25] CWC Section 13260(a).
[26] CWC Section 13269.
[27] CWC Section 13260.

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ATTACHMENT 1

FIGURES

Map Location

1 inch = 40 miles

0 40 80 Miles

Ridgecrest Solar Power Project Jurisdictional Delineation Report

Figure 1
Regional Map

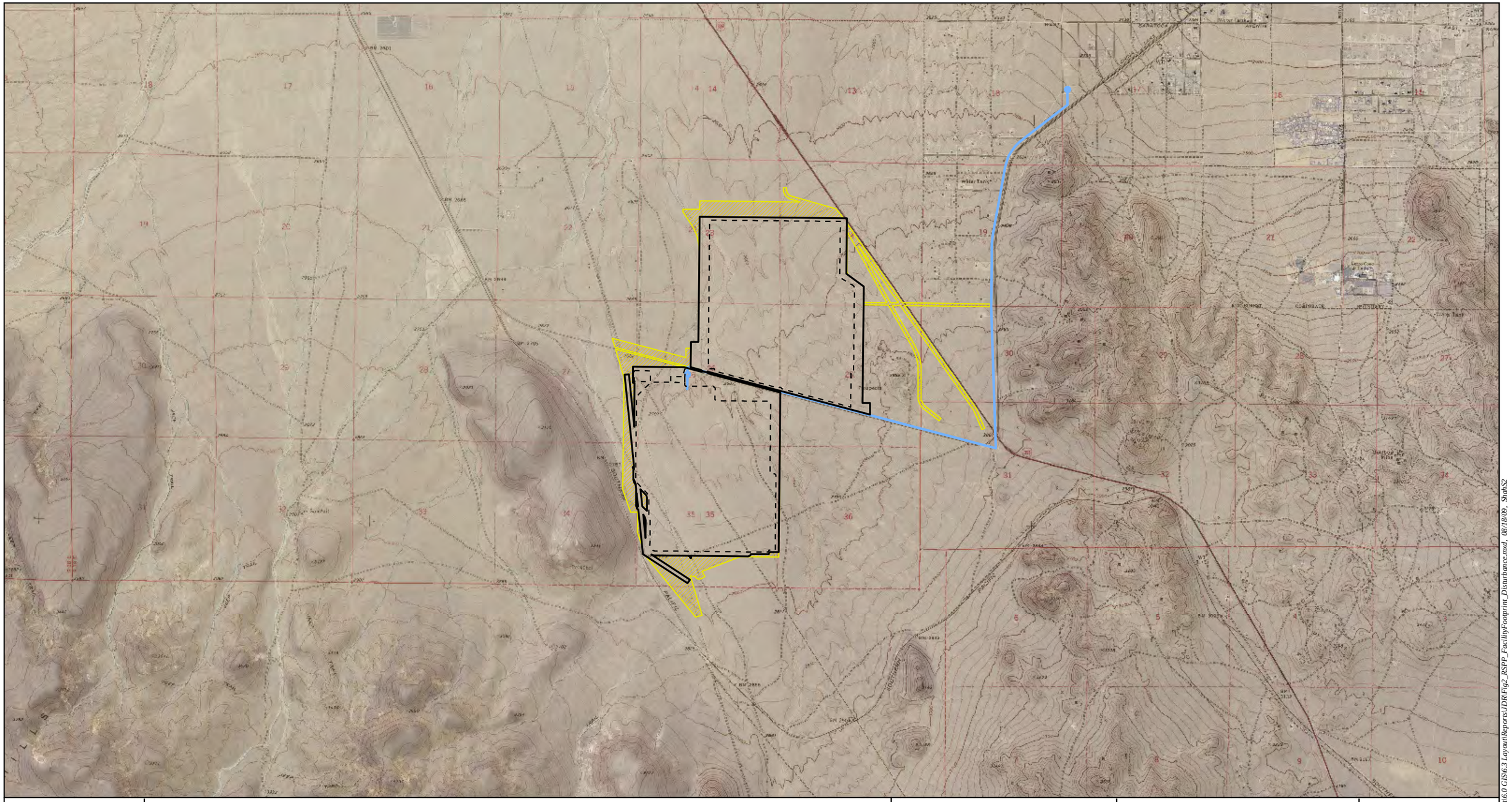
Source: ESRI; AECOM 2009

Solar Millennium

AECOM

Date: August 2009

Path: P:\2009\09080080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Reports\JDR\Fig1_RSPP_RegionalLocation.mxd, 08/14/09, SteinB



Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Disturbance Area (Surveyed - No Longer Proposed)

Source: USGS; NAIP 2005; AECOM 2009

N
W E
S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Jurisdictional Delineation Report

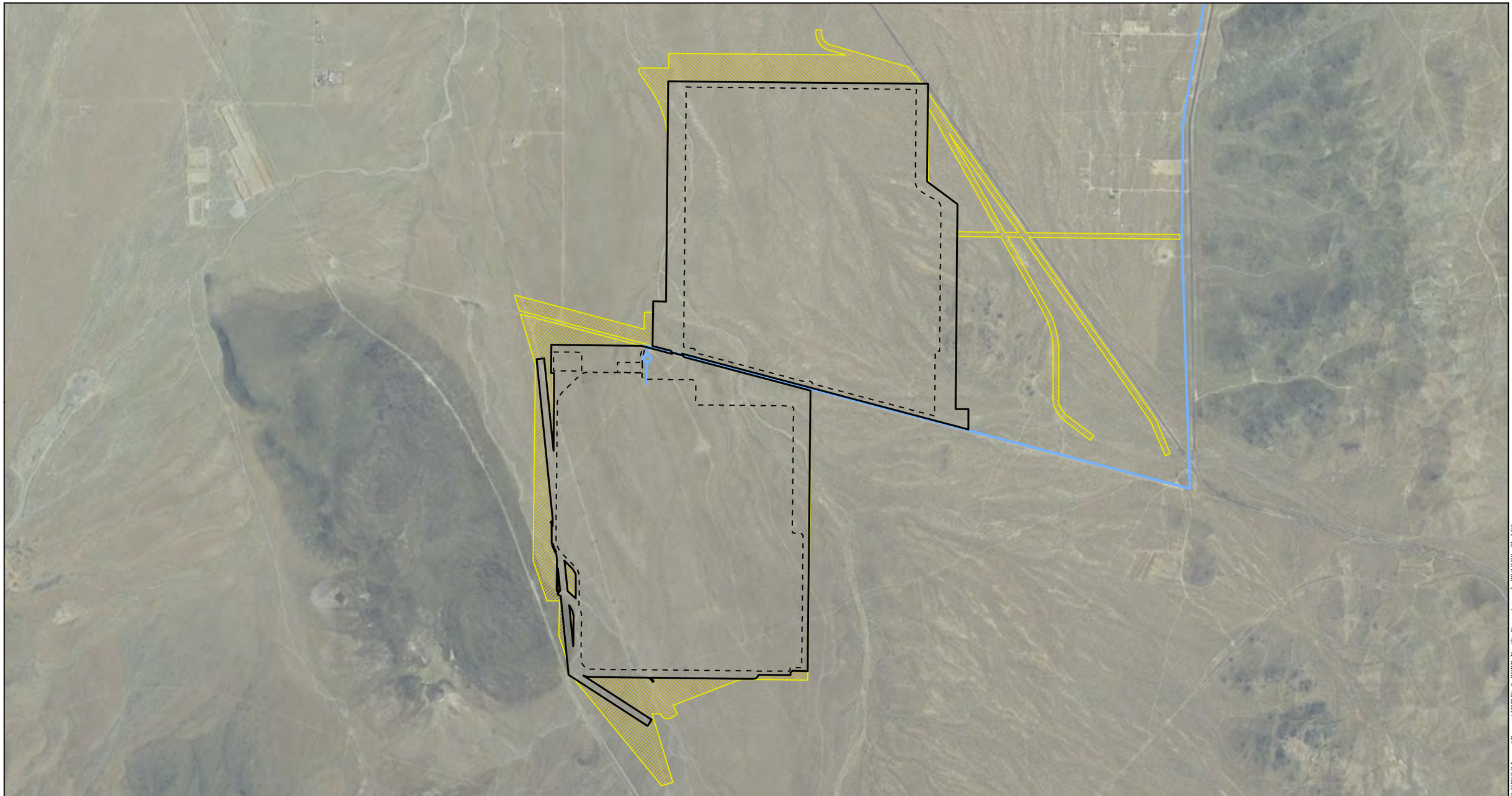
Figure 2
Facility Footprint and Disturbance Area

Solar Millennium

AECOM

Date: September 2009

Path: P:\2009\0908080\Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Reports\JDR\Fig2_RSPP_FacilityFootprint_Disturbance.mxd, 08/18/09, ShahS2



Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Disturbance Area (Surveyed - No Longer Proposed)

Source: NAIP 2005; AECOM 2009

N
W E
S

1 inch = 2,000 feet

0 2,000 4,000 Feet

Ridgecrest Solar Power Project
Jurisdictional Delineation Report

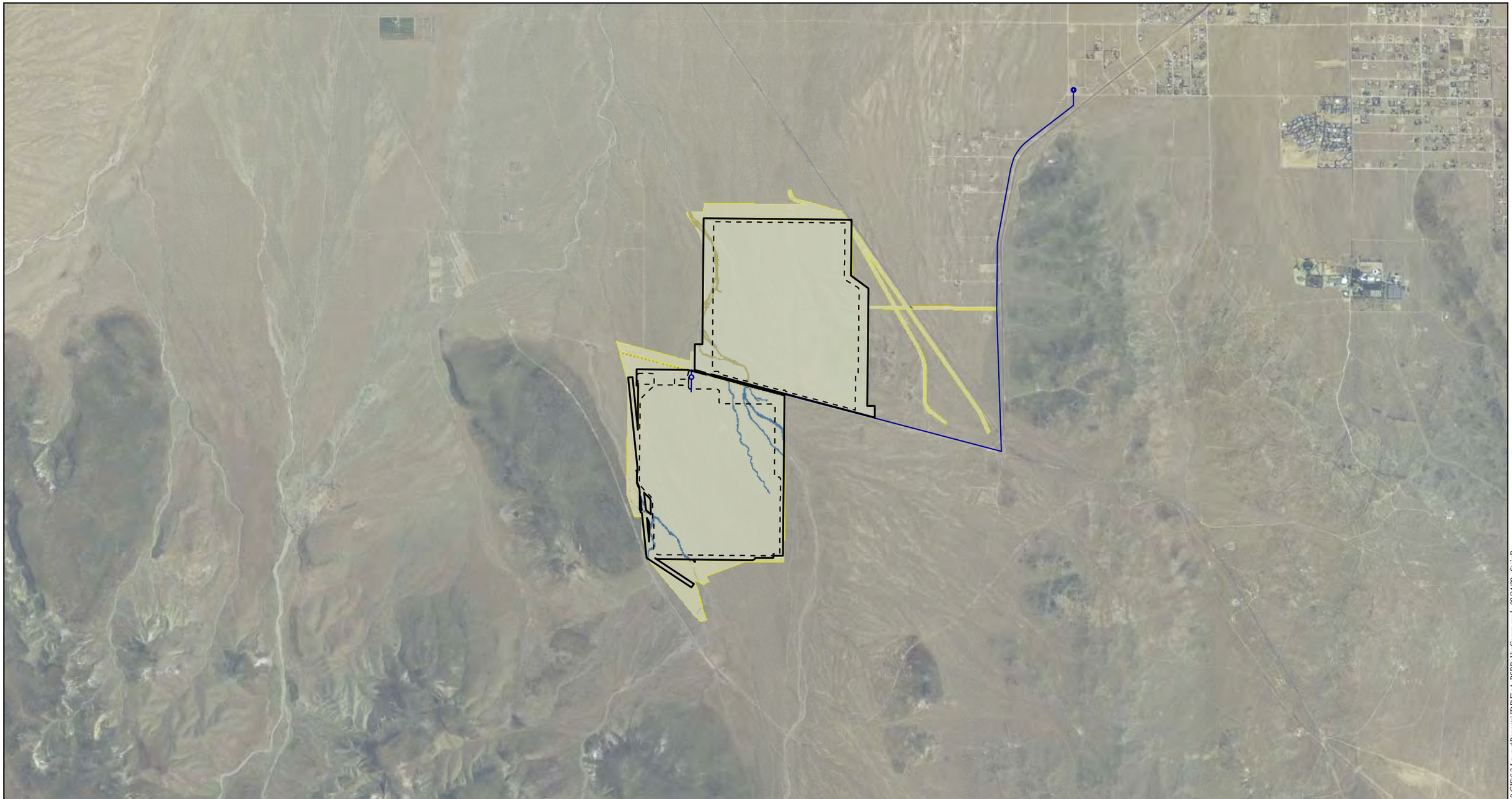
Figure 3
Facility Footprint

Solar Millennium

AECOM

Date: September 2009

Path: P:\2009\09080080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Reports\JDR\Fig3_RSPP_FacilityFootprint.mxd, 08/18/09, ShahS2



Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Disturbance Area (Surveyed - No Longer Proposed)

Vegetation Communities

Riparian

- Mojave Desert Wash Scrub
- Unvegetated Ephemeral Dry Wash

Upland

- Mojave Creosote Bush Scrub

Other

- Developed

Source: NAIP 2005; AECOM 2009; EDAW 2009

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Jurisdictional Delineation Report

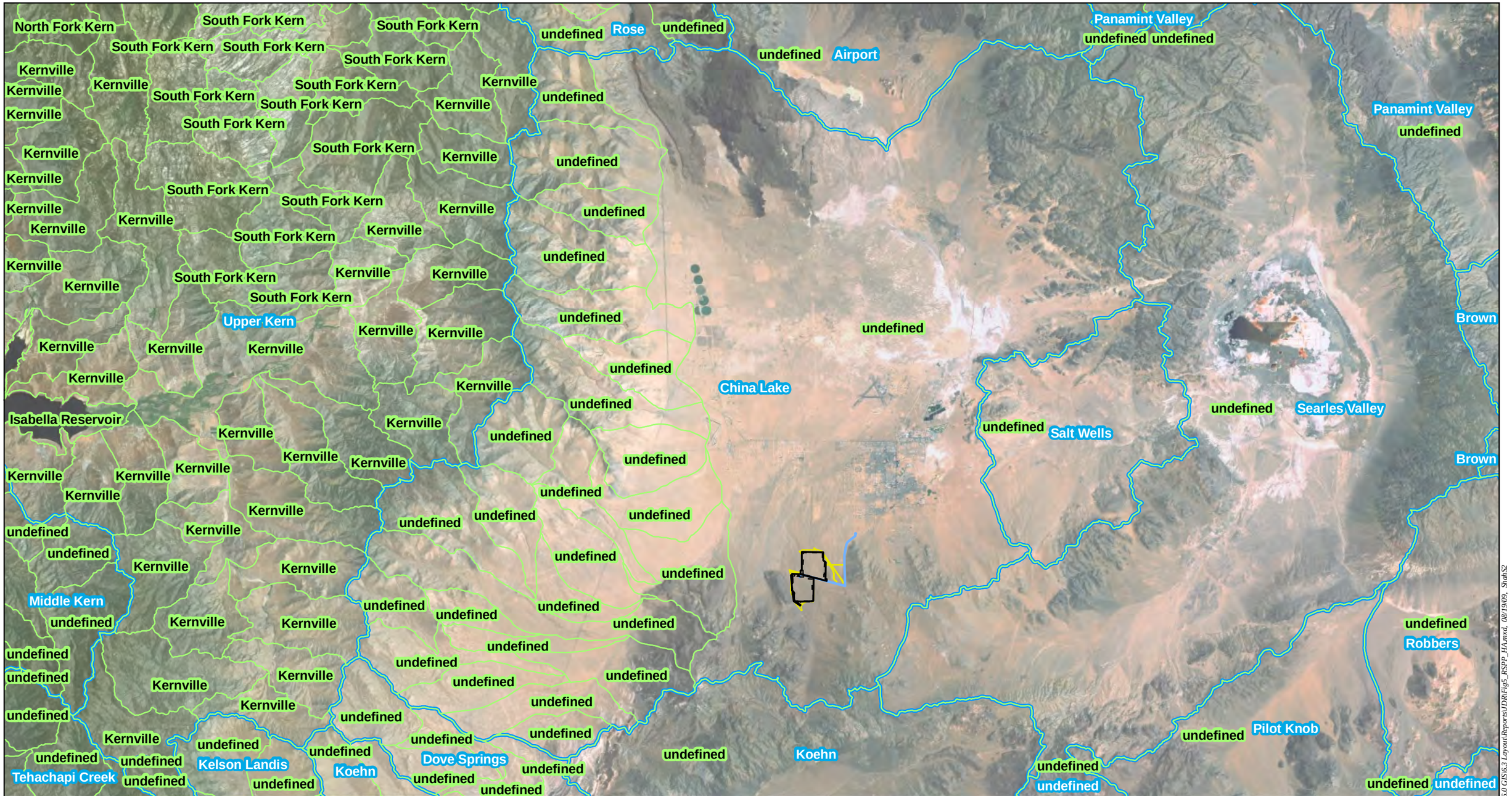
Figure 4
Vegetation Communities

Solar Millennium

AECOM

Date: September 2009

Path: P:\2009\09080080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Reports\JDR\Fig4_RSPP_VegComm.mxd, 08/24/09, SteinB



Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Disturbance Area (Surveyed - No Longer Proposed)
- Hydrologic Subareas (CDFG)
- Hydrologic Areas (CDFG)

Source: NAIP 2005; CDFG; AECOM 2009; EDAW 2009

N W E S

1 inch = 24,000 feet

0 24,000 48,000 Feet

Ridgecrest Solar Power Project
Jurisdictional Delineation Report

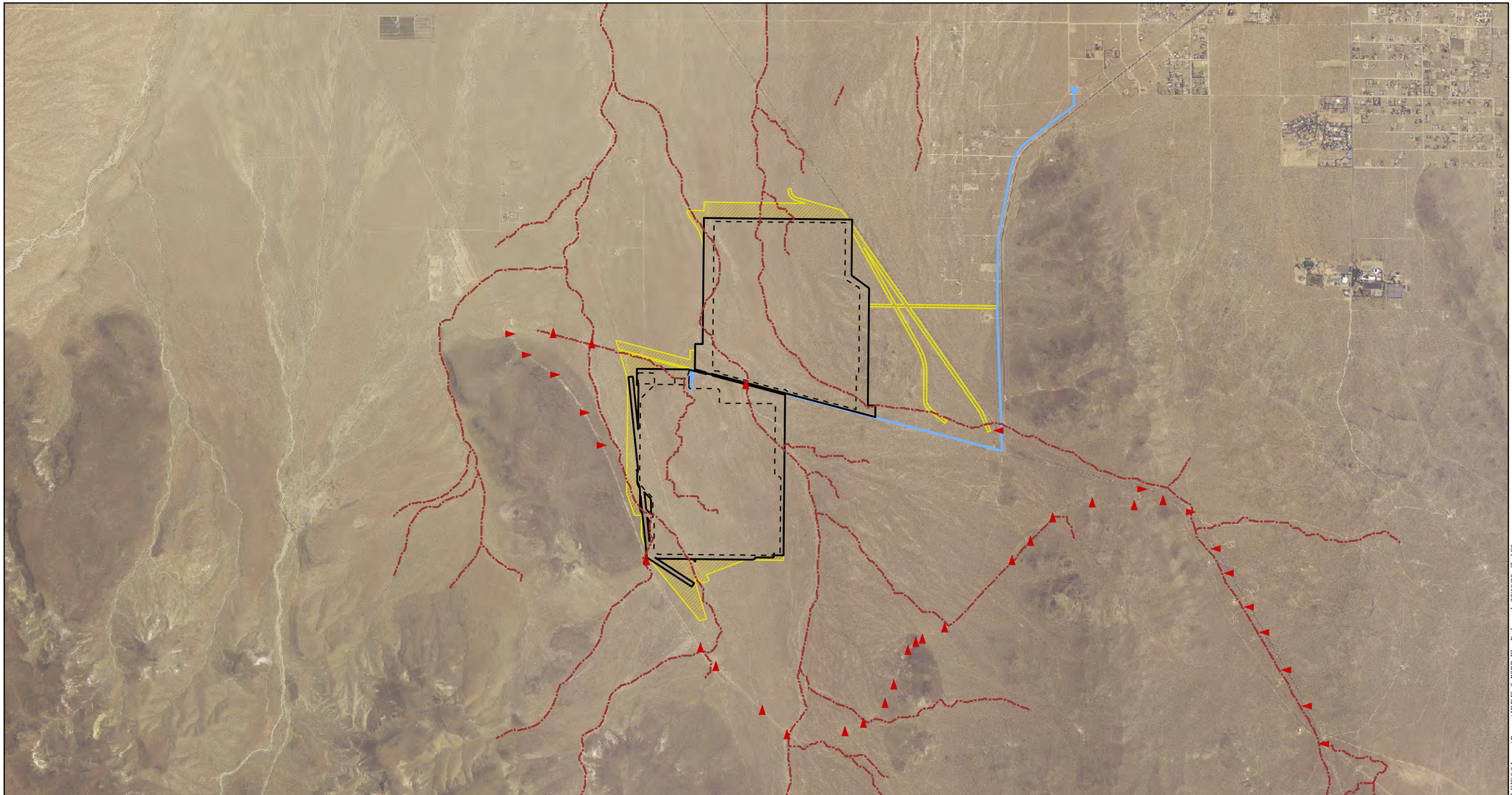
Figure 5
Hydrologic Areas

Solar Millennium

AECOM

Date: September 2009

Path: P:\2009\09080080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Reports\JDR\Figs_RSPP_HA.mxd, 08/19/09, Shah52



Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Disturbance Area (Surveyed - No Longer Proposed)
- Flow Line

Flow Direction

- Northward
- Eastward
- Westward

Source: NAIP 2005; AECOM 2009

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Jurisdictional Delineation Report

Figure 6
Flow Paths

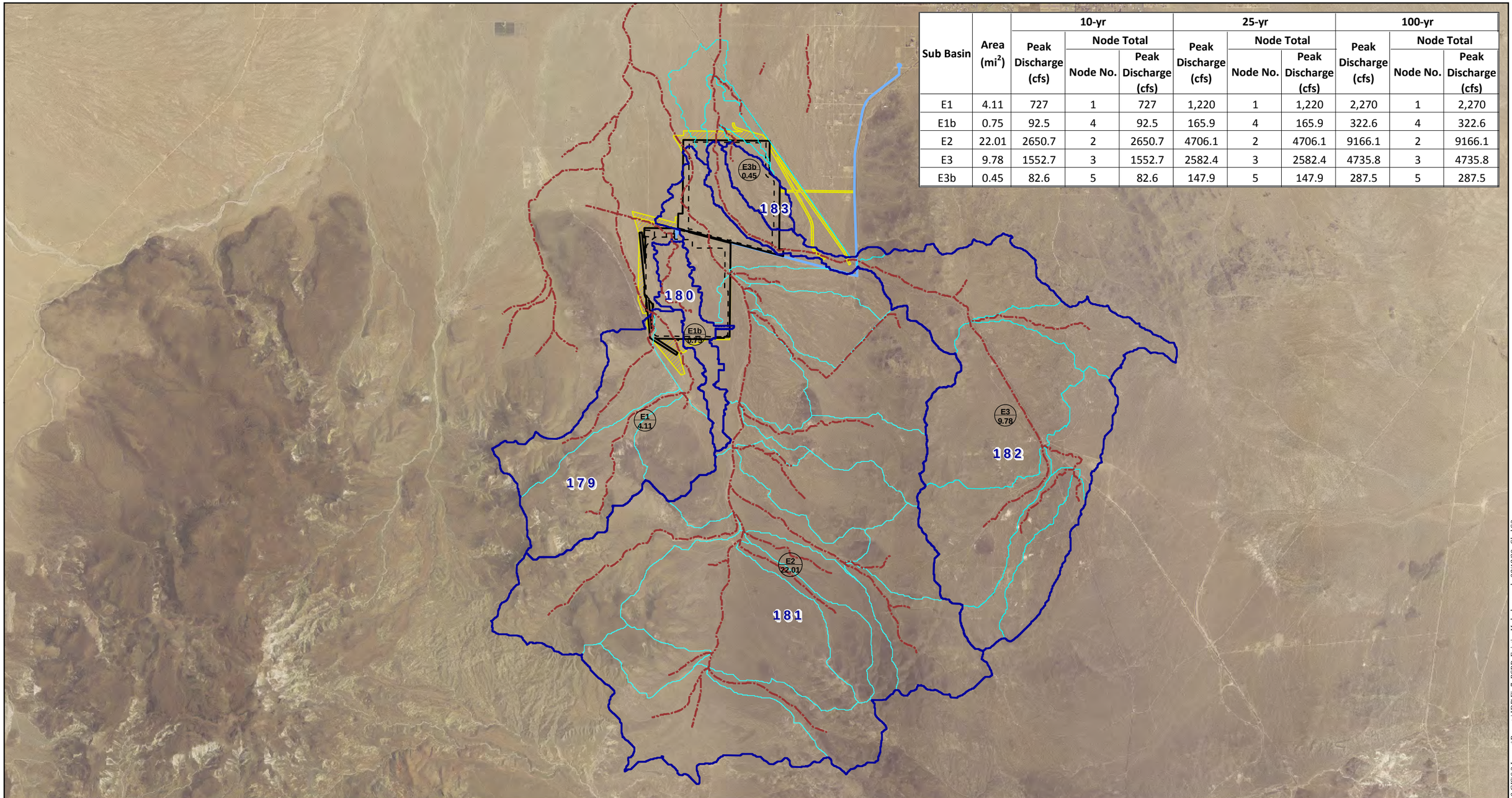
Solar Millennium

AECOM

Date: September 2009

Path: P:\2009\0908080\Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Reports\JDR\Fig6_RSPP_FlowPaths.mxd, 08/19/09, ShahS2

Sub Basin	Area (mi^2)	10-yr			25-yr			100-yr		
		Peak Discharge (cfs)	Node Total		Peak Discharge (cfs)	Node Total		Peak Discharge (cfs)	Node Total	
			Node No.	Peak Discharge (cfs)		Node No.	Peak Discharge (cfs)		Node No.	Peak Discharge (cfs)
E1	4.11	727	1	727	1,220	1	1,220	2,270	1	2,270
E1b	0.75	92.5	4	92.5	165.9	4	165.9	322.6	4	322.6
E2	22.01	2650.7	2	2650.7	4706.1	2	4706.1	9166.1	2	9166.1
E3	9.78	1552.7	3	1552.7	2582.4	3	2582.4	4735.8	3	4735.8
E3b	0.45	82.6	5	82.6	147.9	5	147.9	287.5	5	287.5



Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Disturbance Area (Surveyed - No Longer Proposed)
- Flow Line
- Existing Subwatersheds (Drainage Areas)

EA — DRAINAGE AREA NAME
15.35 — AREA (SQ. MILES)
NODE NUMBER (01) Q= 100 YEAR DISCHARGE
V= 100 YEAR VOLUME

Source: NAIP 2005; AECOM 2009

N W E S

1 inch = 6,000 feet

0 6,000 12,000 Feet

Ridgecrest Solar Power Project
Jurisdictional Delineation Report

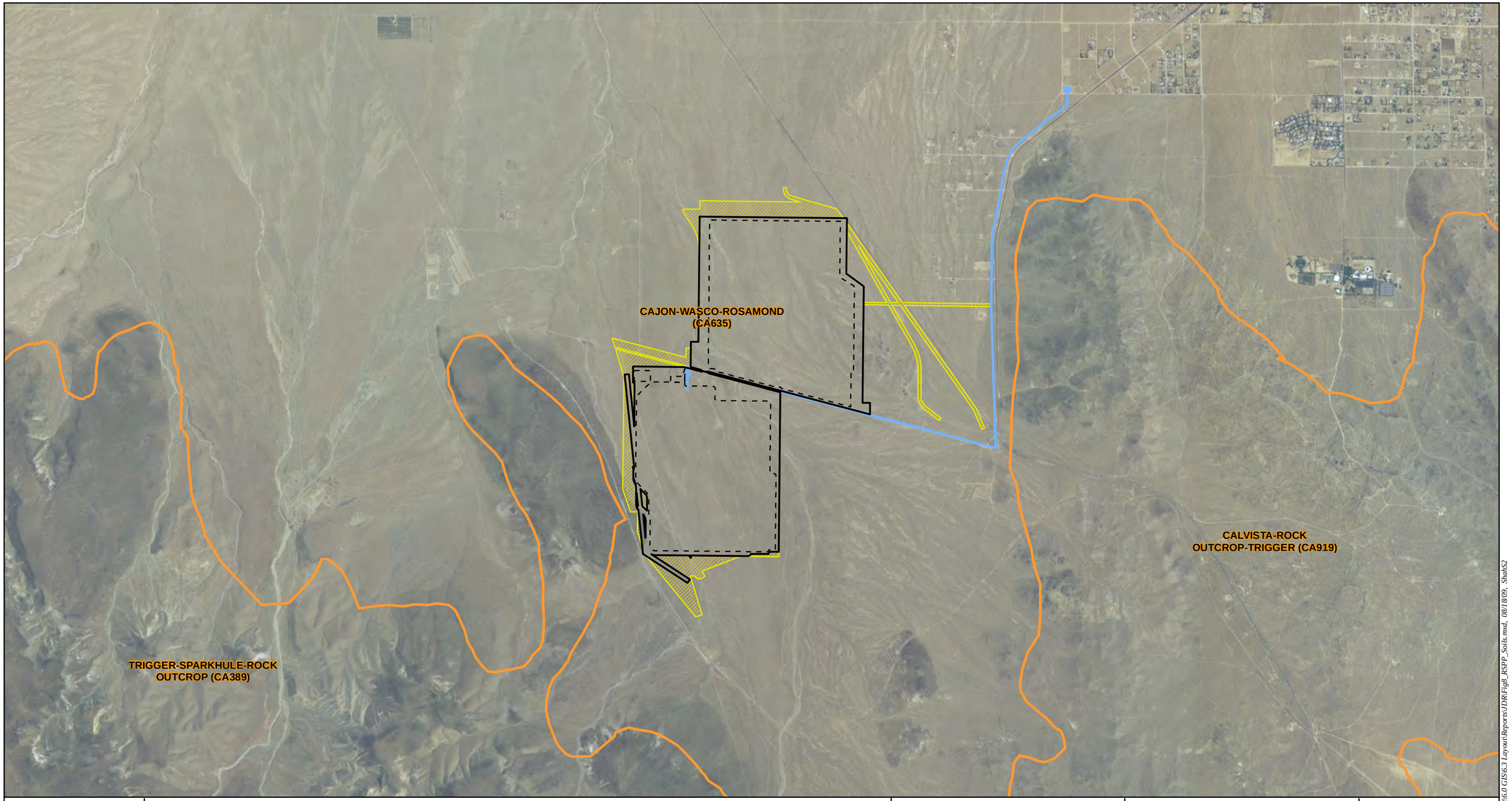
Figure 7
Existing Hydrology

Solar Millennium

AECOM

Date: September 2009

Path: P:\20\09\09080\80 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Reports\JDR\Fig7_RSPP_ExistingHydrology.mxd, 08/18/09, SheilS2



Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Disturbance Area (Surveyed - No Longer Proposed)

Soil Types

- CA389, TRIGGER-SPARKHULE-ROCK OUTCROP (CA389)
- CA635, CAJON-WASCO-ROSAMOND (CA635)
- CA919, CALVISTA-ROCK OUTCROP-TRIGGER (CA919)

Source: NAIP 2005; USDA STATSGO 2009; AECOM 2009

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Jurisdictional Delineation Report

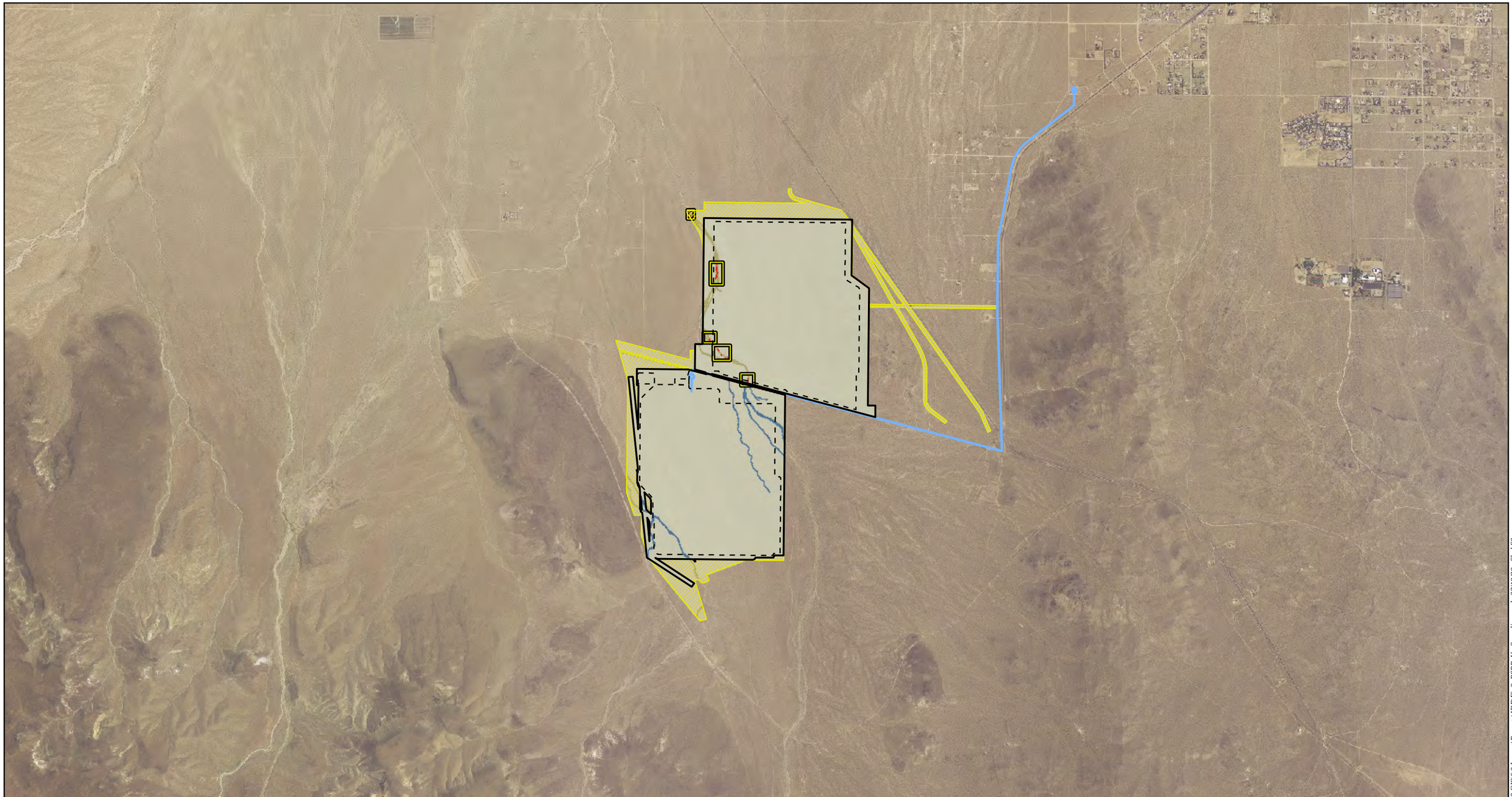
Figure 8
Soils

Solar Millennium

AECOM

Date: September 2009

Path: P:\2009\09080080 Sol M\I Ridgecrest\6.0 GIS\6.3 Layout\Reports\JDR\Fig8_RSPP_Soils.mxd, 08/18/09, ShahS2



Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Disturbance Area (Surveyed - No Longer Proposed)
- Vegetation Sampling Areas

Vegetation Communities

Riparian

- Mojave Desert Wash Scrub
- Unvegetated Ephemeral Dry Wash

Upland

- Mojave Creosote Bush Scrub

Other

- Developed
- Wash Dependent Vegetation

Source: NAIP 2005; AECOM 2009; EDAW 2009

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Jurisdictional Delineation Report

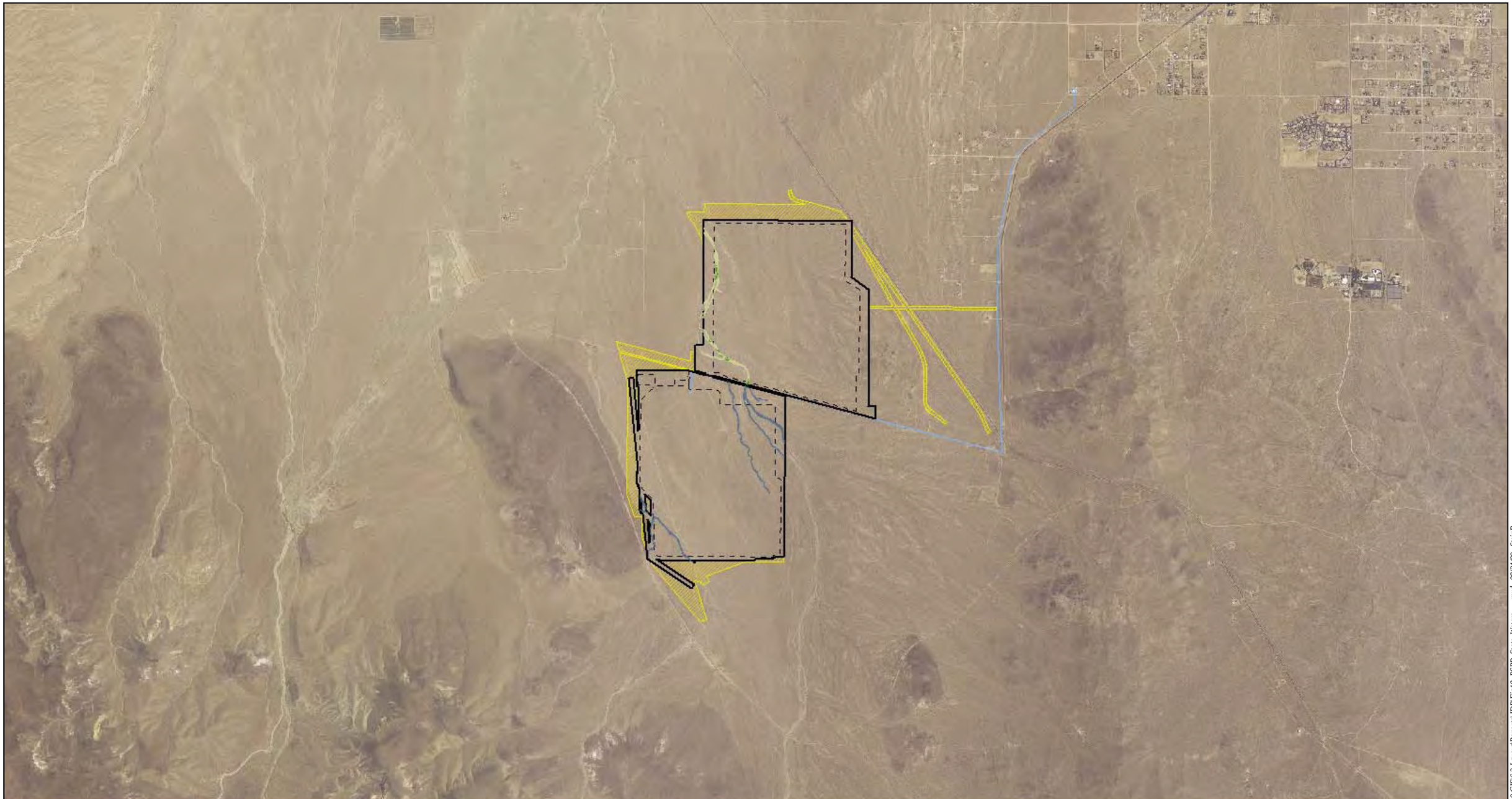
Figure 9
Wash-Dependent
Vegetation Subsampling

Solar Millennium

AECOM

Date: September 2009

Path: P:\20090908080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Reports\JDR\Fig9_RSPP_VegSampling.mxd, 08/19/09, ShahS2



Map Location

Legend

- Disturbance Area
- Facility Footprint
- Disturbance Area (Surveyed - No Longer Proposed)
- Possible Water Line Route

Jurisdictional Waters of the State

Mojave Desert Wast Scrub

- Wash Dependent Vegetation (Subsampled Areas)
- Vegetated Ephemeral Dry Wash
- **Unvegetated Ephemeral Dry Wash**

Source: NAIP 2005; AECOM 2009; EDAW 2009

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Jurisdictional Delineation Report

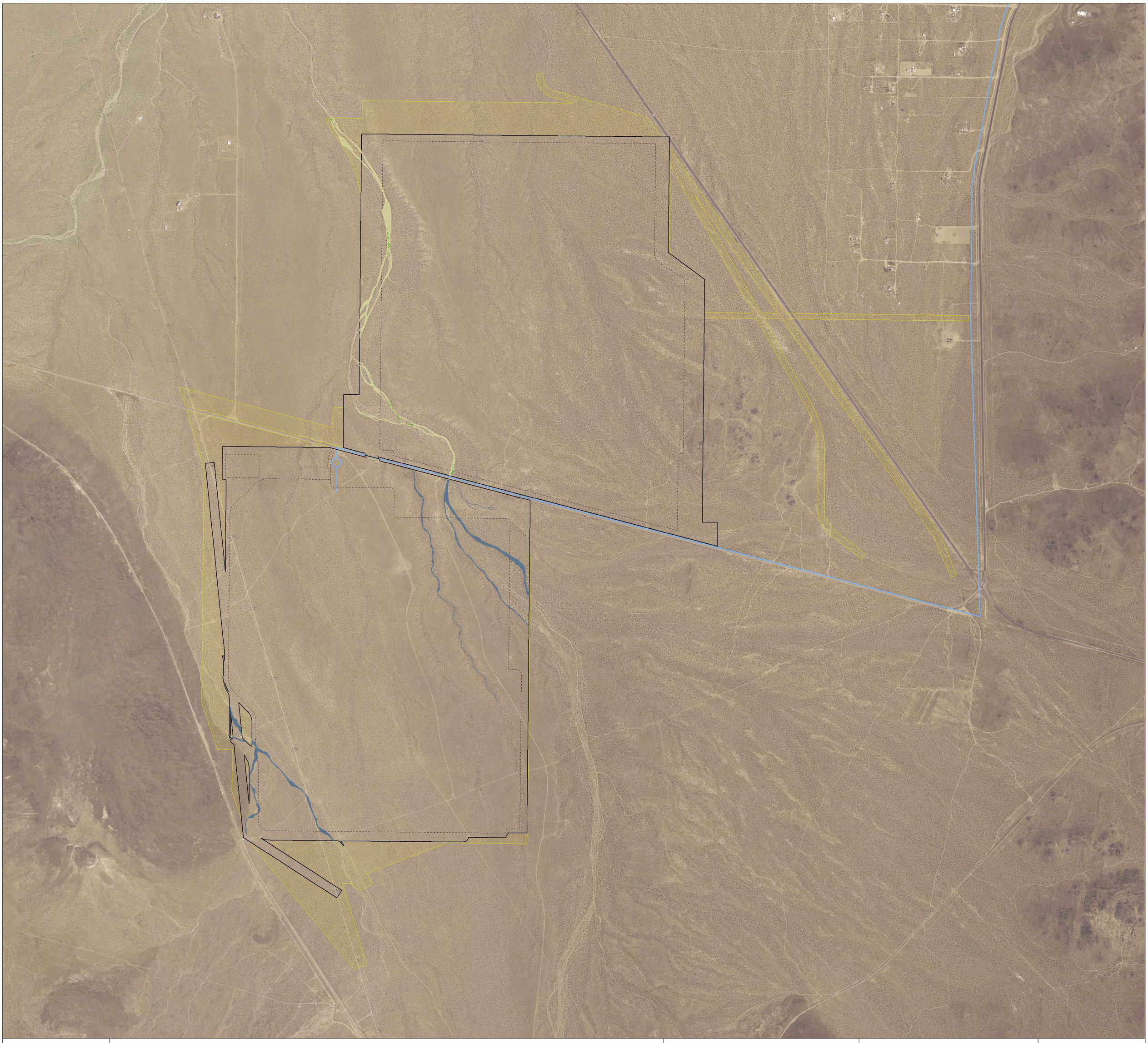
Figure 10
State Jurisdictional Waters

Solar Millennium

AECOM

Date: September 2009

Path: P:\2009\09080080 Sol M1 Ridgecrest\6.0 GIS\6.3 Layout\Reports\JDR\Fig10_RSPP_State_Waters_____.mxd, 08/24/09, SteinB



Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Disturbance Area (Surveyed - No Longer Proposed)

Jurisdictional Waters of the State

Mojave Desert Wast Scrub

- Wash Dependent Vegetation (Subsampled Areas)
- Vegetated Ephemeral Dry Wash
- **Unvegetated Ephemeral Dry Wash**

Source: NAIP 2005; AECOM 2009; EDAW 2009

N W E S

1 inch = 500 feet

0 500 1,000 1,500 2,000 Feet

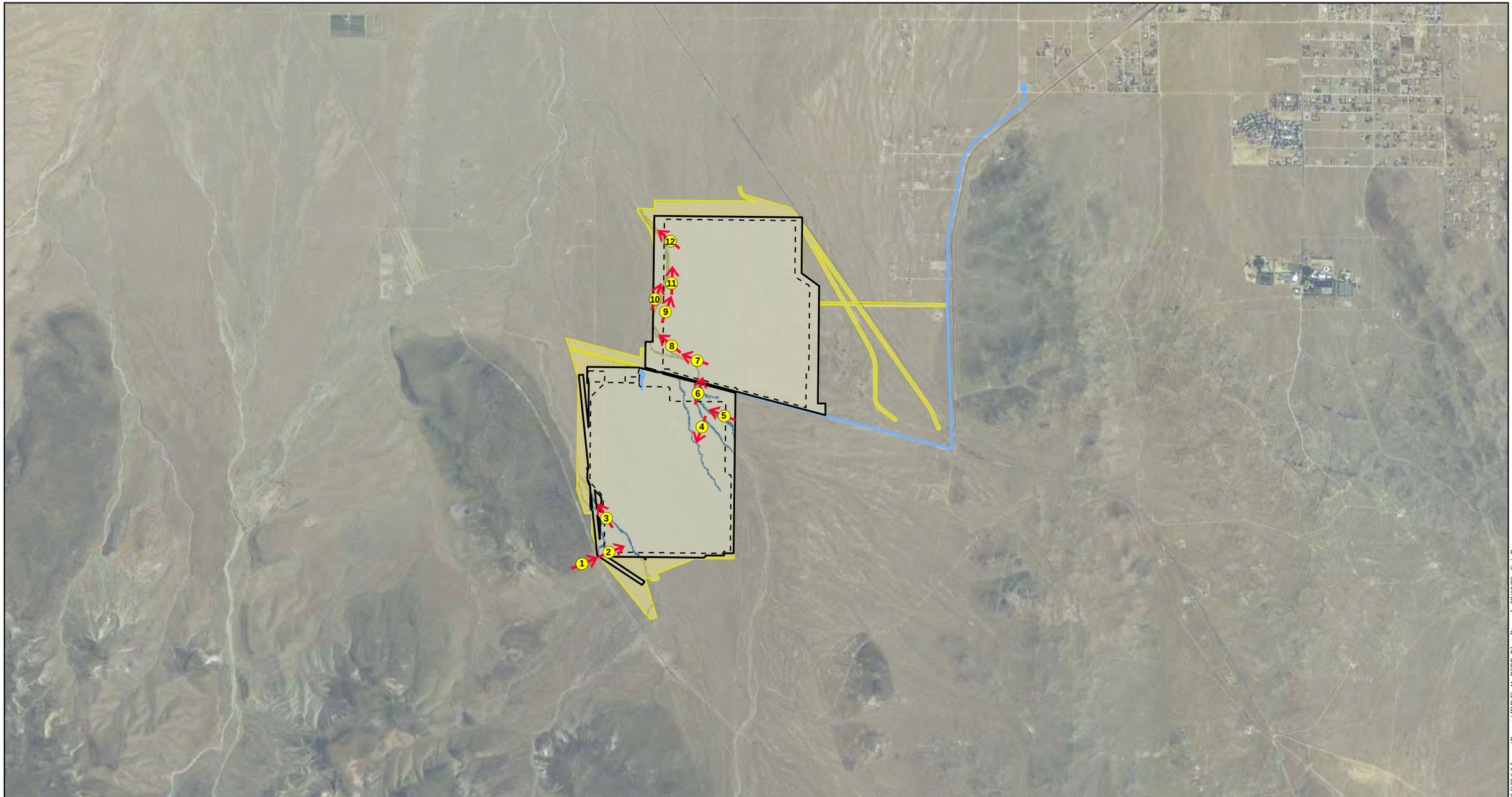
Ridgecrest Solar Power Project
Jurisdictional Delineation Report

Figure 11
State Jurisdictional Waters

Solar Millennium

AECOM

Date: September 2009



Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Disturbance Area (Surveyed - No Longer Proposed)

Vegetation Communities

- Mojave Desert Wash Scrub
- Unvegetated Ephemeral Dry Wash
- Mojave Creosote Bush Scrub
- Developed

Photo Point Location

Source: NAIP 2005; AECOM 2009; EDAW 2009

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Jurisdictional Delineation Report

Figure 12
Photo Point Locations

Solar Millennium

AECOM

Date: September 2009

Path: P:\2009\09080080\Sol Mil Ridgecrest\6.0 GIS\6.3 LayoutReports\JDR\Fig11_RSPP_PhotoPts.mxd, 08/19/09, SteinB

Photograph 1: Looking east at railroad trestle that crosses a large unvegetated ephemeral wash which originates southeast in the El Paso Mountains. This photo is located at the southwest portion of the facility footprint where it abuts the El Paso Mountains.

Photograph 2: Looking north from the center of the large unvegetated ephemeral dry wash just northwest of the railroad trestle. Note the graded portion of this wash and the obvious flow pattern within the channel.

Map Location

Ridgecrest Solar Power Project
Jurisdictional Delineation Report

Figure 13
Representative Photographs 1 and 2

Solar Millennium

AECOM

Date: August 2009

Photograph 3: Looking north from the center of an unvegetated ephemeral dry wash. Note that the evidence of scour and the development of bed and bank become less defined as the distance from the El Paso Mountains increase.

Photograph 4: Looking south at developed ephemeral wash. Note cobble and established bed and bank features.

Map Location

Ridgecrest Solar Power Project
Jurisdictional Delineation Report

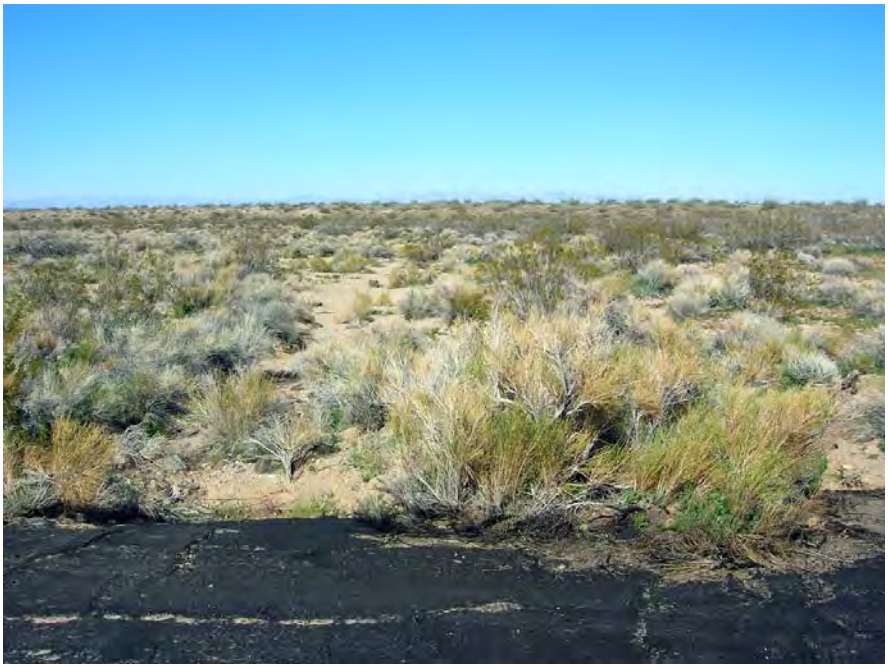
Figure 14
Representative Photographs 3 and 4

Solar Millennium

AECOM

Date: August 2009

Photograph 5: Looking northwest at a portion of the El Paso Wash. Note high volume of sandy substrate.



Photograph 6: Looking north from Brown Road, upstream at the center of El Paso Wash (which is the primary ephemeral dry wash occurring within the facility footprint). Note that Mojave Dry Wash Scrub dominants the channel as indicated by the presence of scale-broom in the foreground.

Map Location

Ridgecrest Solar Power Project
Jurisdictional Delineation Report

Figure 15
Representative Photographs 5 and 6

Solar Millennium

AECOM

Date: August 2009

Photograph 7: Looking northwest from the center of the primary channel. This feature was delineated using evidence of bed and bank and the presence of wash dependent species (e.g., scalebroom).

Photograph 8: Looking northwest from the center of the channel at the northern edge of the primary wash within the study area. Note that this portion of the El Paso Wash is a compound channel.

Map Location

Ridgecrest Solar Power Project
Jurisdictional Delineation Report

Figure 16
Representative Photographs 7 and 8

Solar Millennium

AECOM

Date: August 2009

Photograph 9: Looking north at the El Paso Wash. Note that the interfluve occurring within the channel is composed of scalebroom.

Photograph 10: Looking north at a side channel of the El Paso Wash. Note that this portion of the wash is unvegetated.

Map Location

Ridgecrest Solar Power Project
Jurisdictional Delineation Report

Figure 17
Representative Photographs 9 and 10

Solar Millennium

AECOM

Date: August 2009

Photograph 11: Looking north at a primary channel of the El Paso Wash. Note the presence of cobble in the bed and scale-broom within and along the channel banks.

Photograph 12: Looking northwest at the El Paso wash at the northwest portion of the facility footprint. Note gravel and sandy substrate.

Map Location

Ridgecrest Solar Power Project
Jurisdictional Delineation Report

Figure 18
Representative Photographs 11 and 12

Solar Millennium

AECOM

Date: August 2009

ATTACHMENT 2

APPROVED JD FORM

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District, South Coast Branch, Ridgecrest Solar Power Plant

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: CA County/parish/borough: Riverside City: Approximately 6 miles southwest of Ridgecrest, CA (refer to Figures 1-3 in the Jurisdictional Delineation Report [JDR]).

Center coordinates of site (lat/long in degree decimal format): Lat. 35.556064° **N**, Long. -117.746008° **W**

Universal Transverse Mercator: 11 N 432268.88 mE 3934948 mN

Name of nearest waterbody: Isabella Lake (approximately 45 miles east of project location).

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: N/A

Name of watershed or Hydrologic Unit Code (HUC): Indian Wells-Searles Valleys Watershed (HUC 18090205)

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request (refer to Figures 3 through 11 in the JDR).

☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc.) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:

☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

☐ Waters subject to the ebb and flow of the tide.

☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **are no** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):[1]

☐ TNWs, including territorial seas

☐ Wetlands adjacent to TNWs

☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs

☐ Non-RPWs that flow directly or indirectly into TNWs

☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs

☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs

☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

☐ Impoundments of jurisdictional waters

☐ Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: linear feet: width (ft) and/or acres.

Wetlands: acres.

c. Limits (boundaries) of jurisdiction based on: **Not Applicable**

Elevation of established OHWM (if known):

---

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.

[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

2. **Non-regulated waters/wetlands (check if applicable):**[3]
☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

1. All ephemeral washes delineated within the disturbance area abate into the landscape and become a discontinuous ephemeral wash.
2. No ephemeral wash delineated within the disturbance area directly connected with the China Lake which is itself a desert sink with no identifiable outlet.
3. The lack of hydrological connectivity of the ephemeral washes into storm drains, culverts, or ditches (no storm drains are present within the disturbance area).
4. The lack of hydrological connectivity (presenting a significant nexus [SNX] to any traditional navigable waterbody [TNW]) for washes occurring within the disturbance area.
5. The evaluation of the ephemeral washes not presenting a SNX to a TNW include the volume, duration, and frequency of the flow of water to a TNW (the Salton Sea, 60 miles southwest and the Colorado River, 15 miles east of the disturbance area).
6. Examination of the flow characteristics and functions of ephemeral washes (which do not support adjacent wetlands) has been determined not to present a significant effect on the chemical, physical, and biological integrity of downstream TNWs.
7. Lack of an ecological connection to TNWs. The ephemeral washes present a low to no potential or capacity to transfer nutrients and organic carbon (vital to support downstream foodwebs [e.g., macroinvertebrates] present in headwater streams or to convert carbon in leaf litter making it available to species downstream), nor present habitat services such as providing spawning areas for recreationally or commercially important species in downstream waters.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
Identify TNW: .

Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

[3] Supporting documentation is presented in Section III.F.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: **acres**
Drainage area: **acres**
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☐ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.
Project waters are **Pick List** river miles from RPW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Project waters are **Pick List** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW[5]: .
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: feet
Average depth: feet
Average side slopes: **Pick List**

Primary tributary substrate composition (check all that apply):
☐ Silts ☐ Sands ☐ Concrete
☐ Cobbles ☐ Gravel ☐ Muck
☐ Bedrock ☐ Vegetation. Type/% cover:
☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Pick List**
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: **Pick List**
Estimate average number of flow events in review area/year: **Pick List**

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Describe flow regime: .
Other information on duration and volume: .

Surface flow is: **Pick List**. Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):
- ☐ clear, natural line impressed on the bank
- ☐ changes in the character of soil
- ☐ shelving
- ☐ vegetation matted down, bent, or absent
- ☐ leaf litter disturbed or washed away
- ☐ sediment deposition
- ☐ water staining
  - ☐ other (list): .
- ☐ the presence of litter and debris
- ☐ destruction of terrestrial vegetation
- ☐ the presence of wrack line
- ☐ sediment sorting
- ☐ scour
- ☐ multiple observed or predicted flow events
- ☐ abrupt change in plant community

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
☐ High Tide Line indicated by:
- ☐ oil or scum line along shore objects
- ☐ fine shell or debris deposits (foreshore)
- ☐ physical markings/characteristics
- ☐ tidal gauges
- ☐ other (list): .

☐ Mean High Water Mark indicated by:
- ☐ survey to available datum;
- ☐ physical markings;
- ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

(iv) Biological Characteristics. Channel supports (check all that apply):
☐ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☐ Habitat for:
- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) <u>General Wetland Characteristics</u>:
Properties:
Wetland size: acres
Wetland type. Explain: .
Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) <u>General Flow Relationship with Non-TNW</u>:
Flow is: **Pick List**. Explain: .

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[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

Surface flow is: **Pick List**. Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .

☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

☐ Directly abutting

☐ Not directly abutting

☐ Discrete wetland hydrologic connection. Explain: .

☐ Ecological connection. Explain: .

☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List**.

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width): .

☐ Vegetation type/percent cover. Explain: .

☐ Habitat for:

☐ Federally Listed species. Explain findings: .

☐ Fish/spawn areas. Explain findings: .

☐ Other environmentally-sensitive species. Explain findings: .

☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet, width (ft) Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   - ☐ Tributary waters: linear feet, width (ft).
   - ☐ Other non-wetland waters: acres.
     Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   - ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   - ☐ Tributary waters: linear feet, width (ft).
   - ☐ Other non-wetland waters: acres.
     Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
     - ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

[8] See Footnote #3.

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.

☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.

☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.[9]

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: linear feet, width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

☒ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☒ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☒ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: see Section II.B.2 above and JDR.
☒ Other: (explain, if not covered above): refer to Figures and Hydrology Section in JDR.

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.

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[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos*.**

☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☒ Other non-wetland waters: A total of 16.5 acres. List type of aquatic resource: 8.4 acres of unvegetated ephemeral channel (*Riverine; Unconsolidated Bottom, Sand, Intermittently Flooded, Temporary, Well Drained/Fresh, Alkaline*) and 8.1 acres of vegetated ephemeral channel (*Palustrine; Forested, Broad-Leaved, Evergreen, Intermittently Flooded/ Temporary, Well Drained/Fresh, Alkaline*).
☐ Wetlands: acres.

SECTION IV: DATA SOURCES

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: JDR with figures.
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☒ USGS 8 and 12 digit HUC maps.
☐ U.S. Geological Survey map(s). Cite scale & quad name: 7.5 U.S. Geological Survey (USGS) InyoKern Southeast (1972) and Ridgecrest (1973) topographic quadrangles ☐ USDA Natural Resources Conservation Service Soil Survey. Citation: .
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☒ FEMA/FIRM maps: The portion of the disturbance area within El Paso Wash presents a 1 percent chance of flood hazards, with unknown Base Flood Elevations (FEMA Flood Zone Designation A).
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): USDA NAIP 2005.
or ☒ Other (Name & Date): Site Photos located in JDR (August 2009).
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☒ Other information (please specify): Ridgecrest Solar Plant Hydrology Report (AECOM 2009).

B. ADDITIONAL COMMENTS TO SUPPORT JD: refer to JDR and Figures.

ATTACHMENT 3

FIELD DATA AND SUBSAMPLING METHOD

ATTACHMENT 3

Primary Ephemeral Wash-Dependent Vegetation Cover Subsampling

Raw Data (from GIS)

The raw GIS data are displayed below. These data were used to calculate the quantity of wash-dependent vegetation within the survey area, based on subsampling results. While the subsampling method is detailed in the next section, the purpose of displaying this raw, unformatted data is to present in detail how the extrapolated wash-dependent vegetation is depicted in Table 10 of the JDR.

Zone	JD Legend	Acres
Disturbance Area (Unchanged)	Unvegetated Ephemeral Dry Wash	8.4
Disturbance Area (Unchanged)	Vegetated Ephemeral Dry Wash	8.0
Disturbance Area (Unchanged)	Wash-Dependent Vegetation (Subsampled Areas)	0.1
Former BSA - Now Disturbance Area	Unvegetated Ephemeral Dry Wash	0.0
Former BSA - Now Disturbance Area	Vegetated Ephemeral Dry Wash	0.1
Former Disturbance Area - Now BSA	Unvegetated Ephemeral Dry Wash	2.0
Former Disturbance Area - Now BSA	Vegetated Ephemeral Dry Wash	1.3
Former Disturbance Area - Now BSA	Wash-Dependent Vegetation (Subsampled Areas)	0.0
	TOTAL	**19.9**

Summing the "wash-dependent vegetation" and "vegetated ephemeral dry wash" acreages for the "Disturbance Area (unchanged)" gives a total of 8.2 acres (rounded to tenths). However, substituting the 0.4 acre of extrapolated wash-dependent vegetation for the 0.1 acre of physically subsampled wash-dependent vegetation shown in the table above, the total adds to 8.5 acres. The resultant 0.3 acre of "extra" area is due to the wash-dependent vegetation being interspersed throughout the non-subsampled area mapped as vegetated ephemeral dry wash. These areas cannot and should not be double-counted.

The 0.4 acre of wash-dependent vegetation is interspersed throughout the non-subsampled area mapped as riparian interfluve and/or vegetated ephemeral dry wash. Of this amount, 0.3 acre is extrapolated and 0.1 acre was physically mapped during subsampling. To ensure the extrapolated wash-dependent vegetation area was not double-counted, weighted proportions of the 0.3 acre of extrapolated area were subtracted from both the riparian interfluve (RI) and the vegetated ephemeral dry wash (VEDW). Since no RI was mapped on site, the entire 0.3 acre was subtracted from VEDW.

Subsampling Method

To estimate total coverage of wash-dependent vegetation occurring within the primary wash the weighted arithmetic mean was calculated where the estimate of absolute cover (χ) equals the sum of each sample of absolute cover (χi) multiplied by the area of each sample, or the weight (ωi), divided by the sum of all weights. The formula used was:

$$\chi = \sum \omega i(\chi i) / \sum \omega i \text{ OR } X = \omega 1(\chi 1) + \omega 2(\chi 2) + \omega 3(\chi 3) \ldots / \omega 1 + \omega 2 + \omega 3 \ldots$$

Subsampling Area	Vegetated[b] Ephemeral Dry Wash (DDWW)	Sampled[b] Wash-Dependent Vegetation (DDWW)	Riparian[b] Interfluve (DDWW)	Total Subsample Area (ωi)	% Cover Wash-Dependent Vegetation (χi)	($\omega i * \chi i$)
1	0.32	0.02	0.34	0.06	0.02	1
2	1.33	0.05	1.38	0.04	0.05	2
3	0.61	0.01	0.62	0.02	0.01	3
4	0.57	0.04	0.61	0.07	0.04	4
5	0.29	0.02	0.31	0.06	0.02	5
SUM($\omega i * \chi i$)						*0.14*
SUM ωi						*3.26*
Weighted Mean SUM ($\omega i * \chi i$)/SUM ωi						**0.043**

Primary Ephemeral Wash-Dependent Vegetation Cover Mapping

Type of Jurisdictional Water of the State	Acres
Unvegetated Ephemeral Dry Wash	8.4
Mojave Desert Wash Scrub	8.2
Wash-Dependent Vegetation (based on weighted mean percent [4.3%])	0.4
Riparian Interfluve	0.0
Vegetated Ephemeral Dry Wash	7.8
Total Waters	**16.6**

ATTACHMENT D

FLORAL SPECIES OBSERVED WITHIN THE BIOLOGICAL RESOURCES SURVEY AREA

ATTACHMENT D

Floral Species Observed Within the Biological Resources Survey Area

Family	Scientific Name	Common Name
PTERIDOPHYTES		
Pteridaceae – Brake Family		
	Cheilanthes intertexta	coastal lipfern
GNETALES		
Ephedraceae – Ephedra Family		
	Ephedra nevadensis	Nevada ephedra, Mormon tea
MONOCOTS		
Poaceae – Grass Family		
	Achnatherum hymenoides	Indian ricegrass
	Achnatherum speciosum	desert needlegrass
	Bromus madritensis ssp. *madritensis**	red brome, foxtail chess
	*Bromus tectorum**	cheat grass
	Schismus sp. *	Mediterranean grass
Liliaceae – Lily Family		
	Dichelostemma capitatum	blue dicks
DICOTS		
Apiaceae – Carrot Family		
	Lomatium mohavense	Mojave desertparsley
Asteraceae – Sunflower Family		
	Acamptopappus sphaerocephalus	rayless goldenhead
	Ambrosia dumosa	burroweed, white bursage
	Brickellia desertorum	desert brickellbush
	Chaenactis fremontii	Fremont pincushion
	Chaenactis stevioides	desert pincushion
	Chrysothamnus nauseosus	rabbitbrush
	Chrysothamnus paniculatus	black-stem, Mojave rabbitbrush
	Coreopsis bigelovii	Bigelow's tickseed
	Encelia virginensis	Virgin River brittlebush
	Ericameria cooperi	Cooper's goldenbush
	Ericameria laricifolia	turpentine brush
	Eriophyllum ambiguum var. *paleaceum*	beautiful woolly sunflower
	Eriophyllum pringlei	Pringle's woolly sunflower

Family	Scientific Name	Common Name
	Eriophyllum wallacei	Wallace eriophyllum
	Gutierrezia sarothrae	broom snakeweed, matchweed
	Hymenoclea salsola	cheesebush
	Lasthenia gracilis	needle goldfields
	Lepidospartum squamatum	scalebroom, California broomsage
	Logfia depressa	dwarf cottonrose
	Malacothrix californica	California desert dandelion
	Malacothrix coulteri	snake's head
	Rafinesquia neomexicana	desert chicory
	Syntrichopappus fremontii	yellowray, Fremont's-gold
	Tetradymia stenolepis	Mojave cottonthorn, Mojave horsebrush
	Uropappus lindleyi	silver puffs
	Xylorhiza tortifolia	Mojave aster
Boraginaceae – Borage Family		
	Amsinckia tessellata	devil's lettuce
	Cryptantha circumscissa	cushion cryptantha
	Cryptantha micrantha	redroot cryptantha
	Cryptantha nevadensis	Nevada cryptantha
	Cryptantha pterocarya	wingnut cryptantha
	Pectocarya linearis ssp. *ferocula*	sagebrush combseed
	Pectocarya platycarpa	broadfruit combseed
	Pectocarya recurvata	curvenut combseed
	Pectocarya setosa	moth combseed
	Plagiobothrys arizonicus	Arizona popcornflower
	Tiquilia plicata	fanleaf crinklemat, plicate coldenia
Brassicaceae – Mustard Family		
	Caulanthus cooperi	Cooper's wildcabbage, Cooper's jewelflower
	Descurainia pinnata	western tansymustard
	Dithyrea californica	spectacle pod
	Guillenia lasiophylla	California mustard
	Lepidium nitidum	shining pepperweed
	Thysanocarpus curvipes	lacepod
	Tropidocarpum gracile	dobie pod
Cactaceae – Cactus Family		
	Echinocactus polycephalus var. *polycephalus*	cottontop cactus, clustered barrel cactus
	Opuntia basilaris	beavertail cactus

Family	Scientific Name	Common Name
	Opuntia echinocarpa (*Cylindropuntia e.*)	silver cholla, golden cholla
	Sclerocactus polyancistrus	Mojave fish-hook cactus
Capperaceae – Caper Family		
	Isomeris arborea	bladderpod
Chenopodiaceae – Goosefoot Family		
	Atriplex polycarpa	allscale saltbush
	Atriplex hymenelytra	desert holly
	*Chenopodium murale**	nettleleaf goosefoot
	Chenopodium sp.	goosefoot
	Krascheninnikovia lanata	winter fat
	*Salsola tragus**	Russian thistle, tumbleweed
Euphorbiaceae – Spurge Family		
	Chamaesyce albomarginata	rattlesnake weed, whitemargin sandmat
Fabaceae – Legume Family		
	Astragalus acutirostris	sharpkeel milkvetch
	Astragalus didymocarpus ssp. *didymocarpus*	two-seeded milkvetch
	Astragalus layneae	widow's milkvetch
	Lotus humistratus	foothill deervetch
	Lotus wrangelianus	Chilean bird's foot trefoil
	Lupinus concinnus	bajada lupine
	Psorothamnus arborescens	Mojave indigobush
	Psorothamnus schottii	Schott's indigobush, Schott's dalea
	Senna armata	spiny senna, desert senna
	Trifolium gracilentum var. *gracilentum*	pinpoint clover
Geraniaceae – Geranium Family		
	*Erodium cicutarium**	redstem stork's bill, filaree
Hydrophyllaceae – Waterleaf Family		
	Eucrypta micrantha	dainty desert hideseed
	Phacelia distans	distant phacelia, common phacelia
	Phacelia fremontii	Fremont's phacelia
	Pholistoma membranaceum	white fiestaflower
Lamiaceae – Mint Family		
	Salazaria mexicana	bladder sage
	Salvia carduacea	thistle sage
	Salvia columbarae	chia

Family	Scientific Name	Common Name
Loasaceae – Loasa Family		
	Mentzelia albicaulis	whitestem blazingstar
	Mentzelia nitens	Venus blazing star
	Petalonyx thurberi ssp. *thurberi*	sandpaper plant
Malvaceae – Mallow Family		
	Eremalche exilis	white mallow
	Sphaeralcea ambigua	desert globemallow, apricot mallow
Nyctaginaceae – Four O'Clock Family		
	Mirabilis bigelovii var. *retrorsa*	wishbone bush
Onagraceae – Evening Primrose Family		
	Camissonia boothii	Booth's evening primrose
	Camissonia campestris	Mojave sun cup
	Camissonia claviformis	browneyes
	Camissonia palmeri	Palmer evening primrose
Papaveraceae – Poppy Family		
	Eschscholzia minutiflora ssp. *minutiflora*	pygmy poppy
Polemoniaceae – Phlox Family		
	Eriastrum eremicum	desert woollystar
	Gilia brecciarum ssp. *brecciarum*	Nevada gilia
	Gilia brecciarum ssp. *neglecta*	Nevada gilia
	Gilia minor	little gilia
	Gilia transmontana	transmontane gilia
	Linanthus bigelovii	Bigelow's linanthus
	Linanthus dichotomus	evening snow
	Loeseliastrum matthewsii	desert calico
Polygonaceae – Buckwheat Family		
	Chorizanthe brevicornu ssp. *brevicornu*	brittle spineflower
	Chorizanthe watsonii	Watson's spineflower
	Eriogonum fasciculatum var. *polifolium*	Eastern Mojave buckwheat
	Eriogonum inflatum	desert trumpet
	Eriogonum pusillum	yellow turbans
	Oxytheca perfoliata	roundleaf oxytheca
Portulaceae – Purslane Family		
	Calandrinia ciliata	red maids
	Calyptridium monandrum	common pussypaws
Ranunculaceae – Buttercup Family		

Family	Scientific Name	Common Name
	Delphinium parishii ssp. *parishii*	Parish's larkspur
Solanaceae – Nightshade Family		
	Lycium andersonii	water jacket, Anderson's desert thorn
Zygophyllaceae – Caltrop Family		
	Larrea tridentata	creosote bush

* = nonnative species

ATTACHMENT E

INFORMATION INDEX FOR DESERT TORTOISE SIGN

ATTACHMENT E
INFORMATION INDEX FOR DESERT TORTOISE SIGN
Burrows and Dens, Scats, and Shell Remains

From: *USFWS Field Survey Protocol for any Non-Federal Action that May Occur within the Range of the Desert Tortoise* (protocol) (USFWS 1992).

(1) Burrows and Dens:

1. currently active, with tortoise or recent tortoise sign
2. good condition, definitely tortoise; no evidence of recent use
3. deteriorated condition (please describe); definitely tortoise
4. deteriorated condition; possibly tortoise (please describe)
5. good condition; possibly tortoise (please describe)

(2) Scats:

1. wet (not from rain or dew) or freshly dried; obvious odor
2. dried with glaze; some odor; dark brown
3. dried; no glaze or odor; signs of bleaching (light brown), tightly packed material
4. dried; light light brown to pale yellow, loose material; scaly appearance
5. bleached, or consisting only of plant fiber

(3) Shell Remains:

1. fresh or putrid
2. normal color; scutes adhere to bone
3. scutes peeling off bone
4. shell bone is falling apart; growth rings on scutes are peeling
5. disarticulated and scattered

ATTACHMENT F

REPRESENTATIVE PHOTOS OF VEGETATION COMMUNITIES WITHIN THE BIOLOGICAL RESOURCES SURVEY AREA

ATTACHMENT F
Representative Photos of Vegetation Communities within the Biological Resources Survey Area

Mojave desert wash scrub surrounds this unvegetated ephemeral dry wash, view looking south on the western edge of the facility footprint.

Mojave creosote bush scrub on the western edge of the facility footprint.

Unvegetated ephemeral dry wash, view looking southeast in the buffer area.

Three individual plants of Mojave fish-hook cactus (*Sclerocactus polyancistrus*) in bloom.

ATTACHMENT G

BOTANICAL SURVEY REPORT

RIDGECREST SOLAR POWER PROJECT
BOTANICAL SURVEY REPORT
KERN COUNTY, CALIFORNIA

Prepared for:

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September 2009

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INTRODUCTION

EDAW AECOM (EDAW) performed biological resources studies for Solar Millennium, LLC who is the Applicant for the proposed Ridgecrest Solar Power Project (Project or RSPP). The Project is proposed on public lands managed by the Bureau of Land Management (BLM) in Kern County, California, and the Applicant has submitted an application to BLM for a right-of-way (ROW) grant. The RSPP will be a 250-megawatt (MW) solar thermal electric generating facility using parabolic trough technology.

This study was prepared to support an Application for Certification submitted to the California Energy Commission (CEC), which must license all thermal power plants over 50 MW in California. Because the Project is proposed on Federal land, compliance with the National Environmental Policy Act (NEPA) also is required. CEC and BLM are conducting a joint review of the RSPP through a combined California Environmental Quality Act (CEQA)/NEPA document, and thus this Botanical Survey Report (BSR) also supports BLM's NEPA compliance. Finally, this report will also support Project permitting from State and Federal biological resources agencies: U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG). This BSR describes existing biological conditions in a Biological Resources Study Area (BRSA) that encompasses the proposed disturbance area (area inside and outside the facility fence line that will be disturbed by the Project), solar facility footprint (area inside the facility fence line: solar fields, office and maintenance buildings, lay down area, drainage channels, bioremediation area, leach fields, a corridor for the transmission line and roads), and buffer. The BSR summarizes the botanical surveys conducted for the Project and analyzes how the proposed Project will potentially impact threatened, endangered, or special-status plant species and sensitive vegetation communities (Figures 1 and 2 [all figures referred to herein are included in Attachment 1]).

Solar Millennium, LLC (the Applicant) is proposing to construct one commercial solar thermal electric power generating station, referred to as the Ridgecrest Solar Power Project (RSPP or Project). The RSPP would be located in the southern California inland desert, approximately 5 miles southwest of the City of Ridgecrest in Kern County, California.

The Project would be located on an approximately 3,920-acre ROW owned by the Federal government and leased by the Applicant from the Bureau of Land Management (BLM). The Project facilities would occupy approximately 1,440 acres of the ROW (referred to as the facility footprint). In addition to solar fields and a main power generating facility (power block), the site

would include a main office building and parking lot, a main warehouse with laydown area, onsite access roads, a tie-in switchyard, and a bioremediation area.

The Project would have a nominal output of 250 MW. The Project would utilize solar parabolic trough technology to generate electricity. With this technology, arrays of parabolic mirrors collect heat energy from the sun and refocus the radiation onto a receiver tube located at the focal point of the parabola. A heat transfer fluid (HTF) is heated to a high temperature (750° F) as it circulates through the receiver tubes. The heated HTF is then piped through a series of heat exchangers where it releases its stored heat to generate high-pressure steam. The steam is then fed to a traditional steam turbine generator where electricity is produced.

The Project would include two solar fields, each occupying roughly 700 acres and comprised of piping loops arranged in parallel groups connected to supply and return header piping. The power block would be located south of Brown Road, just north of the southern solar field. The power block would be comprised of its own administration, control, warehouse, maintenance, and lab buildings; an HTF pumping and freeze protection system; steam generator; propane-fired auxiliary boiler; one steam turbine generator; an air-cooled condenser (ACC); generator step-up transformer, transmission lines and related electrical system; and auxiliary equipment (i.e., water treatment system, diesel-powered emergency generator, and firewater system). A new 12-inch diameter, approximately 5-mile long water pipeline would be installed within the Brown Road and China Lake Boulevard ROWs to connect the Project with the Indian Wells Valley Water District (IWVWD) supply. A new 230 kV transmission line from the turbine generator to a new nearby switchyard would interconnect with Southern California Edison's (SCE) existing 230 kV Inyokern/Kramer Junction transmission line passing west of the Project site. The transmission line would be approximately 0.5 mile long and located within the disturbance area.

Access to the site would be provided by a new 700-foot long, 24-foot wide paved access road from Brown Road, located approximately 2.25 miles west of the intersection of Brown Road with U.S. Highway 395. Only a small portion of the overall disturbance area would be paved, primarily the site access road, the service road to the power block, and portions of the power block. The remaining portions of the power block would be gravel surfaced. The area of the power block would be approximately 18 acres, with approximately 6 acres of paved area. The solar field would remain unpaved and without a gravel surface to prevent rock damage from mirror wash vehicle traffic. A dust suppression coating would be used on the dirt roadways within and around the solar field. The Project solar field and support facilities perimeter would be secured with chain link metal-fabric security fencing. Along the north and south sides of the facility, the fence would be 8 feet tall, with 1-foot barbed wire or razor wire on top. Thirty-

foot tall wind fencing, comprised of A-frames and wire mesh, would be installed along the east and west sides of each solar field. Controlled access gates would be located at the site entrance.

Project construction is scheduled to begin in late 2010 and continue into 2013.

Following completion of spring 2009 surveys, several changes were made to the disturbance area limits. First, a conceptual footprint of a possible water line was identified (Figure 2). The final Project water line route has not yet been selected. The possible water line route would be approximately 5 miles long. The possible water line footprint has not yet been surveyed and, therefore, is not discussed in this report. Surveys for the possible water line will be conducted following selection of the final water line route (anticipated spring 2010).

In addition, several portions of the disturbance area, totaling approximately 288 acres, are no longer a part of the proposed Project and have been removed from the disturbance area (Figure 2). However, because these 288 acres were included in the spring 2009 surveys, in the interest of contributing to the body of scientific information, survey results for these areas are included in this document. Also, as a result of the changes to the proposed disturbance area, approximately 15 acres have not yet been surveyed. Surveys for the additional 15 acres will be completed following final Project design (anticipated spring 2010).

METHODS

EDAW biologists conducted field assessments and focused botanical surveys during February to May 2009. Exact dates of surveys and a list of staff are summarized in Table 1.

Table 1
2009 Floral Survey Schedule

Surveyors[1]	February 18–20	February 24–27	March 4–6	April 1–3	May 6–8
Battaglia, Charles		X			
Betzler, Joseph					X
Dwerlkotte, Richard			X	X	
Innicken, Shirley	X				
McMillan, Scott	X				
Sproul, Fred	X	X			
Wooley, Lance		X	X	X	X

[1] Qualifications for biologists listed in Table 1 can be reviewed in Attachment 2.

Vegetation Communities

Vegetation communities within the BRSA were classified based on Holland (1986). Sawyer and Keeler-Wolf (1995) and California Department of Fish and Game (CDFG 2003) classifications were used to provide additional detail where appropriate. Project botanists use 200-foot scale ortho-topographic maps for both vegetation mapping and rare plant points or polygons. If rare plants were documented during vegetation mapping, these sites were noted and revisited during focused rare plant surveys to map them in more detail and accurately delineate species populations using Global Positioning System (GPS) equipment.

The minimum mapping unit, per CEC guidelines, was 0.01 acre for riparian areas and 1.0 acre for all other cover types within the disturbance area. Within the buffer, the minimum mapping unit for all land cover types was 1.0 acre. Vegetation mapping within the disturbance area was conducted concurrently with rare plant surveys by walking transects ranging from 10 to 100 feet apart. The buffer was surveyed by walking transects within native habitat, but developed areas were surveyed by a combination of walking transects and selecting key vantage points from existing dirt access roads.

Dominant plant species for the various riparian and upland vegetation communities were recorded according to the 50/20 dominance rule. According to this, dominant plant species are defined as those that, when ranked in order of abundance, collectively make up 50 percent relative cover. Each dominant species individually makes up at least 20 percent relative cover, or is needed to surpass the 50 percent relative cover threshold. Once the dominant plant species were identified according to this method, they were grouped according to relative cover: species below 20 percent, species ranging from 20 to 50 percent cover, and species exceeding 50 percent cover.

An observation number was recorded on the map and keyed to the field notes for representative locations. A description of the vegetation community was written in field notes and included disturbance, special soils, potential jurisdictional waters, and habitat suitability for sensitive species. Invasive species on the California Invasive Plant Council (Cal-IPC) List A-1, A-2, and B (Cal-IPC 2009) were noted when occurring in high concentrations (approximately 107.6 square feet) and nearly monotypic stands.

Vegetation communities and other land cover types classified as “sensitive” within this report were determined by applying the appropriate regulatory context. Guidance for determining sensitive vegetation communities is provided by these resource agencies: BLM, CDFG, and the

California Native Plant Society (CNPS), as well as supporting documentation such as the California Natural Diversity Database (CNDDB). These Federal, State, and local agencies and related publications typically are in concurrence on the classification of sensitive vegetation communities and other land cover types. For example, vegetation communities or other cover types that are considered potential jurisdictional State waters typically result in the vegetation community or nonvegetated area being considered sensitive. For this proposed Project, these waters are regulated by Sections 1600 et seq. of the California Fish and Game Code. Additionally, the occurrence of suitable habitat for special-status plant and wildlife species raises the sensitivity of a vegetation community. Biologically, the vegetation communities that provide the highest habitat values within the BRSA are the riparian communities and the native upland communities.

Floral Inventory and Rare Plant Survey Methods

A list of potentially occurring special-status plant species was compiled based on CDFG's CNDDB (RareFind Version 3.1.0, CDFG 2009), CNPS Inventory of Rare and Endangered Plants (CNPS 2009), the Natural Resources Conservation Service Web Soil Survey (USDA 2009b), and Project biologists with floral expertise in the region of the proposed Project.

For the purposes of this report, plant species are considered to be special-status if they meet at least one of the following criteria:

- Covered under the Federal or California Endangered Species Act (ESA and CESA, respectively) (CDFG 2009);
- CDFG species of special concern (CDFG 2009);
- CDFG fully protected species (CDFG 2009);
- BLM sensitive species (BLM Sensitive) (BLM 2009);
- CNPS List: 1A (presumed extinct in California), 1B (rare, threatened, and endangered in California and elsewhere), or 2 (rare, threatened, or endangered in California, but more common elsewhere) species are considered special-status plant species if they meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Sections 2050 through 2098 (CESA); or
- CNPS List: 3 (plants about which we need more information—a review list), or 4 (plants of limited distribution—a watch list).

In addition, the West Mojave Plan (WEMO) (BLM 2005) was reviewed for documentation of special-status species. The Federal Land Policy and Management Act (FLPMA) requires BLM to develop land use plans, also known as Resource Management Plans, to guide BLM's management of public land. BLM is required to determine conformity of the project developments with the California Desert Conservation Area Plan (CDCA), including WEMO. WEMO is the result of a multi-agency Federal, State, and local planning effort. This plan was prepared under the regulations implementing the Federal Land Policy and Management Act of 1976. WEMO is a multi-species landscape-scale habitat conservation plan and a CDCA Plan amendment developed to protect and conserve the desert tortoise (*Gopherus agassizii*; DT), Mohave ground squirrel (*Spermophilus mohavensis*; MGS), and numerous other sensitive species and their habitats; to prevent future species listing; and to provide a consistent, cost-effective, streamlined process for complying with threatened and endangered species law. The WEMO designates Areas of Critical Environmental Concern and other special management areas, designates off-road travel routes on public lands, reclassifies various land use categories for appropriate uses, and establishes regional standards and guidelines for grazing, mineral exploration and development, recreation, and other public land uses to meet the goals and objectives of the plan.

A list of special-status plant species was compiled from several sources, which included results from previous survey efforts in the vicinity of the proposed Project (CH2MHill 2008), as well as plants listed as special-status by CDFG and BLM with the potential to occur within the vicinity of the BRSA due to the presence of suitable habitats for special-status species. These resources and range maps were consulted to determine historic occurrence of special-status plant and wildlife species and other natural resources within the BRSA. Additionally, USFWS provided a memo detailing special-status species that it requires to be considered (see Attachment L to the Project Biological Resources Technical Report). At the direction of BLM, cottontop cactus (*Echinocactus polycephalus var. polycephalus*), hedgehog cactus (*Echinocereus* spp.), and all varieties of California barrel cactus (*Ferocactus cylindraceus*) encountered on site were recorded and mapped (LaPre 2009).

Surveys were conducted by walking transects ranging from 10 to 100 feet apart throughout the entire BRSA, focusing on plant species inventory and rare plant species. Rare plant surveys followed survey guidelines from the following resources: 1) Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants (USFWS 2000); 2) Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (CDFG 1996); 3) CNPS Botanical Survey

Guidelines (CNPS 2001); and 4) Survey Protocols for Survey and Manage Strategy 2: Vascular Plants (Whiteaker et al. 1998).

Plant nomenclature is always changing; for the purposes of this survey report, the main authority was The Jepson Desert Manual (Baldwin et. al. 2002). Plants not listed in this reference can be found in The Jepson Manual (Hickman 1993). The Jepson Desert Manual often does not list a common name; therefore, other sources were consulted: Calflora.org (Calflora 2009) and the USDA Plant Database (USDA 2009a). Common names can be problematic but are often useful. Each plant listed has at least one common name indicated, and occasionally two appear in the plant list (Floral Species Observed, Attachment 3).

The rare plant surveys included all locations within the BRSA where suitable habitats for special-status plant species were present. In the 1-mile buffer of the BRSA, vegetation mapping was conducted from strategic vantage points whenever direct access was not feasible. Suitable habitats were determined based on geography, slope aspect, soil substrate, vegetation community, associated plant species, and familiarity with each species based on reference populations and historical surveys conducted in the region. Survey dates were selected based on the most phenologically appropriate time for each plant species, when reproductive structures (i.e., flowers and fruits) and distinctive leafy parts were present and easily identifiable. Several rounds of focused surveys (Table 1) were required to accommodate the distinct phenologies of each special-status plant species with potential to occur.

Surveys were scheduled to coincide with optimum flowering times in spring 2009 for all of the special-status species potentially occurring on site. When appropriate, known locations of rare plants in the vicinity of the Project were visited to verify the status of these species during the 2009 growing season (e.g., germinating, flowering, seeding). In general, the ideal survey window for 2009 was closely associated with the rainfall pattern, including rainfall totals and the timing of precipitation. All areas were visited at least three times during the 2009 surveys to detect all of the potential special-status plant species, and some areas were surveyed four or more times where appropriate. Vegetation communities known or suspected to support special-status plant populations were walked in a meandering fashion. If a special-status plant population was located, the population was assessed for vigor and possible threats (i.e., off-road vehicle activity and invasive plants), and the plants were counted. All special-status plant locations identified were recorded directly with Trimble GeoXT submeter GPS units and were mapped on aerial photograph field maps. Additionally, all plant species observed during the rare plant surveys are included in the floral inventory (Attachment 3).

RESULTS

This section details the results of 2009 field surveys, including the special-status plant species, vegetation communities, and other land cover types observed within the BRSA. Additionally, this section provides a discussion of special-status plant species that are not documented but have potential to occur within the BRSA.

Vegetation Communities

Four vegetation communities and other land cover types were identified within the BRSA during vegetation mapping: Mojave Desert wash scrub, unvegetated ephemeral dry wash, Mojave creosote bush scrub, and developed land (Table 2, Figure 3). The acreages of each vegetation community within the BRSA are provided in Table 2. Vegetation types are described in detail below and based on a classification system by R. Holland (1986). When appropriate, vegetation classification by J.O. Sawyer and T. Keeler-Wolf (1995) are also considered. Community types according to CDFG (2003) are listed where applicable. Photographic documentation of vegetation communities is included in Attachment 4.

Table 2
Vegetation Communities and Cover Types (Acres)

Vegetation Communities and Other Cover Types	Surveyed Disturbance Area		Buffer	BRSA
	New Disturbance Area[a]	Now Excluded from Disturbance Area		
Riparian				
Mojave Desert Wash Scrub	8.2	1.3	48.9	58.4
Unvegetated Ephemeral Dry Wash	8.4	2.0[b]	33.2[b]	43.6
Subtotal Riparian	*16.6*	*3.3*	*82.1*	*102.0*
Upland				
Mojave Creosote Bush Scrub	1,721.1	284.4	7,090.7	9,096.2
Subtotal Upland	*1,721.1*	*284.4*	*7,090.7*	*9,096.2*
Other Cover Types				
Developed	0.5	0.5	113.0	114.0
Subtotal Other Cover Types	*0.5*	*0.5*	*113.0*	*114.0*
Total Acres	**1,738.2**	**288.2**	**7,285.8**	**9,312.2**

[a] Disturbance area is based on the most recent design, as shown in Figure 2.

[b] Unvegetated channels are potentially jurisdictional aquatic features and were not mapped within the buffer because these surveys were conducted at a minimum mapping unit of 1.0 acre, as opposed to 0.01 of an acre for riparian vegetation communities within the disturbance area. This approach is consistent with the EDAW AECOM Jurisdictional Delineation methodology (EDAW 2009a) and is pursuant to Appendix B, Section (g), Subsection (13), Paragraph (B), Clause (iii) of CEC Siting Regulations, which does not require detailed mapping of aquatic features beyond 250 feet of the disturbance limits (CEC 2007).

Riparian Vegetation Communities

Mohave Desert Wash Scrub

Mojave Desert wash scrub is an open to moderately dense evergreen scrub that attains a height of 3 to 6 feet. This community consists of three primary components: wash dependent vegetation, vegetated ephemeral dry wash, and islands of Mojave creosote bush scrub (e.g., riparian interfluves). The dominant and indicator plant of this community within the BRSA is scale-broom (*Lepidospartum squamatum*), which occurs in patches throughout the dry washes scattered amongst creosote bush (*Larrea tridentata*), spiny senna (*Senna armata*), cheesebush (*Hymenoclea salsola*), burroweed (*Ambrosia dumosa*), Virgin River brittlebush (*Encelia virginensis*), and rayless goldenhead (*Acamptopappus sphaerocephalus*). Common herbaceous plants include California desert dandelion (*Malacothrix californica*), Fremont pincushion (*Chaenactis fremontii*), distant phacelia (*Phacelia distans*), and Wallace eriophyllum (*Eriophyllum wallacei*). Mojave Desert wash scrub is concentrated among the northern portion of the dry wash that traverses the central portion of the BRSA from south to northwest(Figure 3).

Approximately 8.2 acres of Mojave Desert wash scrub occur within the current disturbance area, 1.3 acres have been excluded from the original disturbance area and are now part of the buffer, and 48.9 acres occur in the original buffer, for a total of 58.4 acres within the BRSA (Figure 3).

Unvegetated Ephemeral Dry Wash

This community consists of unvegetated washes that are dominated by sandy substrate and little to no perennial vegetation. Unvegetated ephemeral dry wash predominantly occurs within the transition zone between the desert wash scrub, in locations where the washes transition to sheet flow (Figure 3). There were no dominant perennial plant species, specifically scale-broom which is the dominant indicator of Mojave desert wash scrub, observed in association with nonvegetated channel, as these areas are primarily devoid of vegetation.

Approximately 8.4 acres of unvegetated ephemeral dry wash occur within the disturbance area (Figure 3). Corresponding unvegetated ephemeral dry wash was not mapped in the buffer, but is a component of the Mojave Desert wash scrub. This is because the minimum mapping unit for riparian vegetation communities in the buffer was 1.0 acre, as opposed to 0.01 acre within the disturbance area. However, there are now 2.0 acres of mapped unvegetated ephemeral dry wash within the buffer (due to disturbance area modifications) and an additional 33.2 acres of

presumed unvegetated ephemeral dry wash within the buffer (interpreted from aerial imagery), for a total of 43.6 acres of unvegetated ephemeral dry wash within the BRSA.

Upland Vegetation Communities

Mojave Creosote Bush Scrub

Mojave creosote bush scrub occurs on well-drained decomposed granite and volcanic soils, and consists of widely spaced shrubs up to 9 feet tall. This is the most common plant community within the BRSA, dominated by creosote bush, burroweed, cheesebush, and Virgin River brittlebush. Common herbaceous species include redstem stork's bill (*Erodium cicutarium*), Mediterranean grass (*Schismus* sp.), needle goldfields (*Lasthenia gracilis*), and blue dicks (*Dichelostemma capitatum*).

A large volcanic outcrop occurs along the western edge of the BRSA, where the Mojave creosote bush scrub becomes sparser and the herbaceous layer becomes more diverse. Vegetation associated with this outcrop includes such species as Parish's larkspur (*Delphinium parishii* ssp. *parishii*), snake's head (*Malacothrix coulteri*), and dwarf cottonrose (*Logfia depressa*). In the central-eastern portion of the BRSA, large granite boulder outcrops occur within the Mojave creosote bush scrub. In this area, sub-shrubs such as desert brickellbush (*Brickellia desertorum*), Eastern Mojave buckwheat (*Eriogonum fasciculatum* var. *polifolium*), and Cooper's goldenbush (*Ericameria cooperi*) become more common.

Approximately 1,721.1 acres of Mojave creosote bush scrub occur within the disturbance area, 284.4 acres have been excluded from the original disturbance area and are now part of the buffer, and 7,090.7 acres occur in the original buffer, for a total of 9,096.2 acres within the BRSA (Figure 3).

Other Cover Types

Developed Areas

Developed areas within the BRSA consist of roadways and residential lots. Brown Road is a two-lane paved roadway that traverses the entire central portion of the BRSA from east to west. In addition numerous unpaved dirt roads (over approximately 10 miles) traverse the Project site. U.S. Highway 395, a two-lane freeway, is located just east of the BRSA. Borders of paved roadways are highly managed and many of these areas are devoid of vegetation. Vegetation is

also very limited on dirt roads; only occasionally do plants grow along the center-line and indicative of surrounding vegetation. A few residential lots occur within the BRSA at the northwestern corner of the disturbance area, while more extensive residential development occurs in the northeast corner of the BRSA at the outer limits of the town of Ridgecrest, California. Plant composition on residential lots is primarily nonnative, especially within the residential development in the northeast portion of the BRSA.

Approximately 0.5 acre of developed area occurs within the disturbance area, 0.5 acre has been excluded from the original disturbance area and is now part of the buffer, and 113.0 acres occur in the original buffer, for a total of 114.0 acres within the BRSA (Figure 3).

Sensitive Vegetation Communities

Vegetation communities within the BRSA that are considered sensitive are those within jurisdictional waters including unvegetated channels. Besides the Mojave Desert wash scrub and unvegetated ephemeral dry wash discussed above, no other sensitive vegetation communities or cover types were detected within the BRSA.

Floral Inventory

A total of 112 plant species were detected during vegetation mapping and rare plant surveys (Attachment 3). Six plant species were nonnative plants, including three grasses: red brome (*Bromus madritensis)*, cheat grass (*Bromus tectorum*), and Mediterranean grass (*Schismus* sp.); and three annual plants: nettleleaf goosefoot (*Chenopodium murale*), Russian thistle (*Salsola tragus*), and redstem stork's bill (*Erodium cicutarium*). No special-status plants were observed within the BRSA during spring 2009 surveys. However, despite the lack of detection of special-status plants during spring 2009 surveys, five of 13 special-status plant species considered in this document have the potential to occur within the BRSA based on the species' range, the presence of potentially suitable habitat, and survey limitations (Table 3; and see discussion below).

•

Table 3
Special-Status Plant Species Potentially Occurring within the Project

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2009)	Plant Habit, Flowering Period	Potential for Occurrence within BRSA[2]	Disturbance Area		Buffer	
					Findings[3]	Potential[4]	Findings[3]	Potential[4]
Mojave tarplant (*Deinandra mohavensis*, syn. *Hemizonia m.*)	CESA: Endangered CNPS: List 1B.3 WEMO	Chaparral, Riparian scrub on low sand bars, mostly in riparian areas or in ephemeral grasslands 2,500–4,800 feet.	Annual herb to 1 foot that blooms July–September.	This species was not detected during spring 2009 surveys. Marginally suitable habitat for this species is present in the dry washes within the BRSA. The nearest record of this species is 15 miles to the northwest of the BRSA in Short Canyon (CDFG 2009).	ND	L	ND	L
Red Rock tarplant (*Deinandra arida*, syn. *Hemizonia a.*)	CESA: Rare CNPS: List 1B.2 WEMO	Mojave desert scrub where water has collected along ephemeral streams; clay soils 900–2,800 feet.	Annual herb to 3 feet that blooms May–November.	This species was not detected during spring 2009 surveys. Marginally suitable habitat for this species is present in the dry washes within the BRSA. The nearest documented population occurs 18 miles to the southwest of the BRSA in Red Rock State Park (CDFG 2009).	ND	L	ND	L

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2009)	Plant Habit, Flowering Period	Potential for Occurrence within BRSA[2]	Disturbance Area		Buffer	
					Findings[3]	Potential[4]	Findings[3]	Potential[4]
Alkali mariposa-lily (*Calochortus striatus*)	CNPS: List 1B.2 BLM: Sensitive WEMO	Chaparral, Chenopod scrub, meadows and seeps 200–4,800 feet.	Perennial herb to 6 inches that flowers April–June.	This species was not detected during spring 2009 surveys. Habitat for this species does not occur within the BRSA. This species prefers more mesic sites than those that occur within the BRSA. The nearest record of this species is 25 miles to the northwest of the BRSA (CDFG 2009).	ND	NE	ND	NE
Brown fox sedge (*Carex vulpinoidea*)	CNPS: List 2.2	Marshes and swamps; Riparian woodland 90–3,600 feet.	Perennial herb that blooms May–June.	This species was not detected during spring 2009 surveys. Habitat for this species does not occur within the BRSA. This species prefers more mesic sites than those that occur within the BRSA. The nearest record of this species is 13.75 miles to the northwest of the BRSA (CDFG 2009).	ND	NE	ND	NE

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2009)	Plant Habit, Flowering Period	Potential for Occurrence within BRSA[2]	Disturbance Area		Buffer	
					Findings[3]	Potential[4]	Findings[3]	Potential[4]
Muir's tarplant (*Carlquistia muirii*) (syn. *Raillardopsis m.*)	CNPS: List 1B.3 BLM: Sensitive	Chaparral, Montane coniferous forest in crevices of granite ledges and dry sandy soils 3,300–7,500 feet.	Rhizomatous herb <2 feet that blooms July–August.	This species was not detected during spring 2009 surveys. Habitat for this species does not exist within the BRSA. The nearest documented population occurs 19 miles to the northwest of the BRSA near Nine-Mile Canyon at higher elevations (CDFG 2009).	ND	NE	ND	NE
Gilman's goldenbush *(Ericameria gilmanii)*	CNPS: List 1B.3	Subalpine coniferous forest, montane coniferous forest, generally on limestone 6,300–10,200 feet.	Shrub to 2 feet that blooms August–September.	This species was not detected during spring 2009 surveys. Habitat for this species does not exist within the BRSA. The nearest documented population occurs 19 miles to the northwest of the BRSA near Owen's Peak (CDFG 2009).	ND	NE	ND	NE
Hall's daisy (*Erigeron aequilifolius*)	CNPS: List 1B.3 BLM: Sensitive WEMO	Broadleafed upland forest, Lower montane coniferous forest, Pinyon and juniper woodland, Upper montane coniferous forest, rocky, granitic soils 4,500–13,500 feet.	Rhizomatous herb to 1 foot blooms July–August.	This species was not detected during spring 2009 surveys. Habitat for this species does not exist within the BRSA. The nearest documented population occurs 19 miles to the northwest of the BRSA near Owen's Peak (CDFG 2009).	ND	NE	ND	NE

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2009)	Plant Habit, Flowering Period	Potential for Occurrence within BRSA[2]	Disturbance Area		Buffer	
					Findings[3]	Potential[4]	Findings[3]	Potential[4]
Red Rock poppy (*Eschscholzia minutiflora ssp. twisselmannii*)	CNPS: List 1B.2 BLM: Sensitive	Mojave desert scrub on volcanic tuff 2,000–6,120 feet.	Annual herb to 1 foot that blooms March–May.	This species was not detected during spring 2009 surveys. Habitat for this species occurs in the western portion of the BRSA. The nearest documented population occurs 8.5 miles southeast of the BRSA (CDFG 2009).	ND	M	ND	M
Creamy blazing star (*Mentzelia tridentata*)	CNPS: List 1B.3 BLM: Sensitive	Mojave desert scrub 2,100–3,500 feet.	Annual herb to 1 foot that blooms March–May.	This species was not detected during spring 2009 surveys. Habitat for this species occurs within the BRSA. The nearest documented population occurs 17.5 miles southwest of the BRSA (CDFG 2009).	ND	M	ND	M
Sweet-smelling monardella (*Monardella beneolens*)	CNPS: List 1B.3 BLM: Sensitive WEMO	Alpine boulder and rock field, Subalpine coniferous forest, Upper montane coniferous forest 7,500–10,500 feet.	Rhizomatous herb to 1 foot that blooms July–September.	This species was not detected during spring 2009 surveys. Habitat for this species does not exist within the BRSA. The nearest documented population occurs 19 miles to the northwest of the BRSA near Owen's Peak (CDFG 2009).	ND	NE	ND	NE

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2009)	Plant Habit, Flowering Period	Potential for Occurrence within BRSA[2]	Disturbance Area		Buffer	
					Findings[3]	Potential[4]	Findings[3]	Potential[4]
Charlotte's phacelia (*Phacelia nashiana*)	CNPS: List 1B.2 BLM: Sensitive WEMO	Joshua tree "woodland," Mojave desert scrub, Pinyon and juniper woodland 1,800–6,600 feet.	Annual herb to 8 inches that blooms April–May.	This species was not detected during spring 2009 surveys. Marginally suitable habitat is present within the BRSA. The nearest documented population occurs 12 miles to the west of the BRSA (CDFG 2009).	ND	L	ND	L
Nine-mile canyon phacelia (*Phacelia novenmillensis*)	CNPS: List 1B.2 BLM: Sensitive WEMO	Broadleafed upland forest, Cismontane woodland, Pinyon and juniper woodland, Upper montane coniferous forest 4,935–7,920 feet.	Annual herb to 4 inches that blooms May–June.	This species was not detected during spring 2009 surveys. Habitat for this species does not exist within the BRSA. The nearest documented population occurs 16.75 miles to the northwest of the BRSA near Owen's Peak (CDFG 2009).	ND	NE	ND	NE
Latimer's woodland-gilia (*Saltugilia latimeri*)	CNPS: List 1B.2	Chaparral, Mojave desert scrub, Pinyon and juniper woodland 1,200–5,700 feet.	Annual herb to 1 foot that blooms March–June.	This species was not detected during spring 2009 surveys. Marginally suitable habitat is present within the BRSA. The nearest documented population occurs 16.25 miles to the northwest of the BRSA (CDFG 2009).	ND	L	ND	L

Common Name Scientific Name	Sensitivity Status[1]	General Habitat Description (CNPS 2009)	Plant Habit, Flowering Period	Potential for Occurrence within BRSA[2]	Disturbance Area		Buffer	
					Findings[3]	Potential[4]	Findings[3]	Potential[4]
Mojave fish-hook cactus (*Sclerocactus polyancistrus*)	CNPS: List 4.2 (watch list)	Mojave creosote bush scrub 2,450–6,900 feet.	Typically single bodied cactus up to 10 inches tall, blooms April–June.	This species was not detected during spring 2009 surveys. This species was observed in the buffer area in a wash in the southwest. Three specimens were found growing together in the southwestern buffer.	ND	M	P	H

[1] Sensitivity Status Key
ESA Threatened
CDFG Rare
CNPS California Native Plant Society Lists:
1B: Considered rare, threatened, or endangered in California and elsewhere.
2: Plants Rare, Threatened, or Endangered in California, but more common elsewhere.
Decimal notations: .1 – Seriously endangered in California, .2 – Fairly endangered in California, .3 – Not very endangered in California
BLM Special-Status Plants (BLM 2009)
WEMO Special-status species considered in analysis of the West Mojave Plan (BLM 2005)
[2] Some populations of rare plants were observed on site, at other locations in the Sonoran Desert during the focused survey periods, or have records near the BRSA.
[3] Findings
P (present) – Species detected during Project surveys
ND (not detected) – Species not detected during Project surveys
[4] Potential
NE (not expected) – Suitable habitat for species does not occur
L (low potential) – Suitable habitat present, but of marginal quality
M (moderate potential) – Suitable habitat present
H (high potential) – Suitable habitat present, and species known to occur within the vicinity

Special-Status Plants

The following 13 special-status species were identified as having the potential to occur on or near the BRSA. One CNPS: List 4 (watch list) species was found within the BRSA. These species are discussed in detail below:

Federal or State-Listed (ESA or CESA)

- Red Rock tarplant (*Deinandra arida*, syn. *Hemizonia a*.) – CESA rare, CNPS List 1B.2, WEMO
- Mojave tarplant (*Deinandra mohavensis*, syn. *Hemizonia m*.) – CESA endangered, CNPS List 1B.3, WEMO

CDFG Species of Special Concern, California Code of Regulations, BLM Sensitive, or CNPS List 1A, 1B, or 2

- Alkali mariposa lily (*Calochortus striatus*) – CNPS List 1B.2, BLM Sensitive, WEMO
- Brown fox sedge (*Carex vulpinoidea*) – CNPS List 2.2
- Muir's tarplant (*Carlquistia muirii*, syn. *Raillardiopsis m*.) – CNPS List 1B.3, BLM Sensitive
- Gilman's goldenbush (*Ericameria gilmanii*) – CNPS List 1B.3
- Hall's daisy (*Erigeron aequifolius*) – CNPS List 1B.3, BLM Sensitive, WEMO
- Red Rock poppy (*Eschscholzia minutiflora* ssp. *twisselmannii*) – CNPS List 1B.2, BLM Sensitive
- Creamy blazing star (*Mentzelia tridentata*) – CNPS List 1B.3, BLM Sensitive
- Sweet-smelling monardella (*Monardella beneolens*) – CNPS List 1B.3, BLM Sensitive, WEMO
- Charlotte's phacelia (*Phacelia nashiana*) – CNPS List 1B.2, BLM Sensitive, WEMO
- Nine-mile canyon phacelia (*Phacelia novenmillensis*) – CNPS List 1B.2, BLM Sensitive, WEMO
- Latimer's woodland gilia (*Saltugilia latimeri*) – CNPS List 1B.2

CNPS List 4 (watch list)

- Mojave fish-hook cactus (*Sclerocactus polyancistrus*) – CNPS List 4.2

Special-status plants are species that are either legally protected under the State and/or Federal ESA or other regulations, or species considered by the scientific community to be sufficiently

rare to qualify for such listing. Furthermore, CNPS list 1A, 1B, and 2 species are fully considered, as they meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act), or Sections 2062 and 2067 (California ESA) during the preparation of environmental documents relating to the California Environmental Quality Act (CNPS 2001).

Thirteen special-status plant species were listed with the possibility of occurring within the BRSA, and one CNPS List 4 (watch list) species. No special-status species were detected within the BRSA. Additionally, one watch list species was detected in the buffer area: Mojave fish-hook cactus (*Sclerocactus polyancistrus*), CNPS: List 4.2. One grouping of three individuals was found in the southwest edge of the buffer survey area. No other occurrences of this species were observed within the BRSA.

State-Listed Plant Species

No State-listed plant species were detected within the BRSA during spring 2009 surveys. However, based on review of regional databases, including a CNDDB record search (CDFG 2009b), site-specific habitat evaluations conducted by Project botanists, and literature review, it was determined that two State-listed plant species—Mojave tarplant and Red Rock tarplant—have the potential to occur within the BRSA. Upon visiting the known habitat of Mojave tarplant (CDFG 2009b), it was determined that habitat for this species has a low potential to occur within the BRSA. Habitat for Red Rock tarplant may be present, but this species is considered to have low potential for occurrence due to the low water flow in the dry washes of the BRSA. Neither one of these species was detected during spring 2009 surveys. The closest recorded occurrence of Mojave tarplant is approximately 15 miles northwest of the BRSA in Short Canyon (CDFG 2009). Plants have been observed in similar terrain to the BRSA near Jawbone Canyon (McMillian 2009). The closest occurrence of Red Rock tarplant to the BRSA is approximately 18 miles to the southwest (CDFG 2009). Field observations of plants near Red Rock State Park on May 6, 2009, a reference population from CNDDB, confirm that a few specimens of this species were flowering during surveys conducted by Project botanists in spring 2009. Therefore, the Red Rock tarplant would likely have been detected on site, if present, since this species was observed blooming at a nearby location during the time period surveys were conducted on the RSPP site. Mojave tarplant has a low potential to occur within the BRSA. Red Rock tarplant has a low potential to occur within the BRSA (Table 3).

Other Special-Status Plant Species

No other non-listed special-status plant species (i.e., CNPS List 1B or 2) were detected within the BRSA. However, 11 other special-status plants, in addition to the State-listed species mentioned above, were evaluated for their potential to occur in the BRSA.

Two of the 11 special-status plants had a moderate potential to occur within the BRSA: Red Rock poppy (*Eschscholzia minutiflora* ssp. *twisselmannii*) and creamy blazing star (*Mentzelia tridentata*) (Table 3). These species are both associated with Mojave creosote bush scrub, and the Red Rock poppy occurs on volcanic tuff; suitable habitat for both of these species occurs in the BRSA (Table 3). Neither of these species was detected during spring 2009 surveys.

Two of the 11 special-status plants had a low potential to occur within the BRSA: Charlotte's phacelia (*Phacelia nashiana*) and Latimer's woodland-gilia (*Saltugilia latimeri*) (Table 3). Only marginally suitable habitat occurs for these species within the BRSA and none of these species was detected during surveys in spring 2009. Additionally, off-road vehicle activity and invasive plant establishment contribute to a lower probability of these species occurring within the BRSA.

Seven species of special-status plants were not expected to occur within the BRSA due to the lack of appropriate habitat: alkali mariposa-lily (*Calochortus striatus*), brown fox sedge (*Carex vulpinoidea*), Muir's tarplant (*Carlquistia muirii*), Gilman's goldenbush (*Ericameria gilmanii*), Hall's daisy (*Erigeron aequilifolius*), sweet-smelling monardella (*Monardella beneolens*), and Nine-mile canyon phacelia (*Phacelia novenmillensis*). Alkali mariposa-lily and brown fox sedge need more mesic conditions. Muir's tarplant, Gilamn's goldenbush, Hall's daisy, sweet smelling monardella, and Nine-mile canyon phacelia all occur from 16.75 to 19 miles away from the BRSA at much higher elevations in the foothills of the eastern Sierra Nevada Mountains (Table 3).

Cactus Species

BLM requested that cottontop cactus, hedgehog cactus, and any varieties of California barrel cactus be mapped for future salvage when construction begins (LaPre 2009). Only four species of cactus were found in the BRSA: silver cholla (*Opuntia echinocarpa*), beavertail pricklypear (*Opuntia basilaris*), Mojave fish-hook cactus, and cottontop cactus. Mojave fish-hook cactus is listed by CNPS as a watch list species and three plants were found in the southwest portion of the buffer survey area of the BRSA. One species targeted by BLM, cottontop cactus, was observed. Four specimens were located within the BRSA during focused desert tortoise surveys, three of

which were located in the eastern portion of the disturbance area and one specimen which was located near these individuals within the buffer (EDAW 2009b) (Figure 3).

Incidental Wildlife Observations

On the west side of the BRSA, pack rat middens with rock mulch were observed on the slopes of the volcanic formation. Desert tortoise observations were made in and around the dry washes and reported to the desert tortoise lead biologist. Two bird observations were recorded in the southwestern edge of the buffer area: roadrunner (*Geococcyx californianus*) and rock wren (*Salpinctes obsoletus*). Bobcat (*Felis rufus*) scat was also observed near the same area (Attachment 5).

DISCUSSION

This section contains a discussion of how climate may have affected 2009 field surveys, followed by a summary of the survey results.

Climate for the 2008/2009 Season

Rainfall patterns and totals can be a limiting factor in detecting rare plant species in desert environments. For Ridgecrest, the closest 2009 precipitation data is from Inyokern, approximately 7 miles northwest of the BRSA. Monthly precipitation totals have been recorded since December 1940 (WRCC 2009). Precipitation totals for the year measured from March 2008 to the end of February 2009 was 2.63 inches; the average for that same period was 4.19 inches (Table 4). Often yearly precipitation totals are not indicative of annual plant growth and blooming; rainfall totals during and after germination are key indicators of growth and flowering. The majority of Mojave Desert annual plants grow in the winter for a spring blooming period (Table 5). Monthly rainfall totals between November 2008 and February 2009 reflect this key period and were 0.84 inch, 0.11 inch, 0.24 inch, and 0.31 inch, respectively (WRCC 2009). Historic mean totals for precipitation from Inyokern during the same period are 0.39 inch, 0.59 inch, 0.73 inch, and 0.95 inch, respectively (WRCC 2009) (Table 5). During the time period that most relates to the growing season (November to February), December 2008, January 2009, and February 2009 were below the mean rainfall totals. Late-season rain fall in March and April, which historically totals 0.56 inch and 0.17 inch on average, respectively, was less in 2009. The published rainfall totals were 0.00 for both months (WRCC 2009). Table 5 contains the growing season rainfall data discussed above and indicates that rainfall was approximately 44 percent lower than average for the indicated time period.

Table 4
Ridgecrest Precipitation Data[1]

Time Period	Period of Record Stastics[2] Average (inches)	Past Year[3] (inches)
March	0.56	0.00
April	0.17	0.00
May	0.07	0.03
June	0.02	0.00
July	0.17	1.10
August	0.23	0.00
September	0.21	0.00
October	0.10	0.00
November	0.39	0.84
December	0.59	0.11
January	0.73	0.24
February	0.95	0.31
Annual Total	**4.19**	**2.63**

[1] Western Regional Climate Center 2009 for Inyokern, California (044278)
[2] Maximum allowable number of missing days: 5. Individual months not used for annual or monthly statistics if more than 5 days are missing. Individual years not used for annual statistics if any month in that year has more than 5 days missing.
[3] March to December 2008, and January and February 2009

Table 5
Ridgecrest Growing Season Precipitation Data[1]

Time Period	Historical Average[2] (inches): 1940 to 2008	Past Year (inches): November 2008 to February 2009
November	0.39	0.84
December	0.59	0.11
January	0.73	0.24
February	0.95	0.31
Total	**2.66**	**1.50**

[1] Western Regional Climate Center 2009 for Inyokern, California (044278)
[2] Maximum allowable number of missing days: 5. Individual months not used for annual or monthly statistics if more than 5 days are missing. Individual years not used for annual statistics if any month in that year has more than 5 days missing.

The below-average rainfall in early 2009 and lack of late-season rain events may have depressed germination of annual plant species; but, 70 of the 112 species noted were annual plants in the BRSA. Based on site conditions observed by field staff early in the season, both annual and perennial species were detectable, with representative growth of annual plants in the spring of 2009 when the surveys were conducted.

Summary

The Project disturbance area and surrounding 1-mile buffer consist of large expanses of four different plant communities and land cover types. The most common native plant community type is Mojave creosote bush scrub. Vegetation communities within the BRSA that are considered sensitive are those within jurisdictional waters, including unvegetated channels and Mojave Desert wash scrub. No other sensitive vegetation communities were detected within the BRSA.

No special-status plant species were detected within the Project boundary during spring 2009 surveys. Two species, Red Rock poppy and creamy blazing star, were identified to have a moderate potential for occurrence within the disturbance area. One CNPS List 4 watch list species, Mojave fish-hook cactus, was detected within the buffer and has a moderate potential to occur within the disturbance area. Given the rainfall patterns in November and December 2008, and January to February 2009 (Table 5), plants received adequate moisture to bloom during the 2008–2009 growing season, with 70 annual plants recorded out of a total of 112 plant species recorded in the BRSA. It is likely that special-status plant species would have been highly detectable during the field survey period if they were present within the BRSA, especially the annual species listed in Table 3. The Project site was adequately evaluated for general and special-status plant species in 2009.

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ATTACHMENT 1

FIGURES

Map Location

1 inch = 40 miles

0 40 80 Miles

Ridgecrest Solar Power Botanical Survey Report

Figure 1
Regional Map

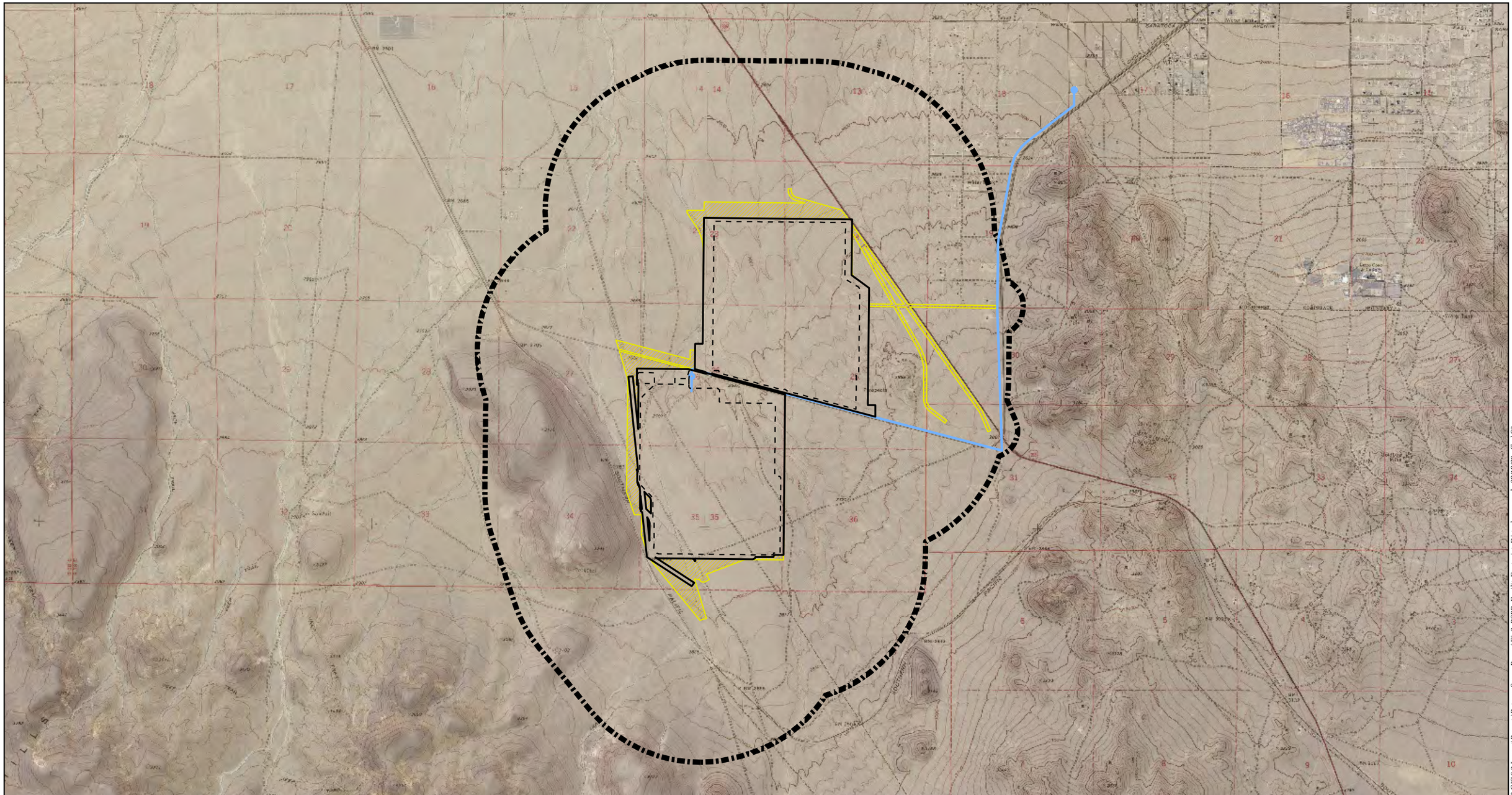
Source: ESRI; AECOM 2009

Solar Millennium

AECOM

Date: September 2009

Path: P:\2009\09080080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Reports\Botany_SurveyReport\Fig1_RSPP_RegionalLocation.mxd, 08/14/09, SteinB



Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)
- Disturbance Area (Surveyed - No Longer Proposed)

Source: USGS; NAIP 2005; AECOM 2009

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Botanical Survey Report

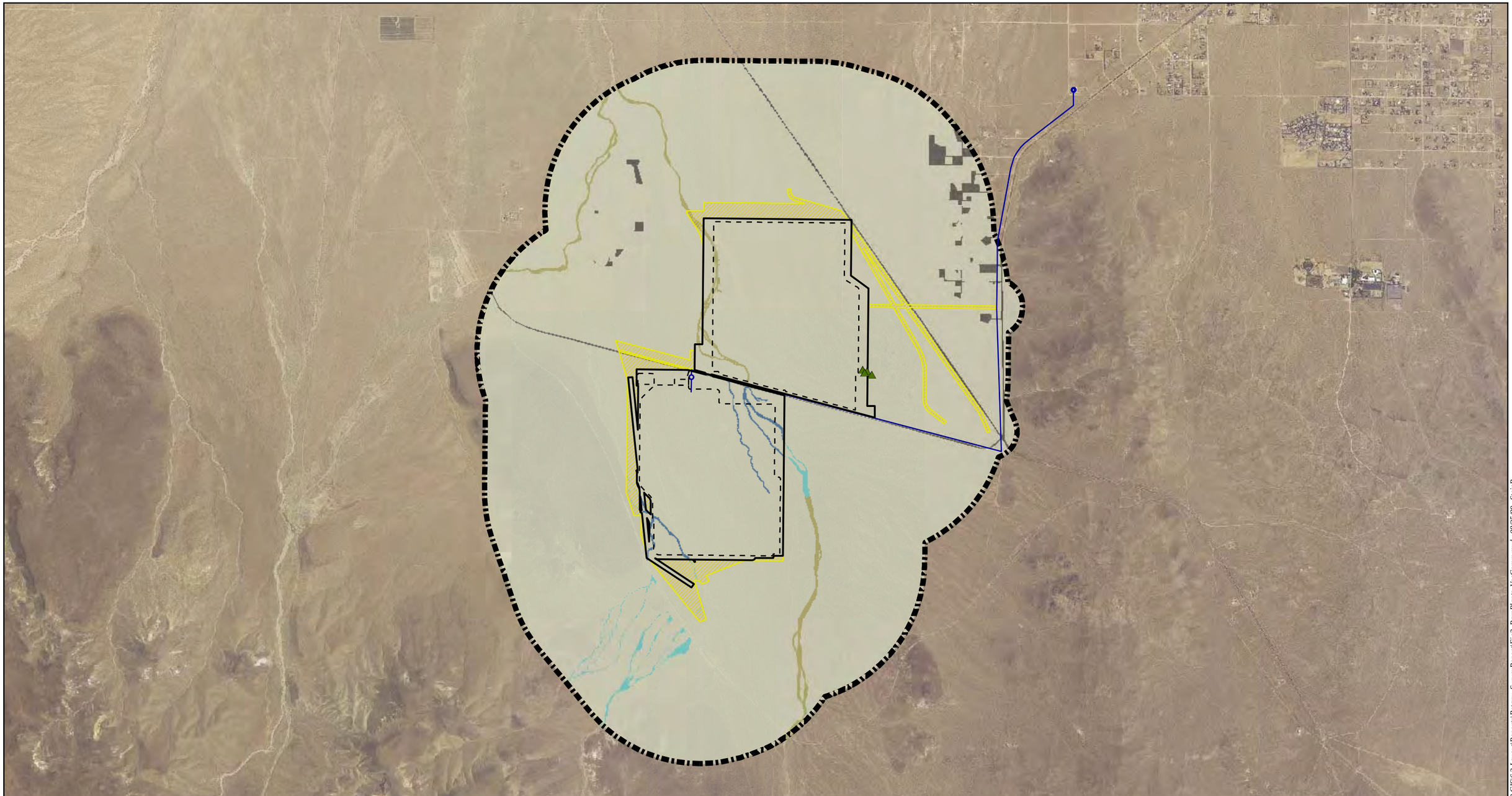
Figure 2
Facility Footprint, Disturbance Area, and Biological Resources Survey Area

Solar Millennium

AECOM

Date: September 2009

Path: P:\2009\09080080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Reports\Botany_SurveyReport\Fig2_RSPP_FacilityFootprint_Disturbance.mxd, 08/18/09, ShahS2



Map Location

Legend

- Disturbance Area
- Facility Footprint
- Disturbance Area (Surveyed - No Longer Proposed)
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)

Source: NAIP 2005; CNDDB 2009; AECOM 2009; EDAW 2009

BLM Targeted Cactus Observations

- Cottontop Cactus

Vegetation Communities

Riparian

- Mojave Desert Wash Scrub
- Unvegetated Ephemeral Dry Wash
- Unvegetated Ephemeral Dry Wash (Presumed)[1]

Upland

- Mojave Creosote Bush Scrub

Other

- Developed

[1] NOTE: Due to minimum mapping unit within buffer (1.0 mile), these areas are presumed to be unvegetated

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Botanical Survey Report

Figure 3
Vegetation Communities and BLM Targeted Cactus Observations

Solar Millennium

AECOM

Date: September 2009

Path: P:\2009\09080080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Reports\Botany_SurveyReport\Fig3_RarePlants_VegComm.mxd, 08/25/09, SteinB

ATTACHMENT 2

BIOLOGIST QUALIFICATIONS

ATTACHMENT 2
Biologist Qualifications

Name	Affiliation	Surveys Performed	Qualifications
Asmus, Kristen	AECOM	Botanical	BS Plant Science Landscape Horticulture Option, UC Davis, MS Botanical Science, University of Hawaii, Manoa Eleven years experience in vegetation mapping and rare plant surveys in Hawaii and California, including restoration ecology and GIS, with 6 years wetland delineations. Certified as an ISA certified arborist (WE-6139A) for 8 years. Regional experience in the Sonoran desert region, northern California: Alameda, Contra Costa, Santa Clara, San Joaquin, San Benito, Santa Cruz, San Mateo, San Francisco, Marin, Mendocino, Solano, and limited experience in the northern Sierra Nevada Mountain Range.
Battaglia, Charles	AECOM	Botanical	BS Environmental Biology and Management, with minor in Insect Ecology, University of California, Davis; MS in Rangeland Ecology and Management, University of California, Berkeley Eight years experience as a biologist and field ecologist: 4 years in consulting conducting botanical surveys, plant community and resource mapping, riparian/wetland restoration (design, implementation, monitoring), wetland delineation, fisheries sampling, CEQA and NEPA impact analysis, compliance monitoring; 4 years on water quality studies in rangeland streams and vernal pools involving livestock management, macroinvertebrate community analysis, mosquito and vector ecology and source reduction techniques.
Betzler, Joseph	AECOM	Botanical, Desert Tortoise	BS Botany, San Diego State University, MS Biology-Botany, San Diego State University, Diploma Plant Conservation Techniques, Royal Botanic Gardens, Kew, UK Fourteen years experience in the field of biology. Experience gathering data for biological assessments and evaluations, inventories, surveys, desert tortoise clearances and surveys (268 hours), and adaptive management plans. Biological consultant for 5 years as a biologist. Specializes in the plants of the southwestern U.S. floristic provinces.

Name	Affiliation	Surveys Performed	Qualifications
Brungraber, (Wendin) Caesara	Independent Consultant	Botanical	BS Biology, BA Economics, Bucknell University, MS Horticulture, UC Davis Five years experience as a botanical consultant in southern California. Ten years in the Pacific coast of the U.S. from Alaska to California, and New England. Conducted rare plant surveys of Federal and State listed species, as well as vegetation mapping, floral inventories, and restoration monitoring and design.
Dwerlkotte, Richard	AECOM	Botanical	BS Environmental Biology and graduate studies, Humboldt State University Nineteen years experience as a field botanist and ecologist conducting botanical resource studies on more than 100 projects in the western U.S. and northern Great Plains including rare plant surveys, vegetation mapping, wetland delineation, noxious weed surveys, biological constraints, and impacts analyses on a wide variety of projects, and assessments of the effects of altered river hydrology on riparian and wetland vegetation.
Innicken, Shirley	AECOM	Botanical	BS Ethanobotanical Ecology, California State University, Chico Twelve years experience in the field wildlife and botanical surveys. Conducted rare plant surveys following Federal and State standards. Familiar with California floristic communities. Strong organizational skills for field work implementation.
Martus, Carolyn	Independent Consultant	Botanical	BS Biology, Rutgers University, MS Biology, San Marcos State University Nine years experience in vegetation mapping, rare plant surveys, and invasive plant and animal monitoring projects. Regional experience includes coastal southern California, and Sonoran and Mojave deserts floristic communities. Worked on military instillations and with public utilities.
McMillan, Scott	AECOM	Botanical	BS Biology and graduate studies, San Diego State University More than 18 years experience as a botanist and restoration ecologist in the Western U.S. and Baja California, Mexico. Conducted general botany, rare plant surveys, vegetation analyses, and other impact studies on more than 100 projects in the southwest. He has also developed and implemented numerous native habitat and wildlife habitat restoration programs, many of which included endangered plant and animal species.

Name	Affiliation	Surveys Performed	Qualifications
Sproul, Fred	AECOM	Botanical	BS Biology, San Diego State University, education Miami University Thirty years experience conducting rare plant surveys and mapping of vegetation, including on San Diego County unincorporated lands. Regional experience in Riverside, Inyo, and Kern Counties and Great Basin.
Woolley, Lance	AECOM	Botanical	MA Botany, Humboldt State University Three years of professional experience as a botanist that includes performing rare plant surveys, vegetation mapping, and habitat assessments throughout the northern and southern California regions.

ATTACHMENT 3

FLORAL SPECIES OBSERVED

ATTACHMENT 3
Floral Species Observed

Family	Scientific Name	Common Name
PTERIDOPHYTES		
Pteridaceae – Brake Family		
	Cheilanthes intertexta	coastal lipfern
GNETALES		
Ephedraceae – Ephedra Family		
	Ephedra nevadensis	Nevada ephedra, Mormon tea
MONOCOTS		
Poaceae – Grass Family		
	Achnatherum hymenoides	Indian ricegrass
	Achnatherum speciosum	desert needlegrass
	Bromus madritensis ssp. *madritensis**	red brome, foxtail chess
	*Bromus tectorum**	cheat grass
	Schismus sp.*	Mediterranean grass
Liliaceae – Lily Family		
	Dichelostemma capitatum	blue dicks
DICOTS		
Apiaceae – Carrot Family		
	Lomatium mohavense	Mojave desertparsley
Asteraceae – Sunflower Family		
	Acamptopappus sphaerocephalus	rayless goldenhead
	Ambrosia dumosa	burroweed, white bursage
	Brickellia desertorum	desert brickellbush
	Chaenactis fremontii	Fremont pincushion
	Chaenactis stevioides	desert pincushion
	Chrysothamnus nauseosus	rabbitbrush
	Chrysothamnus paniculatus	black-stem, Mojave rabbitbrush
	Coreopsis bigelovii	Bigelow's tickseed
	Encelia virginensis	Virgin River brittlebush
	Ericameria cooperi	Cooper's goldenbush
	Ericameria laricifolia	turpentine brush
	Eriophyllum ambiguum var. *paleaceum*	beautiful woolly sunflower
	Eriophyllum pringlei	Pringle's woolly sunflower
	Eriophyllum wallacei	Wallace eriophyllum
	Gutierrezia sarothrae	broom snakeweed, matchweed

Family	Scientific Name	Common Name
	Hymenoclea salsola	cheesebush
	Lasthenia gracilis	needle goldfields
	Lepidospartum squamatum	scalebroom, California broomsage
	Logfia depressa	dwarf cottonrose
	Malacothrix californica	California desert dandelion
	Malacothrix coulteri	snake's head
	Rafinesquia neomexicana	desert chicory
	Syntrichopappus fremontii	yellowray, Fremont's-gold
	Tetradymia stenolepis	Mojave cottonthorn, Mojave horsebrush
	Uropappus lindleyi	silver puffs
	Xylorhiza tortifolia	Mojave aster
Boraginaceae – Borage Family		
	Amsinckia tessellata	devil's lettuce
	Cryptantha circumscissa	cushion cryptantha
	Cryptantha micrantha	redroot cryptantha
	Cryptantha nevadensis	Nevada cryptantha
	Cryptantha pterocarya	wingnut cryptantha
	Pectocarya linearis ssp. *ferocula*	sagebrush combseed
	Pectocarya platycarpa	broadfruit combseed
	Pectocarya recurvata	curvenut combseed
	Pectocarya setosa	moth combseed
	Plagiobothrys arizonicus	Arizona popcornflower
	Tiquilia plicata	fanleaf crinklemat, plicate coldenia
Brassicaceae – Mustard Family		
	Caulanthus cooperi	Cooper's wildcabbage, Cooper's jewelflower
	Descurainia pinnata	western tansymustard
	Dithyrea californica	spectacle pod
	Guillenia lasiophylla	California mustard
	Lepidium nitidum	shining pepperweed
	Thysanocarpus curvipes	lacepod
	Tropidocarpum gracile	dobie pod
Cactaceae – Cactus Family		
	Echinocactus polycephalus var. polycephalus	cottontop cactus, clustered barrel cactus
	Ferocactus cylindracens	California barrel cactus
	Opuntia basilaris	beavertail cactus
	Opuntia echinocarpa (*Cylindropuntia e.*)	silver cholla, golden cholla
	Sclerocactus polyancistrus	Mojave fish-hook cactus
Capperaceae – Caper Family		

Family	Scientific Name	Common Name
	Isomeris arborea	bladderpod
Chenopodiaceae – Goosefoot Family		
	Atriplex polycarpa	allscale saltbush
	Atriplex hymenelytra	desert holly
	*Chenopodium murale**	nettleleaf goosefoot
	Chenopodium sp.	goosefoot
	Krascheninnikovia lanata	winter fat
	*Salsola tragus**	Russian thistle, tumbleweed
Euphorbiaceae – Spurge Family		
	Chamaesyce albomarginata	rattlesnake weed, whitemargin sandmat
Fabaceae – Legume Family		
	Astragalus acutirostris	sharpkeel milkvetch
	Astragalus didymocarpus ssp. *didymocarpus*	two-seeded milkvetch
	Astragalus layneae	widow's milkvetch
	Lotus humistratus	foothill deervetch
	Lotus wrangelianus	Chilean bird's foot trefoil
	Lupinus concinnus	bajada lupine
	Psorothamnus arborescens	Mojave indigobush
	Psorothamnus schottii	Schott's indigobush, Schott's dalea
	Senna armata	spiny senna, desert senna
	Trifolium gracilentum var. *gracilentum*	pinpoint clover
Geraniaceae – Geranium Family		
	*Erodium cicutarium**	redstem stork's bill, filaree
Hydrophyllaceae – Waterleaf Family		
	Eucrypta micrantha	dainty desert hideseed
	Phacelia distans	distant phacelia, common phacelia
	Phacelia fremontii	Fremont's phacelia
	Pholistoma membranaceum	white fiestaflower
Lamiaceae – Mint Family		
	Salazaria mexicana	bladder sage
	Salvia carduacea	thistle sage
	Salvia columbarae	chia
Loasaceae – Loasa Family		
	Mentzelia albicaulis	whitestem blazingstar
	Mentzelia nitens	Venus blazing star
	Petalonyx thurberi ssp. *thurberi*	sandpaper plant
Malvaceae – Mallow Family		
	Eremalche exilis	white mallow

Family	Scientific Name	Common Name
	Sphaeralcea ambigua	desert globemallow, apricot mallow
Nyctaginaceae – Four O'Clock Family		
	Mirabilis bigelovii var. *retrorsa*	wishbone bush
Onagraceae – Evening Primrose Family		
	Camissonia boothii	Booth's evening primrose
	Camissonia campestris	Mojave sun cup
	Camissonia claviformis	browneyes
	Camissonia palmeri	Palmer evening primrose
Papaveraceae – Poppy Family		
	Eschscholzia minutiflora ssp. *minutiflora*	pygmy poppy
Polemoniaceae – Phlox Family		
	Eriastrum eremicum	desert woollystar
	Gilia brecciarum ssp. *brecciarum*	Nevada gilia
	Gilia brecciarum ssp. *neglecta*	Nevada gilia
	Gilia minor	little gilia
	Gilia transmontana	transmontane gilia
	Linanthus bigelovii	Bigelow's linanthus
	Linanthus dichotomus	evening snow
	Loeseliastrum matthewsii	desert calico
Polygonaceae – Buckwheat Family		
	Chorizanthe brevicornu ssp. *brevicornu*	brittle spineflower
	Chorizanthe watsonii	Watson's spineflower
	Eriogonum fasciculatum var. *polifolium*	Eastern Mojave buckwheat
	Eriogonum inflatum	desert trumpet
	Eriogonum pusillum	yellow turbans
	Oxytheca perfoliata	roundleaf oxytheca
Portulaceae – Purslane Family		
	Calandrinia ciliata	red maids
	Calyptridium monandrum	common pussypaws
Ranunculaceae – Buttercup Family		
	Delphinium parishii ssp. *parishii*	Parish's larkspur
Solanaceae – Nightshade Family		
	Lycium andersonii	water jacket, Anderson's desert thorn
Zygophyllaceae – Caltrop Family		
	Larrea tridentata	creosote bush

* = nonnative species

ATTACHMENT 4

REPRESENTATIVE PHOTOGRAPHS OF VEGETATION COMMUNITIES WITHIN THE BIOLOGICAL RESOURCE SURVEY AREA

ATTACHMENT 4
Representative Photos of Vegetation Communities within the Biological Resources Survey Area

Mojave desert wash scrub surrounds this unvegetated ephemeral dry wash, view looking south on the western edge of the facility footprint.

Mojave creosote bush scrub on the western edge of the facility footprint.

Unvegetated ephemeral dry wash, view looking southeast in the buffer area.

Three individual plants of Mojave fish-hook cactus (*Sclerocactus polyancistrus*) in bloom.

ATTACHMENT 5

DATA SHEETS AND DATA TRACK LOG TABLE OF OBSERVATIONS

Map Page	Mapper FSP	Date 2/19/09
Project Site	**Additional Observers**	
Ridgecrest	SIN	
Polygon #	**Dominant &**	**Species List**
& Veg Type	**Significant Sps.**	Hymenoclea salsola
~~Sou~~ Mohavean	Larrea tri (10') +	Ambrosia
CB Scrub	Ambrosia dumosa +	Descurainia ?
	Erodium cic + +	Phacelia
loose granitic	Senna (South)	Dichelostemma ?
		Streptanthus ?
		Cryptantha spp? + Plagio
Prospect Knoll		Senna armata
~~wash~~		Psorothamnus schottii
re-check		Mentzelia hirsutissima ?
		Eschscholzia ?
check: Main wash		Eurypta ~~chrysanthemifolia~~ micrantha
W. Volcanic hill		Linanthus ?
W. wash		~~Lupinus~~ Dichotomus
		Opuntia Echinocarpa
- To South		Eriogonum inflatum
soil surface		Lycium
covered ≈ small		Achnath speciosum
pebbles		Eriogonum (ann)
		~~Nama~~ Phacelia fremontii
- West side (+ N?)		Lupinus sp.
much less annual		Isomeris arb.
flora - more dist		Mirabilis
Larrea wider		Malacothrix ~~X~~ californica
spacing, esp on		Brickelia
flats (20 + ft.)		Eriog fasic polifolium
		~~Gutierrezia~~ ?
		Oryzopsis hymen
	Chaenactis fremontii	~~Senecio~~ ? (or Coreopsis)
		Schismus
		Salvia spai cardiacea
		Calyptridium
		Camissonia
		Calandrinia ciliata
		~~Bromus~~ mad ~~or B.~~ tect
		Malacothrix sp?
Notes:		Filago depressa
		Gilia minor (pup)
		Xylorhiza tortifolia
		Emselia ~~acteria~~ virginensis
		~~Geranium~~ ? or Delph.
		Eriog fine red infl
		Ericameria laricifolia ?

2/19/09

Spp list

inflated fruit Ast.? Malacothrix coulteri

Wash

Eriophyllum wallacei
Lepidospartum squatum
Opuntia basilaris
Pectocarya
Eriastrum sp. 433221E
Cymopteris ? ~~428858.9 N~~
(Lomatium?) ~~3935932.7 E~~
mohavensis 3932286 N

Camissonia yellow
" white - C. boothii

Chrysothamnus ~~sp~~ nauseosus

2/20/09 Brown Rd to Garlock Rd.
8189 odo - 8224

~~Atriplex polycarpa~~ ?? OK
Dupont Blasting Powder
Tetradymia ~~x~~ stenolepis
Acamptopappus sphaerocarpus

Map Page	Mapper FSP	Date 2/24/09
Project Site Ridgecrest	**Additional Observers**	
	LWO, CBa	
Polygon # & Veg Type	**Dominant & Significant Sps.**	**Species List**
MCBS -	Larrea trid (25')	Encelia virg ?
Volcanic slope	Ambrosia dum	Tetradymia stems ?
(West)		
	extensive annual	→ some open areas
(past evidence of	& per herb	without Larrea but
old burn)	flora	there persisty shorter
		shrubs
(past sheep	Crypt	
grazing also)	Phacelia	
	Eriog. rod	
	Eriog. infl	
	Lupinus	
	Pectocarya	
	Lotus sp (ann)	
	Bromus rubens	
	Eucrypta	
	Thysanocarpus	
	Mentzelia	
	Schismus barb?	
	Delphinium	
	Dichelostemma	
	unk decumbent shrub (Chorizanthe ? LWO)	

Notes: woodrat midden (with rock mulch

Map Page	Mapper FSP LWO CBA	Date 2/25/09
Project Site Ridgecrest	Additional Observers	
Polygon # & Veg Type	Dominant & Significant Sps.	Species List
MDWS – Mohave Desert Wash Scrub	Lt Lepid squam	-MCB Scrub
	Hymenoclea salt	Guillenia lasia —
		Sibara rostulata —
		Lomatium mohavense —
	Petalonyx th-th ☆	erod cic W
Sandy wash,	Senna armata +	Ansinkia W
herbs:		Am du W
	Malcolkiy cal	Lar tri W
	Erod.	Senna arm W
	Cammissonia booth	Descurainia californica W —
	Chaenactis fremo	Salvia columbariae W
		Grayia spinosa
		Loeseliastrum ?! (not in fl.)
		Isomeris arborea
		upland & off Brown Rd
		dead shrub –
		Chamaesyce
		astragalus
	Keying:	Mentzelia nitens
		Phacelia (narrow fl. purple)
		Petalonyx thurberi
		~~Dalea ?~~
		Astragalus didymocarpus
		Gilia minor
		Astragalus layneae

Notes: ☆ P. th. th

Shirley
530 624 2229

Map Page	Mapper FSP LWO, CBA	Date 2/26/09
Project Site Solar Mill Ridgecrest	Additional Observers	
Polygon # & Veg Type	Dominant & Significant Sps.	Species List
MDWS	Lar tridentata	Grayia spinosa? (with red bark?)
	Hymen salsola	
	Senna arm	
	Lepid sigsum	
	plant list:	
Rocky outcrop Prospect	Eriog fasic pul	
	Mirabilis bigelovii	var. retrorsa
	Achnatherum speciosum	
	Lycium	
	Salsola mexicana	
	Senna armata	
	Pholiotoma sp ?	
	Brickellia desertorum	
	Sibara #2 ?	
	Descurainia incisa?	
	Thysanocarpus curvipes	

Notes: Desert tortoise GPS'd DTORT #1 ~ 5-6"
DTORT #2 11"

WWE-31 an OHV trail

619 261 7911

3:30

Map Page	Mapper FSP LWO, CBA	Date 2/27/09
Project Site Ridgecrest	Additional Observers	
Polygon # & Veg Type	Dominant & Significant Sps.	Species List
MCB Scrub at Astragalus site then "Cotich" at Prospect Hill	Larrea tri Amb dum	Eriog fas pol ? Lepidum sp? ~~Eucrypta (original volcanics)~~ Grayia spinosa Delphinium Porothamnus scholtii ~~Oenothera~~ Camissonia (inflated) Caulanthus (?) Eucrypta micrantha Calandrinia ciliata
	from last night:	
	Phacelia distans Amsinkia tesselata	
Wash SW		
Senna Sclerocactus poly. Tetradymia stenolepis Grayia spinosa Ephedra Acamptopappus sph. Coreopsis Amsinkia (new) Mentzelia (lg.)	→ L + Hymen sel cactus - CACT #1 MENZ #1 35°31' 40.81" N 117° 45' 20.501" W	35° 31' 40.027" 117° 45' 21.284" W

Notes: Bobcat scat
Roadrunner
Rock wrens

ATTACHMENT H

WILDLIFE SPECIES DETECTED WITHIN THE BIOLOGICAL RESOURCES SURVEY AREA

ATTACHMENT H
Wildlife Species Detected Within the Biological Resources Survey Area

	Scientific Name	Common Name
INVERTEBRATES		
Order Hymenoptera		Ants, Bees, Wasps and Sawflies
	Family Formicidae	
	Subfamily Myrmicinae	
	Pogonomyrmex spp.	harvester ant
Order Isoptera		Subterranean termites
Order Lepidoptera		Butterflies and Moths
	Family Nymphalidae	
	Vanessa cardui	painted lady
	Vanessa virginiensis	Virginia lady
REPTILES		
Order Squamata		Lizards and Snakes
	Family Crotaphytidae	
	Gambelia wislizenii	long-nosed leopard lizard
	Family Iguanidae	
	Dipsosaurus dorsalis	desert iguana
	Sauromalus ater	common chuckwalla (found scat)
	Family Phrynosomatidae	
	Uta stansburiana	side-blotched lizard
	Callisaurus draconoides	zebra-tailed lizard
	Phrynosoma platyrhinos	desert horned lizard
	Sceloporus occidentalis	western fence lizard
	Sceloporus graciosus	sagebrush lizard
	Family Teiidae	
	Cnemidophorus tigris	western whiptail
	Family Colubridae	
	Lampropeltis getula	common kingsnake
	Rhinocheilus lecontei	long-nosed snake
	Trimorphodon biscutatus	western lyre snake
	Pituophis catenifer	gopher snake
	Masticophis flagellum	coachwhip
	Family Viperidae	
	Crotalus scutulatus	Mojave rattlesnake
	Crotalus cerastes	sidewinder
Order Testundines		Turtles
	Family Testudinidae	
	Gopherus agassizii[1 2]	desert tortoise
BIRDS		
Order Ciconiiformes		Herons, Storks, Ibises, and Relatives
	Family Cathartidae	
	Cathartes aura	turkey vulture

	Scientific Name	Common Name
Order Falconiformes		Vultures (old world), Hawks and Falcons
	Family Accipitridae	
	Buteo jamaicensis	red-tailed hawk
	Buteo swainsoni[2]	Swainson's hawk
Order Galliformes		Pheasants, Grouse, Quail and Relatives
	Family Odontophoridae	
	Callipepla gambelii	Gambel's quail
Order Columbiformes		Pigeons and Doves
	Family Columbidae	
	Zenaida macroura	mourning dove
Order Cuculiformes		Cuckoos and Relatives
	Family Cuculidae	
	Geococcyx californianus	greater roadrunner
Order Caprimulgiformes		Goatsuckers and Relatives
	Family Caprimulgidae	
	Chordeiles acutipennis	lesser nighthawk
Order Charadriiformes		Shorebirds, Gulls and Relatives
	Family Charadriidae	
	Charadrius vociferus	killdeer
Order Strigiformes		Owls
	Family Tytonidae	
	Tyto alba	barn owl
	Family Strigidae	
	*Athene cunicularia hypugaea**	western burrowing owl
Order Apodiformes		Hummingbirds and Swifts
	Family Apopidae	
	*Chaetura vauxi**	Vaux's swift
	Family Trochilidae	
	Archilochus alexandri	black-chinned hummingbird
	Calypte costae	Costa's hummingbird
Order Passeriformes		Songbirds
	Family Tyrannidae	
	Myiarchus cinerascens	ash-throated flycatcher
	Tyrannus verticalis	western kingbird
	Empidonax oberholseri	dusky flycatcher
	Empidonax spp.	unidentified flycatcher
	Family Laniidae	
	*Lanius ludovicianus**	loggerhead shrike
	Family Corvidae	
	Corvus corax	common raven
	Family Alaudidae	
	Eremophila alpestris	horned lark
	Family Hirundinidae	
	Tachycineta bicolor	tree swallow

	Scientific Name	Common Name
	Petrocheliden pyrrhonota	cliff swallow
	Tachycineta thalassina	violet-green swallow
	Family Remizidae	
	Auriparus flaviceps	verdin
	Family Troglodytidae	
	Campylorhynchus brunneicapillus	cactus wren (old nests)
	Salpinctes obsoletus	rock wren
	Family Sylviidae	
	Polioptila caerulea	blue-gray gnatcatcher
	Family Mimidae	
	Mimus polyglottos	northern mockingbird
	*Toxostoma lecontei**	Le Conte's thrasher
	Family Parulidae	
	Wilsonia pusilla	Wilson's warbler
	*Dendroica petechia**	yellow warbler
	Dendroica coronata	yellow-rumped warbler
	Dendroica townsendi	Townsend's warbler
	Family Thraupidae	
	Piranga ludoviciana	western tanager
	Family Emberizidae	
	Zonotrichia leucophrys	white-crowned sparrow
	Amphispiza bilineata	black-throated sparrow
	Chondestes grammacus	lark sparrow
	Amphispiza belli	sage sparrow
	Spizella passerina	chipping sparrow
	Spizella breweri	Brewer's sparrow
	Family Icteridae	
	Quiscalus mexicanus	great-tailed grackle
	*Xanthocephalus xanthocephalus**	yellow-headed blackbird
	Family Fringillidae	
	Carduelis pinus	pine siskin
	Carduelis tristis	American goldfinch
	Carpodacus mexicanus	house finch
MAMMALS		
Order Lagomorpha		Rabbits, Hares, and Pikas
	Family Leporidae	
	Sylvilagus audubonii	desert cottontail
	Lepus californica	black-tailed jackrabbit
Order Rodentia		Rodents
	Family Heteromyidae	
	Dipodomys spp.	unidentified kangaroo rat
	Neotoma spp.	woodrat (sign)
	Perognathus spp.	pocket mouse
	Family Scuiridae	

	Scientific Name	Common Name
	Ammospermophilus leucurcus	white-tailed antelope squirrel
Order Carnivora		Carnivores
	Family Canidae	
	Vulpes macrotis arsipus[4]	desert kit fox
	Canis latrans	coyote
	Family Mustelidae	
	*Taxidea taxus**	American badger
	Family Felidae	
	Lynx rufus	bobcat (found scat)
Order Perissodactyla		Horses, Tapirs and Relatives
	Family Equidae	
	Equus asinus	feral ass (found scat)

[1]Federally threatened or endangered species
[2]State threatened or endangered species
[3]State fully protected species
[4]State-protected fur bearing mammal
*State species of special concern

ATTACHMENT I

AVIAN POINT COUNT SURVEY TECHNICAL REPORT

RIDGECREST SOLAR POWER PROJECT
AVIAN POINT COUNT
TECHNICAL REPORT

Prepared for:

Solar Millennium, LLC
1625 Shattuck Avenue
Berkeley, California 94709

Prepared by:

EDAW, Inc.
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San Diego, California 92101
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September 2009

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I. SUMMARY

Solar Millennium, LLC (Applicant) proposes to develop the 250 megawatt (MW) Ridgecrest Solar Power Project (RSPP or Project) that would be located in Kern County, approximately 5 miles southwest of the City of Ridgecrest, California (Figure 1 [all figures referred to herein are included in Attachment 1]). The primary solar energy facilities and associated construction and operations footprint are located within an approximate 1,740-acre disturbance area (Figure 2).

EDAW AECOM and Bloom Biological, Inc. performed avian point count surveys for the Applicant at the site of the proposed Project. This report was prepared to support the joint review process for the RSPP being undertaken by the California Energy Commission and BLM. It describes methods and results of avian point count surveys within the proposed disturbance area, which is defined as the area inside and outside the facility fence line that will be disturbed by the Project. As a result of recent changes in the disturbance area limits, a possible water line was identified. The possible water line footprint has not yet been surveyed and, therefore, is not discussed in this report. Surveys for the possible water line will be conducted following selection of the final water line route (anticipated spring 2010).

II. INTRODUCTION

A. Description of Project

Solar Millennium, LLC (the Applicant) is proposing to construct one commercial solar thermal electric power generating station, referred to as the Ridgecrest Solar Power Project (RSPP or Project). The RSPP would be located in the southern California inland desert, approximately 5 miles southwest of the City of Ridgecrest in Kern County, California.

The Project would be located on an approximately 3,920-acre ROW owned by the Federal government and leased by the Applicant from the Bureau of Land Management (BLM). The Project facilities (area inside the facility fence line) would occupy approximately 1,440 acres of the ROW (referred to as the facility footprint). In addition to solar fields and a main power-generating facility (power block), the site would include a main office building and parking lot, a main warehouse with laydown area, onsite access roads, a tie-in switchyard, and a bioremediation area.

The Project would have a nominal output of 250 MW. The Project would utilize solar parabolic trough technology to generate electricity. With this technology, arrays of parabolic mirrors collect

heat energy from the sun and refocus the radiation onto a receiver tube located at the focal point of the parabola. A heat transfer fluid (HTF) is heated to a high temperature (750° F) as it circulates through the receiver tubes. The heated HTF is then piped through a series of heat exchangers where it releases its stored heat to generate high-pressure steam. The steam is then fed to a traditional steam turbine generator where electricity is produced.

The Project would include two solar fields, each occupying roughly 700 acres and comprised of piping loops arranged in parallel groups connected to supply and return header piping. The power block would be located south of Brown Road, just north of the southern solar field. The power block would be composed of its own administration, control, warehouse, maintenance, and lab buildings; an HTF pumping and freeze protection system; steam generator; propane-fired auxiliary boiler; one steam turbine generator; an air-cooled condenser (ACC); generator step-up transformer, transmission lines and related electrical system; and auxiliary equipment (i.e., water treatment system, diesel-powered emergency generator, and firewater system). A new 12-inch diameter, approximately 5-mile-long water pipeline would be installed within the Brown Road and China Lake Boulevard ROWs to connect the Project with the Indian Wells Valley Water District (IWVWD) supply. A new 230-kilovolt (kV) transmission line from the turbine generator to a new nearby switchyard would interconnect with Southern California Edison's (SCE) existing 230-kV Inyokern/Kramer Junction transmission line passing west of the Project site. The transmission line would be approximately 0.5 mile long and located within the facility footprint.

Access to the site would be provided by a new 700-foot long, 24-foot wide paved access road from Brown Road, located approximately 2.25 miles west of the intersection of Brown Road with U.S. Highway 395. Only a small portion of the overall facility footprint would be paved, primarily the site access road, the service road to the power block, and portions of the power block. The remaining portions of the power block would be gravel surfaced. The area of the power block would be approximately 18 acres, with approximately 6 acres of paved area. The solar field would remain unpaved and without a gravel surface to prevent rock damage from mirror wash vehicle traffic. A dust suppression coating would be used on the dirt roadways within and around the solar field. The Project solar field and support facilities perimeter would be secured with chain link metal-fabric security fencing. Along the north and south sides of the facility, the fence would be 8 feet tall, with 1-foot barbed wire or razor wire on top. Thirty-foot tall wind fencing, comprised of A-frames and wire mesh, would be installed along the east and west sides of each solar field. Controlled access gates would be located at the site entrance.

Project construction is scheduled to begin in late 2010 and continue into 2013.

Following completion of spring 2009 surveys, several changes were made to the disturbance area limits. First, a conceptual footprint of a possible water line was identified (Figure 2). The final Project water line route has not yet been selected. The possible water line route would be approximately 5 miles long outside the currently proposed disturbance area. The possible water line footprint has not yet been surveyed and, therefore, is not discussed in this report. Surveys for the possible water line will be conducted following selection of the final water line route (anticipated spring 2010).

In addition, several portions of the disturbance area, totaling approximately 288 acres, are no longer a part of the proposed Project and have been removed from the disturbance area (Figure 2). However, because these 288 acres were included in the spring 2009 surveys, in the interest of contributing to the body of scientific information, survey results for these areas are included in this document. Also, as a result of the changes to the proposed disturbance area, approximately 15 acres have not yet been surveyed. Surveys for the additional 15 acres will be completed following final Project design (anticipated spring 2010).

B. Vegetation

Three vegetation communities were mapped within the Project site where avian point counts were located, including Mojave Desert wash scrub (MDWS), unvegetated ephemeral dry wash (UEDW), and Mojave creosote bush scrub (CBS). Vegetation communities are based on a classification system by R. Holland (1986). When appropriate, vegetation classification by J.O. Sawyer and T. Keeler-Wolf (1995) are also considered. Community types according to the California Department of Fish and Game ([CDFG] 2003) are listed where applicable. CBS was the dominant vegetation community where avian point counts stations were located, with minor components of MDWS and UEDW also present at a few stations (Figure 3).

III. SURVEY METHODOLOGY

Prior to beginning field surveys, Project biologists consulted the CDFG California Natural Diversity Database (CNDDB) (RareFind Version 3.1.0; CDFG 2009) to review historical locations of special status wildlife species within the facility footprint and surrounding area. CNDDB, along with the Special Animals list (CDFG 2009) and range maps, were consulted to determine historic occurrence of special status wildlife species within the BRSA, which is the proposed footprint and buffer (Figure 2). Additionally, the U.S. Fish and Wildlife Service (USFWS) provided a letter on March 19, 2009, detailing special status species that it requires to be considered.

Point count surveys were conducted in spring 2009 by EDAW and Bloom Biological to characterize avian use of the BRSA during the spring breeding season. These surveys were based on the methodology outlined in the *Handbook of Field Methods for Monitoring Landbirds* (Ralph et al. 1993) and guidance from BLM (LaPre 2009). A total of 24 point count stations were established along three transect lines, placed in a configuration designed to sample all major vegetation communities and to ensure that all major habitat features (e.g., low-lying wash, upland) represented on the site were sampled. Each transect line was comprised of eight 328-foot radius point count stations, each placed 820 feet apart (Figure 3). This design allows for a 164-foot zone between each point count, a distance deemed sufficient to avoid duplicate counts of individual birds. The three transects were given a letter (W, X, Y) and point count stations were given a number (1 through 8) to give them a unique individual identifier (Figure 3). Point counts (PC) were conducted for 4 consecutive weeks between April 14 and May 8, 2009.

The number of point count stations established in each vegetation community was generally based on the relative percent cover of each vegetation community in the disturbance area. In the disturbance area, CBS accounts for over 99 percent of the vegetative cover. Thus, CBS was dominant at all 24 point count stations, comprising more than 93 percent of the vegetation cover types at all stations. MDWS was a minor component of the Project site, and also of PC stations W1, X6, X7, and X8, comprising 2.6, 4.7, 6.9, and 4.2 percent of the vegetation cover, respectively. Although little MDWS is present on the Project site, it was expected to influence avian use of PC stations where it occurred, and thus was analyzed as a separate community (analyzed as CBS/MDWS) in this report. UEDW only comprised from 0.7 to 3.0 percent of PC stations Y1, Y2, Y7, and Y8. Because UEDW is an unvegetated community and is considered a component of the CBS and MDWS vegetation communities on site, it was not analyzed as a separate vegetation community in this report.

Each of the 24 point count stations was visited once a week (four times total) over the 4-week period. Each point count lasted 10 minutes. The daily point count period was from approximately 15 to 30 minutes before sunrise until approximately 3 hours after sunrise when bird activity is typically highest and individuals are most easily detected. The order in which point count stations along a transect line were visited was reversed each week so that all stations were visited both earlier and later in the morning survey window.

All birds detected within the 328-foot radius of each point count station, including those flying birds whose flight path intersected the point count circle, were recorded on datasheets. At each station, the 10-minute time interval, temperature, wind, cloud cover, and visibility were recorded on datasheets. For each species, the number of individuals detected, their age and sex (if known),

the direction and approximate distance of the bird from the observer, its activity, and its habitat were recorded on datasheets. Additionally, special-status species detected were mapped using Global Positioning Units. Notes on other birds detected beyond the 328-foot radius were also made and separately recorded. While these additional observations are discussed, they were not included in the quantitative analyses of avian use of the site.

A. Survey Limitations

Depending on their design, point counts can be effectively used to sample large, conspicuous birds such as raptors, or small, relatively inconspicuous species like passerines (songbirds) and near passerines (e.g., doves, hummingbirds, woodpeckers, etc.). The assumption is that the detection rate of most passerines diminishes rapidly beyond 328 feet; therefore, the point counts in this study were designed to determine resident breeding species use and record incidental observations of other avian use of the site, including migratory species and foraging raptors.

Strong wind and temperature extremes can have a profound effect on point count results. On a few occasions during the survey period, strong sustained wind and gusts occurred; however, these conditions were never extreme enough to appreciably affect bird detectability and for surveys to be rescheduled.

IV. RESULTS

The results of avian point count surveys are broken down based on whether the species detected were resident species or nonresident (migratory) species. The number of individuals for each species was compared across all three vegetation communities. The mean number of individuals detected per point count station for each vegetation community was also calculated. This allowed for a comparison of avian use across the three vegetation communities.

A. Species Diversity and Abundance: Resident Species

Thirteen species of permanent and summer resident breeding birds were recorded at the BRSA between April 14 and May 8. Of these, 11 were recorded within the 328-foot radius point count circles during point counts at least once (Table 1). The other two species were western burrowing owl (WBO) (*Athene cunicularia*), and rock wren (*Salpinctes obsoletus*). WBO was recorded April 30, 2009, outside of the point count circle, between Point Count Stations X1 and X2; a single rock wren was recorded April 16 and 23, 2009, outside of the point count circle.

Table 1
Resident Bird Species Recorded per Vegetation Community on Point Counts at the Ridgecrest Power Project [1]

Species	CBS	CBS/MDWS	Total
Horned Lark	185 (9.25)	30 (7.50)	215 (8.96)
Sage Sparrow	47 (2.35)	22 (5.50)	69 (2.88)
Common Raven	8 (0.40)	3 (0.75)	11 (0.46)
Verdin	9 (0.45)	1 (0.25)	10 (0.42)
House Finch	8 (0.40)		8 (0.33)
Mourning Dove	7 (0.35)		7 (0.29)
Black-throated Sparrow	3 (0.15)	3 (0.75)	6 (0.25)
Lesser Nighthawk		2 (0.50)	2 (0.08)
Costa's Hummingbird	1 (0.05)		1 (0.04)
Loggerhead Shrike		1 (0.050)	1 (0.04)
Le Conte's Thrasher	1 (0.050)		1 (0.04)
Average Individuals/Station	**13.45**	**15.50**	**13.79**
Average Species/Station	**2.90**	**3.75**	**3.04**

[1] Represented as the total number of individual birds per species and mean number of individuals detected per station for each vegetation community in parentheses

The most abundant species on site was horned lark (*Eremophila alpestris*), followed by sage sparrow (*Amphispiza bellii*). Together, these two species constituted 86 percent of all observations within CBS and CBS/MDSW (Table 1). Nine species were detected in CBS; however, only four of these species were not detected in CBS/MDWS. These include mourning dove (*Zenaida macroura*), Costa's hummingbird (*Calypte costae*), Le Conte's thrasher (*Toxostoma lecontei*), and house finch (*Carpodacus mexicanus*).

Point count stations were proportionally located across the site in the various vegetation communities present based on dominance of the community on site. The MDWS community represents less than one percent of the vegetation on the site and small areas of MDWS are interspersed within four of the CBS-dominated point count stations. The influence of MDWS vegetation within CBS introduced two new species not detected within CBS: lesser nighthawk (*Chordeiles acutipennis*) and loggerhead shrike (*Lanius ludovicianus*), which where exclusive to MDWS.

Four stations were in vegetation communities that was a mix of CBS and UEDW (CBS/UEDW). With UEDW occupying an area of no more than 3 percent on any given point count circle, it did not warrant the inclusion of analysis due to the fact that it is unvegetated, and the survey circles consisted primarily of CBS.

Species richness, as used in this report, is the total number of species in each vegetation community. In total, 269 individuals of nine species were recorded in CBS and 62 individuals of seven species were recorded in MDWS. As mentioned above, point count stations were proportionally located across the site in the various vegetation communities present based on dominance of the community on site. In order to compare bird use between vegetation communities, the average number of individuals detected per point count station (abundance) and average number of species detected per point count station (species richness) was calculated for each of the two vegetation communities sampled.

The average number of individuals detected per point count station of mixed CBS/MDWS was about 15 percent greater than in CBS (15.5 individual birds/point count station vs. 13.45 individuals). While these numbers show that birds in general are more common in CBS/ MDWS, a species by species examination helps to explain the bird community changes between vegetation communities. The results indicate that horned lark, house finch, verdin, and mourning dove are more abundant in CBS. Sage sparrow, common raven, black-throated sparrow, and lesser nighthawk appear to be more abundant in CBS/MDWS. The remaining species either don't show a trend or the sample numbers are too small to determine if a trend exists. The average number of species detected was about 30 percent greater in mixed CBS/MDWS than in pure CBS (3.75 species/point count station vs. 2.9 species).

B. Species Diversity and Abundance: Non-Resident Species

Twelve species of non-resident birds were identified within or flying over the point count circles during surveys (Table 2). Of these, Brewer's sparrow (*Spizella breweri*) was the most common, followed closely by white-crowned sparrow (*Zonotrichia leucophrys*), yellow-rumped warbler (*Dendroica coronata*), and blue-gray gnatcatcher (*Polioptila caerulea*). Tree swallow (*Tachycineta bicolor*), cliff swallow (*Petrocheliden pyrrhonota*), great-tailed grackle (*Quiscalus mexicanus*), and pine siskin (*Carduelis pinus*) were observed flying over the point count circles only and were not tied to any particular vegetation community. All other species observed on site were perched or foraging within the count circles for at least part of the observation period. Table 2 lists each non-resident species recorded, along with the total numbers for each species, mean number of individuals per station, and mean number of species per station by habitat.

Table 2
Non-Resident Bird Species Recorded per Vegetation Community
at the Ridgecrest Solar Power Project [1]

Species	Status[2]	CBS	MWS	Total
Brewer's Sparrow	W	4 (0.20)	5 (1.25)	9 (0.38)
White-crowned Sparrow	W	7 (0.35)		7 (0.29)
Yellow-rumped Warbler	W	6 (0.30)	1 (0.25)	7 (0.29)
Blue-gray Gnatcatcher	W	3 (0.15)	2 (0.50)	5 (0.21)
Tree Swallow	T	4 (0.20)		4 (0.17)
Cliff Swallow	V	1 (0.05)	1 (0.25)	2 (0.08)
Wilson's Warbler	T		2 (0.50)	2 (0.08)
Black-chinned Hummingbird	V	1 (0.05)		1 (0.04)
Dusky Flycatcher	T	1 (0.05)		1 (0.04)
Empidonax sp.	T		1 (0.25)	1 (0.04)
Chipping Sparrow	T		1 (0.25)	1 (0.04)
Great-tailed Grackle	V	1 (0.05)		1 (0.04)
Pine Siskin	W	1 (0.05)		1 (0.04)
Average Individuals/Station		**1.45**	**3.25**	**1.75**

[1] Represented as the total number of individual birds per species and mean number of individuals detected per station for each vegetation community in parentheses
[2] Status code in Project site: W = winter only; V = visitor (breeds nearby); T = transient

The following bird species were broken down into categories based on the type of interaction and length of stay they had with the vegetation communities within the Project site. The four most common species—Brewer's sparrow, white-crowned sparrow, yellow-rumped warbler, and blue-gray gnatcatcher—winter on or near the site, as does the pine siskin, although the siskin is an irruptive species (present at lower elevations in some winters, and absent in others). Three species—cliff swallow, black-chinned hummingbird (*Archilochus alexandri*), and great-tailed grackle—are considered visitors, present in summer only, and breed locally but not onsite. Cliff swallows build their mud nest on eaves of buildings and under bridges and highway overpasses; black-chinned hummingbirds nest in trees in riparian woodlands and well-watered parks; and the great-tailed grackle, which is also considered a permanent resident in the nearby City of Ridgecrest, does not breed onsite because of lack of habitat. The remaining four species are considered transients that pass through the Project site during migration periods: Wilson's warbler (*Wilsonia pusilla*), dusky flycatcher (*Empidonax oberholseri*), an unidentified empidonax flycatcher (*Empidonax* sp.), and chipping sparrow (*Spizella passerina*).

Although total bird activity among all species by vegetation community is less significant for transients (especially swallows) than for residents, it is probably significant that bird use of

MDWS by non-residents was two-and-a-quarter times greater than that of CBS (3.25 individual birds/station vs. 1.45 individual birds/station), suggesting that this topographic feature, although only modestly differentiated, is sufficiently different to concentrate what few migrants pass through the open desert in MDWS. While these numbers show that birds in general are more common in MDWS, most of the species either don't show a trend or the sample numbers are too small to determine if a trend exists. Brewer's sparrow, blue-gray gnatcatcher, and Wilson's warbler to appear to be more abundant in MDWS. The average number of non-resident species detected was more than three times greater in mixed CBS/MDWS than in pure CBS (3.00 species/point count station vs. 0.95 species).

Several additional non-resident species were noted during the study period either outside the point count circles or at times when point counts were not being made. These included western kingbird (*Tyrannus verticalis*) and ash-throated flycatcher (*Myiarchus cinerascens*), which are summer residents that nest in trees that do not occur on the site; violet-green swallow (*Tachycineta thalassina*), a transient; and American goldfinch (*Carduelis tristis*), a species that winters locally.

C. Raptors

Raptors are relatively scarce in the vast expanse of CBS in the California deserts. Correspondingly, few were recorded during this study. In addition to WBO mentioned above, raptors observed on site include a red-tailed hawk (*Buteo jamaicensis*) observed the day before point counts were initiated, a turkey vulture (*Cathartes aura*) observed after completion of the April 16 survey, and a State-listed Swainson's hawk (*Buteo swainsoni*) incidentally observed flying over the BRSA on April 28, 2009 (discussed in further detail below). It is likely that more raptors would have been observed later in the day, but the surveys were completed early in the morning before most diurnal raptors become active.

D. Special Status Species

Special status, or sensitive, biological resources include species that have been afforded special recognition by Federal, State, or local conservation agencies and organizations as endangered, threatened, rare, or otherwise of concern, principally due to the species' declining or limited population size, usually resulting from habitat loss.

One California threatened species (Swainson's hawk) and two California Species of Special Concern (WBO and loggerhead shrike) were observed on the Project site during the course of the

point count survey work. Two other species observed during surveys were previously listed as California Species of Special Concern (Remsen 1978; CDFG 1992) but are no longer included in the most recent list (Shuford and Gardali 2008): horned lark and Le Conte's thrasher. These two species detected during avian point count surveys are not considered to be special-status species in the Mojave Desert and are not discussed individually below; however, detections are depicted in Figure 3.

Swainson's hawk is designated as a State threatened species under the California Endangered Species Act (Fish and Game Code Sections 2050 to 2097; CDFG 2009). It is the only species with legally defined state conservation status that was detected during the study. The bird was observed passing over the BRSA on April 28, 2009 and was clearly a migrant. This species is not known to nest in the region and no suitable nesting habitat occurs on site.

Western burrowing owl (WBO) was listed as a Species of Special Concern, second priority, by Remsen (1978) and retained by CDFG on its interim non-prioritized list in 1992. Shuford and Gardali (2008) retained it as a priority 2 species because of continued declines throughout most of its range in California. Although it is still relatively common in parts of the Central and Imperial valleys, continued habitat loss of farmland to urban development, changing agricultural practices, and ground squirrel eradication (WBO uses ground squirrel burrows for shelter, roosting, and nesting) are all contributing to its decline in these two critical areas. A WBO was recorded (auditory detection) on April 30, 2009 outside of the point count circle between Point Count Stations X1 and X2 and in the vicinity of detections noted during focused WBO surveys conducted on site (EDAW 2009). Focused WBO surveys were conducted on site during spring 2009. During focused surveys a minimum of eight WBOs were detected, including at least two nesting pairs and 4 individuals. Detailed results of these surveys are presented in the Ridgecrest Solar Power Project Western Burrowing Owl Technical Report (EDAW 2009).

Loggerhead shrike was added to the California Species of Special Concern by CDFG in 1992, and all mainland populations were retained as a Species of Special Concern, priority 2 by Shuford and Gardali (2008). While this species has been in steady decline throughout much of its range, beginning in the Northeast in the 1930s and in the southeast and midwest by the 1960s, it was still fairly common in California as late as 1970. It showed significant declines in most of California beginning around 1968 (Sauer et al. 2005); however, in the southern California deserts, it has shown no marked decline.

One loggerhead shrike was recorded on site during point count surveys. This is most likely because little suitable habitat for nesting is present onsite. Shrikes prefer large, often thorny,

shrubs and trees for nesting, none of which were present on the site. The one individual shrike was observed actively foraging (Figure 3) and may have been nesting in more suitable habitat nearby.

V. DISCUSSION

With the exception of a relatively poor differentiation of MDWS in the west-central portion, the entire RSPP site is comprised of CBS, a plant community that is sparsely vegetated and remarkably uniform.

Among terrestrial habitats in North America, CBS is noted for its low avian diversity, and such was the case on the site. It is dominant over vast regions of the deserts of eastern California, so its general lack of endangered, threatened, and special status bird species is expected. No endangered or threatened species reside on the site. The State threatened Swainson's hawk observed flying over the site on April 28, 2009, was a migrant. Two California Species of Special Concern, the loggerhead shrike and WBO, were detected on site.. Focused WBO surveys conducted during spring 2009 also detected WBO in the vicinity of the detection recorded during point count surveys (EDAW 2009). Focused WBO surveys determined there to be at least two nesting pairs and 4 individuals on site. Detailed results of these surveys are presented in the Ridgecrest Solar Power Project Western Burrowing Owl Technical Report (EDAW 2009). WBOs have shown steady declines through most of California in recent decades, including much of the desert where they once were relatively common. The shrike, on the other hand, which has also declined precipitously over much of its range in North America, is still common in the California deserts, which remain one of its last strongholds.

Other than horned larks and sage sparrows, no other species on the site were present in large numbers. Both resident and non-resident species were more common in the MDWS, although this difference was more pronounced for migrants.

Despite the abundance of mammalian prey such as the diurnal antelope ground squirrel (*Ammospermophilus leucurus)*, black-tailed jackrabbit (*Lepus californicus*), and nocturnal Heteromyid rodents, raptors were relatively scarce as is typical of CBS in the California deserts.

Based on the results of this point count study, which shows low avian diversity and a paucity of special status species, impacts on birds from Project implementation, primarily through removal of CBS, are expected to be less than significant with the possible exception of WBO.

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ATTACHMENT 1
FIGURES

Map Location

1 inch = 40 miles

0 40 80 Miles

Ridgecrest Solar Power Project
Avian Point Count
Survey Technical Report

Figure 1
Regional Map

Source: ESRI; AECOM 2009;

Solar Millennium

AECOM

Date: September 2009

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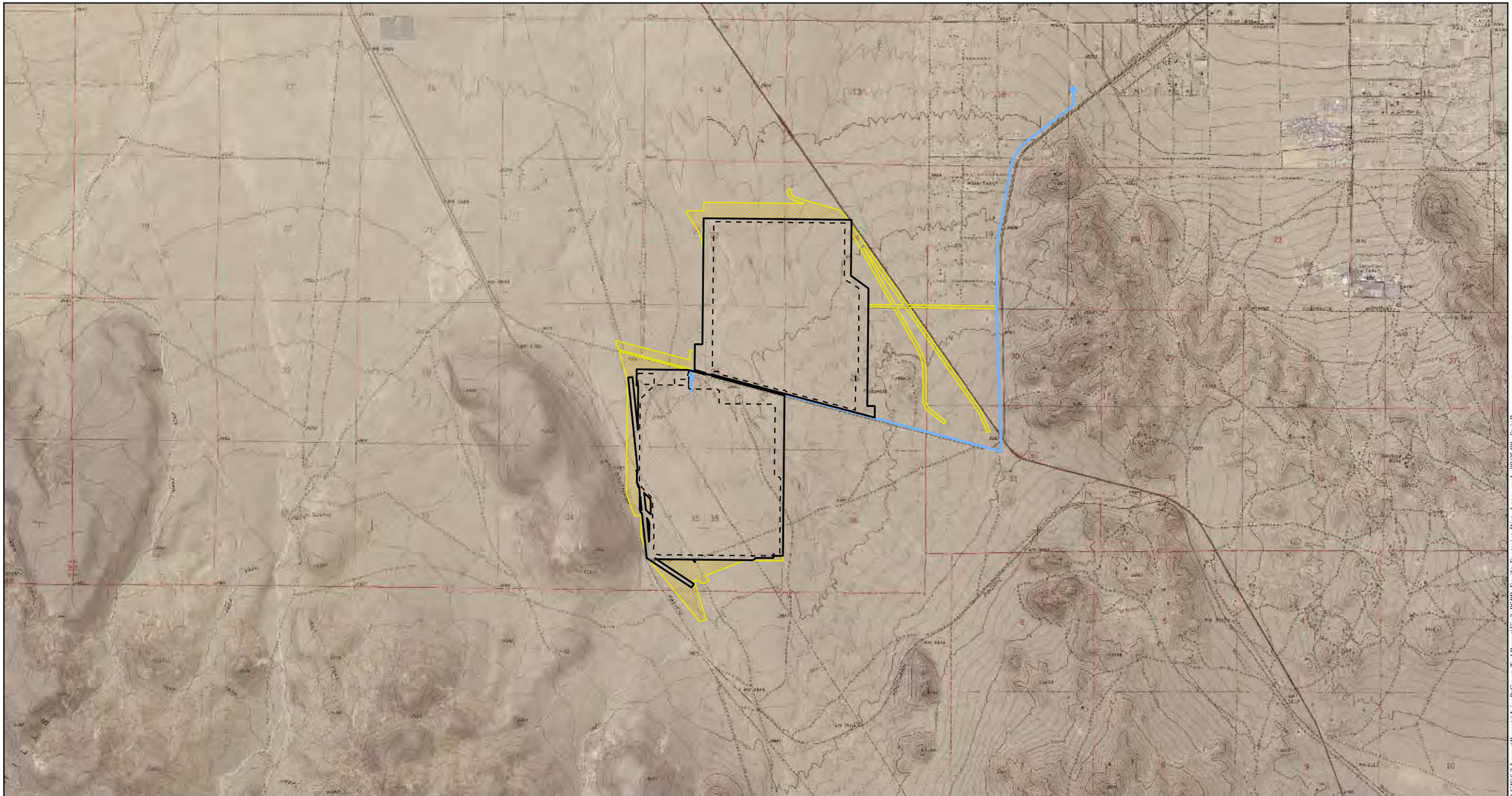

Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Disturbance Area (Surveyed - No Longer Proposed)

Source: NAIP 2005; AECOM 2009; EDAW 2009;

N
W E
S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Avian Point Count
Survey Technical Report

Figure 2
Facility Footprint
and Disturbance Area

Solar Millennium

AECOM

Date: September 2009

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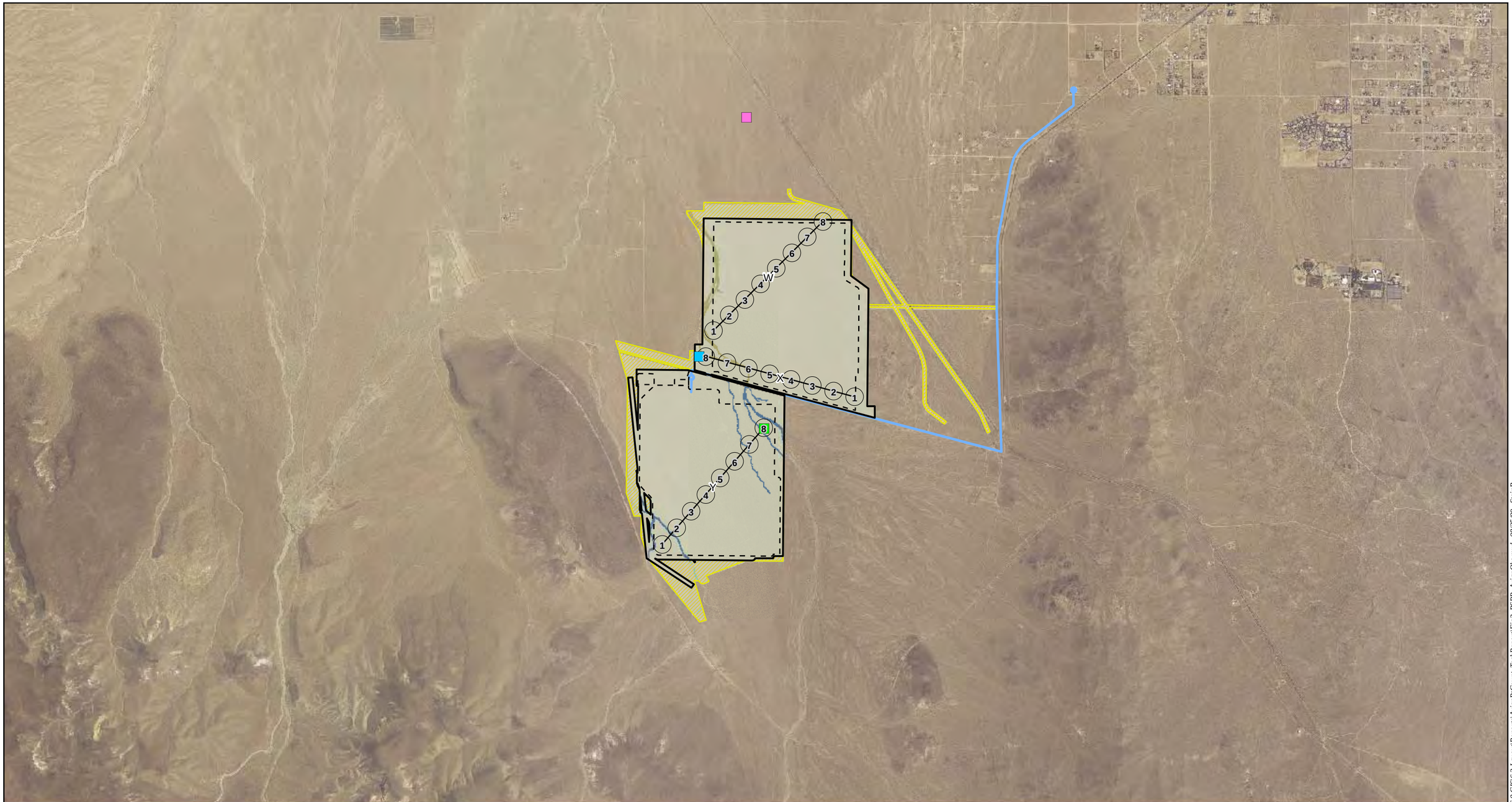

Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Disturbance Area (Surveyed - No Longer a Part)
- Transect Identifier
- Point Location Identifier

Source: NAIP 2005; AECOM 2009; EDAW 2009

Special Status Avian Species Observations

- Le Conte's Thrasher
- Loggerhead Shrike
- Swainson's Hawk

Vegetation Communities

Riparian

- Mojave Desert Wash Scrub
- Unvegetated Ephemeral Dry Wash
- Unvegetated Ephemeral Dry Wash (Presumed)

Upland

- Mojave Creosote Bush Scrub

Other

- Developed

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Avian Point Count
Survey Technical Report

Figure 3
Avian Species Observations

Solar Millennium

AECOM

Date: September 2009

Path: P:\20090\80080 Sol MII Ridgecrest\6.0 GIS\6.3 LayoutReports\AvianPtCount_TechReport\Fig3_RSPP_AvianObs.mxd, 08/25/09, SteinB

ATTACHMENT 2
AVIAN POINT COUNT SURVEY DATA FORM

AVIAN FIXED POINT OBSERVATION DATA SHEET: SOLAR MILLENIUM SITE: _____ POINT: COUNT ID: _____

DATE: _____ VISIT #: _____ OBSERVER: _____ START TIME: _____ END TIME: _____ GPS: _____ PAGE___OF___

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) _____ TEMP (°F) _____

WIND DIRECTION: _____ SPEED (MPH) Low: _____ High: _____ Avg: _____

PRECIPITATION: _____ OTHER: _____

Obs No.	Species	Sex	Age	# Inds.	Observer		Activity	Flyover?		Habitat	A*	Time Increment		Notes	Breeding Confirmed? (Y/N)
					Dist. (m)	Dir.		Y/N	Dir.			0-3 min.	3-10 min.		
1															
2															
3															
4															
5															
6															
7															
8															
9															
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17															
18															
19															
20															

*Check if Auditory only

Comments: _____

Activity Codes

PE = Perched
SO = Soaring
FL = Flapping
CS = Circle Soaring
HU = Hunting/Foraging
OT = Other
NB = Nest Building
Si = Singing
TD = Territorial Display

Habitats

Desert Dry Wash Woodland – DDWW
Dry Lake – DL
Dunes – DUNE
Disturbed – DIST
Creosote Bush Scrub – CBS
Mojave Desert Wash Scrub – MDWS

Sex

M = Male
F = Female
U = Unknown

Age

A = Adult
J = Juvenile
U = Unknown

Point Count ID

= Transect letter + Point Number
[e.g.: A1, A2, etc.]

AVIAN INCIDENTAL OBSERVATIONS SOLAR MILLENIUM SITE_____ OBSERVER_____ PAGE____OF____

DATE: _____ WEATHER: VISIBILITY_____ PRECIP: _____

CLOUD COVER _____ TEMP _____ WIND DIRECTION _____ WIND SPEED _____ OTHER _____

Obs. No.	Time	Species	Sex	Age	No. of Inds.	Dist from obsr (m)	Activity	Habitat	Flyover? (Y/N)	Dir of Flight	Location/Other Notes

OTHER SENSITIVE WILDLIFE INCIDENTAL OBSERVATIONS – USE GPS AND FIELD NOTE NOMENCLATURE

Time	GPS Code (Use Nomenclature from back page)	Sex	Age	No. of Inds.	Activity	Habitat	Comments

General Comments: _____

_____

_____

GPS and Field Note Nomenclature**

e.g., PDLSD001

P=Site Identifier, DL=live desert tortoise, SD=surveyor identifier (SD=Shelly Dayman), 001=observation #

Site Identifier Blythe=B Palen=P Ridgecrest=R

Species Identification Codes

Herps and Desert Tortoise	BB=burrow	**Bird Species (continued)**	**Mammals**
DL=desert tortoise live	BF=feather	NH=northern harrier, NN=nest	KB=kit fox burrow
DB=burrow	BP=pellets	BT=Bendire's thrasher, BN=nest	GL=American badger live
DS=scat	BO=other (describe)	CT=Crissal's thrasher, CN=nest	GB=American badger burrow
DC=carcass	**Bird Species**	GF=Gilded flicker, GN=nest	ML=Mojave ground squirrel live
DT=tracks	WK=White-tailed kite, KN=nest	GW=Gila Woodpecker, WN=nest	SL=big horn sheep live
DP=desert tortoise pallet	CO=Cooper's hawk, ON=nest	PR=prairie falcon, RN=nest	SC=big horn sheep carcass
DO=other (describe)	SW=Swainson's hawk, SN=nest	PE=peregrine falcon, PN=nest	BA=bat roosting sites
Other Herps	FE=Ferruginous hawk, FN=nest	NE=unknown bird nest	OO=other, specify in notes
MF=Mojave fringe-toed lizard	GE=golden eagle, EN=nest		MA=mammal burrow
Birds and Burrowing Owl	LS=loggerhead shrike, LN=nest		BC=barrel cactus
BL=burrowing owl live	LT=Le Conte's thrasher, HN=nest		

ATTACHMENT 3
AVIAN POINT COUNT SURVEY DATA SHEETS

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W1

DATE: 4/14/09 VISIT #: 1 OBSERVER: ELIAS ELIAS START TIME: 0619 END TIME: 0629 GPS: 11 PAGE 1 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 100 TEMP (°F) ~~1206~~ = 56°F

WIND DIRECTION: SW SPEED (MPH) Low: 5 High: 20 Avg: 15

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	90	SW	SI	N		CBS	Y	Y			
2	HOLA	U	U	1	80	SE	OT	N		CBS	Y	Y		CALLED	
3	HOLA	M	A	1	75	N	SI TD	N		CBS	Y	Y		SONG FLIGHT	
4	HOLA	U	U	1	100	NW	OT	N		CBS	Y		Y	CALLED	
5	SAGS	M	A	1	100	SE	SI	N		CBS	Y		Y		
6							END	@		0629					
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															

*Check if Auditory only

Comments: Sunrise 0619

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: KIDGEWREST POINT COUNT ID: W2

DATE: 4/14/09 VISIT #: 1 OBSERVER: ELIAS DIAS START TIME: 0637 END TIME: 0647 GPS: 11 PAGE 2 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 100 TEMP (°F) 56

WIND DIRECTION: SW SPEED (MPH) Low: 5 High: 20 Avg: 12

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	100	SW	SI TD	N		CBS	✓	✓		~~A~~ SONG FLIGHT (PREVIOUS POINT)	
2	HOLA	M	A	1	130	SE	SI TD	N		CBS	✓		✓	SONG FLIGHT	
3	SAOS	M	A	1	80	SW ~~SE~~	SI	N		CBS	✓		✓		
4	AUWA	M	A	1	35	NE	OT	N		CBS			✓	~~A SONG~~ CALLED	
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT: COUNT ID: W3

DATE: 4/14/09 VISIT #: 1 OBSERVER: ELIAS START TIME: 0652 END TIME: 0702 GPS: 11 PAGE 3 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 90 TEMP (°F) 56

WIND DIRECTION: SW SPEED (MPH) Low: 5 High: 20 Avg: 15

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	130	SW	SI	N		CBS	✓	✓			
2	SAGS	M	A	1	120	W	SI	N		CBS	✓	✓			
3	SAGS	M	A	1	170	S	SI	N		CBS	✓		✓		
4	HOLA	M	A	1	180	S	SI TD	N		CBS	✓		✓		
5															
6															
7															
8															
9															
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*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W4

DATE: 7/14/09 VISIT #: 1 OBSERVER: CLAS START TIME: 0708 END TIME: 0718 GPS: 11 PAGE 4 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 95 TEMP (°F) 56°

WIND DIRECTION: SW SPEED (MPH) Low: 5 High: 15 Avg: 10

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	2	120	SW	OT	N		CBS	✓	✓		CALLED	
2	HOLA	M	A	1	85	W	SI TO	N		CBS	✓	✓			
3	HOLA	U	U	1	100	SE	OT	N		CBS	✓	✓		CALLED	
4	HOLA	U	U	1	80	NW	OT	N		CBS	✓		✓	CALLED	
5	TRES	U	A	1	50	W	OT	Y	W	CBS			✓	ABOUT 10M UP.	
6	SAGS	M	A	1	100	N	SI	N		CBS	✓		✓		
7															
8															
9															
10															
11															
12															
13															
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16															
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20															

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W5

DATE: 4/14/09 VISIT #: 1 OBSERVER: ELIAS START TIME: 0726 END TIME: 0736 GPS: 11 PAGE 5 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 90 TEMP (°F) 56°

WIND DIRECTION: W SPEED (MPH) Low: 7 High: ~~18~~ 20 Avg: 12

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	150	NW	SI	N		CBS	✓	✓		PREVIOUS POINT	
2	HOLA	M	A	1	150	SW	SI TD	N		CBS	✓	✓	✓		
3	HOLA	U	U	1	100	NE	OT	N		CBS	✓		✓	CALLED	
4	HOLA	U	U	1	50	E	OT	N		CBS			✓	CALLED	
5	CORA	U	U	2	350	E	FL	N		CBS			✓		
6															
7															
8															
9															
10															
11															
12															
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16															
17															
18															
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20															

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT: COUNT ID: WG

DATE: 4/14/09 VISIT #: 1 OBSERVER: EUAS START TIME: 0743 END TIME: 0753 GPS: 11 PAGE 6 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) (good) fair poor CLOUD COVER (%) 90 TEMP (°F) 56

WIND DIRECTION: SW SPEED (MPH) Low: 5 High: 15 Avg: 10

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	110	SW	SITD	N		CBS	✓	✓			
2	HOLA	M	A	1	150	NW	SITD	N		CBS	✓		✓		
3	HOLA	U	U	3	120	S	OT	N		CBS			✓		
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
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18															
19															
20															

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W7

DATE: 4/14/09 VISIT #: 1 OBSERVER: ELIAS START TIME: 0759 END TIME: 0809 GPS: 11 PAGE 7 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 95 TEMP (°F) 60°

WIND DIRECTION: W SPEED (MPH) Low: 5 High: 12 Avg: 8

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	A	2	20	E	HU	N		CBS		✓			
2	HOLA	M	A	1	120	SE	SI TD	N		CBS	✓	✓			
3	HOLA	U	U	1	100	N	OT	N		CBS	✓	✓		CALLED	
4	HOLA	U	M	3	30	SE	HU	N		CBS		✓	✓		
5	HOLA	B	A	2	15	S	HU	N		CBS			✓	FOOD CARRY	Y
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGE CREST POINT COUNT ID: W8

DATE: 4/14/09 VISIT #: 1 OBSERVER: ELIAS START TIME: 0816 END TIME: 0826 GPS: 11 PAGE 8 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 95 TEMP (°F) 60°

WIND DIRECTION: W SPEED (MPH) Low: 5 High: 15 Avg: 12

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	200	N	SI TD	N		CBS	✓	✓			
2	HOLA	B	A	2	35	E	OT HU	N		CBS		✓		CALLING	
3	SAUWA	M	A	1	32	N	FL	Y	W	CBS			✓		
4	SAGS	M	A	1	20	NE	SI	N		CBS			✓		
5															
6															
7															
8															
9															
10															
11															
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13															
14															
15															
16															
17															
18															
19															
20															

*Check if Auditory only

Comments:

AVIAN INCIDENTAL OBSERVATIONS SOLAR MILLENIUM SITE RIDGECREST OBSERVER ELIAS PAGE 9 OF 9

DATE: 4/14/09 WEATHER: VISIBILITY GOOD PRECIP: NONE

CLOUD COVER 100 TEMP 56 WIND DIRECTION SW WIND SPEED 15 OTHER

Obs. No.	Time	Species	Sex	Age	No. of Inds.	Dist from obsr (m)	Activity	Habitat	Flyover? (Y/N)	Dir of Flight	Location/Other Notes
1	0631	BRSP	M	A	1	20	S1	CBS	N	—	BETWEEN W1 & W2
2	0849	CHSP	U	A	3	12	HU	CBS	N	—	20 M N OF W6

OTHER SENSITIVE WILDLIFE INCIDENTAL OBSERVATIONS – USE GPS AND FIELD NOTE NOMENCLATURE

Time	GPS Code (Use Nomenclature from back page)	Sex	Age	No. of Inds.	Activity	Habitat	Comments
0838	RMAEE001					CBS	FRESH DIGGINGS, DOG TYPE SCAT; MULTIPLE BURROWS

General Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X1

DATE: 4/15/09 VISIT #: 1 OBSERVER: ELAS START TIME: 0618 END TIME: 0628 GPS: 11 PAGE 1 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) (good) fair poor CLOUD COVER (%) 005 TEMP (°F) 28°

WIND DIRECTION: WSW SPEED (MPH) Low: 1 High: 18 Avg: 5

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	36	S	SI	N		CBS	✓	✓			
2	BRSP	M	A	1	50	S	SI	N		CBS	✓	✓			
3	CORA	U	U	1	18	E	FL	Y	N	CBS		✓			
4	HOFI	U	U	1	5	W	FL	Y	E	CBS	✓		✓		
5	HOLA	U	U	1	50	W	FL	Y	N	CBS	✓		✓	CIRCLE OVER PLOT	
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16	HOFI	U	U	1	130	S	FL	Y	W	CBS	✓		✓		
17	SAGS	M	A	1	170	S	SI	N		CBS	✓		✓		
18	SAGS	M	A	1	150	N	SI	N		CBS	✓		✓		
19	HOLA	U	U	1	120	N	OT	N		CBS	✓		✓		
20	~~CORA~~	~~U~~	~~U~~	~~1~~	~~150~~		MOVED IN TO CHECK ME OUT								

*Check if Auditory only

Comments: Sunrise 6:18

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT: COUNT ID: X2

DATE: 4/15/09 VISIT #: 1 OBSERVER: QIAS START TIME: 0633 END TIME: 0643 GPS: 11 PAGE 2 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 010 TEMP (°F) ~~38°~~ 34°

WIND DIRECTION: WSW SPEED (MPH) Low: 4 High: 25 Avg: 12

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	~~SA~~														
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20	SAVS	M	A	1	130	SW	S1	N		C35	✓		✓		

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT: COUNT ID: X3

DATE: 4/15/09 VISIT #: 1 OBSERVER: CLBS START TIME: 0647 END TIME: 0657 GPS: 11 PAGE 3 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 003 TEMP (°F) 34°

WIND DIRECTION: WSW SPEED (MPH) Low: 3 High: 25 Avg: 12

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	50	W	FL SI	Y	S	C3S	✓	✓			
2	VERD	M	A	1	35	SW	SI	N		C3S			✓		
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT: COUNT ID: X4

DATE: 4/15/09 VISIT #: 1 OBSERVER: ELIAS START TIME: 0703 END TIME: 0713 GPS: 11 PAGE 4 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 002 TEMP (°F) 34

WIND DIRECTION: WSW SPEED (MPH) Low: 7 High: 25 Avg: 10

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	90	WSW	SI TD	N		CSS	✓	✓			
2	HOLA	M	A	1	100	W	SI TD	N		CSS	✓	✓			
3	SAGS	M	A	1	90	N	SI	N		CSS		✓			
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT: COUNT ID: X5

DATE: 4/15/09 VISIT #: 1 OBSERVER: ELIAS START TIME: 0719 END TIME: 0729 GPS: 11 PAGE 5 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 010 TEMP (°F) 34

WIND DIRECTION: WSW SPEED (MPH) Low: 5 High: 20 Avg: 12

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	50	S	OT	N		CBS	✓		✓	CALLED	
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19	HOLA	U	U	1	150 ~~200~~	W	OT	N		CBS	✓		✓	CALLED	
20	HOLA	U	U	2	130	NW	~~FLAYING~~ OT	N		CBS		✓		CHASE	

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X6

DATE: 4/15/09 VISIT #: 1 OBSERVER: ELIAS START TIME: 0735 END TIME: 0745 GPS: 11 PAGE 6 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 010 TEMP (°F) 36

WIND DIRECTION: WSW SPEED (MPH) Low: 1 High: 8 Avg: 5

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	20	SE	FL	N		CBS		✓			
2	GHSP	M	A	1	100	W	SI	N		CBS	✓	✓			
3	SAGS	U	A	1	19	N	~~FL~~ PE	N		CBS		✓		PERCHED	
4	BRSP	U	A	1	30	S	PE	N		CBS			✓		
5	BRSP	M	A	1	35	SE	SI	N		CBS			✓		
6															
7															
8															
9															
10															
11															
12															
13															
14															
15	WCSP	M	A	1	200	W	SI	N		CBS	✓		✓		
16	HOFI	U	U	1	150		OT	Y	UN	CBS	✓		✓	CALLED	
17	HOLA	M	A	1	120	N	SI	N		CBS	✓		✓		
18	~~GHSP~~	~~M~~	~~A~~	1											
19	SAGS	M	A	1	130	NW	SI	N		CBS	✓	✓			
20	SAGS	M	A	1	150	S	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments: WIND CALMED DOWN

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X7

DATE: 4/15/09 VISIT #: 1 OBSERVER: ELIAS START TIME: 0751 END TIME: 0801 GPS: 11 PAGE 7 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 010 TEMP (°F) 36

WIND DIRECTION: ESE SPEED (MPH) Low: 0 High: 8 Avg: 2

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	20	NE	SI	N		CBS		✓			
2	SAGS	M	A	1	30	NW	SI	N		CBS		✓			
3	YRWA	U	U	1	40	NW		N		CBS	✓	✓			
4	BRSP	M	A	1	35	NW		N		CBS		✓			
5	SAGS	M	A	1	90	SW		N		CBS		✓			
6	HOLA	U	A	1	20	NW		N		CBS		✓			
7	HOLA	U	U	2	40	NW		N		CBS		✓			
8	HOLA	U	U	1	60	NE		N		CBS		✓			
9	CORA	U	A	1	90	W	HU FL CS	Y	W	CBS			✓		
10	CORA	U	A	2	60	W	CS	Y	N	CBS			✓		
11															
12															
13															
14															
15															
16															
17															
18															
19	HOLA	M	A	1	150	S	SI TD	N		CBS	✓		✓	SING FLIGHT	
20	~~CORA~~	~~U~~	~~A~~	~~2~~	~~200~~	~~S~~	~~HU~~								

*Check if Auditory only

Comments: WIND CHANGED DIR & SLOWED DOWN.

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X8

DATE: 4/15/09 VISIT #: 1 OBSERVER: ELIAS START TIME: 0806 END TIME: 0816 GPS: 11 PAGE 8 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 010 TEMP (°F) 36

WIND DIRECTION: SE→W SPEED (MPH) Low: 2 High: 20 Avg: 12

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	100	E	SI	N		CBS	✓	✓			
2	HOLA	U	U	1	90	SE	FL	N		CBS	✓	✓			
3	SAGS	M	A	1	80	E	SI	N		CBS	✓		✓		
4	BRSP	M	A	1	70	E	SI	N		CBS	✓		✓		
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18	SAGS	M	A	1	200	SE	SI	N		CBS	✓		✓	PREVIOUS POINT	
19	WSCP	M	A	1	150	E	SI	N		CBS	✓		✓		
20	HOLA	M	A	1	130	S	SI TO	N		CBS	✓	✓		SONG FLIGHT	

*Check if Auditory only

Saw this one

Comments: GUSTY WITH BRIEF PERIODS OF CALM

AVIAN INCIDENTAL OBSERVATIONS SOLAR MILLENIUM SITE RIDGECREST OBSERVER ELIAS PAGE 9 OF 9

DATE: 4/15/09 WEATHER: VISIBILITY GOOD PRECIP: NONE

CLOUD COVER 005 TEMP 38 WIND DIRECTION VAR WIND SPEED GUSTY 10 mph AVE OTHER

Obs. No.	Time	Species	Sex	Age	No. of Inds.	Dist from obsr (m)	Activity	Habitat	Flyover? (Y/N)	Dir of Flight	Location/Other Notes
1	749	WEKI	U	A	1	45	FL	CBS	N	S	BETWEEN ~~X6~~ & X7 X6
2	819	VGSW	U	A	3	30	FL	CBS	Y	S	@ X6 AFTER PC ENDED
3	0832	BUGN	U	A	1	27	PE	CBS	N	—	NEAR X6

OTHER SENSITIVE WILDLIFE INCIDENTAL OBSERVATIONS – USE GPS AND FIELD NOTE NOMENCLATURE

Time	GPS Code (Use Nomenclature from back page)	Sex	Age	No. of Inds.	Activity	Habitat	Comments

General Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y1

DATE: 4/16/09 VISIT #: 1 OBSERVER: ELIAS START TIME: 0616 END TIME: 0626 GPS: 11 PAGE 1 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 000 TEMP (°F) 36

WIND DIRECTION: W SPEED (MPH) Low: 8 High: 20 Avg: 15

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	100	NE	FL PE	N		CBS		✓			
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20	HOLA	U	U	1	130	N	SI	N		CBS		✓			

*Check if Auditory only

Comments: SUNRISE 0616

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X2

DATE: 4/16/09 VISIT #: 1 OBSERVER: ELIAS START TIME: 0632 END TIME: 0642 GPS: 11 PAGE 2 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) (good) fair poor CLOUD COVER (%) 000 TEMP (°F) 36

WIND DIRECTION: W SPEED (MPH) Low: 10 High: 25 Avg: 15

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time increment 0-3 min.	Time increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	100	N	SI TD	N		CBS			✓		
2	HOLA	M	A	1	90	NW	SI TD	N		CBS	✓		✓		
3	HOLA	U	U	1	20	W	OT FL	N		CBS			✓	CALLED	
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19	~~HOLA~~	~~M~~	~~A~~	~~1~~	~~130~~	~~N~~	~~SI TD~~	~~N~~		~~CBS~~	~~✓~~	~~✓~~		MOVE	ON/IN
20	HOLA	M	A	1	150	SE	SI TD	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT: COUNT ID: Y3

DATE: 6/16/09 VISIT #: 1 OBSERVER: ELIAS START TIME: 0647 END TIME: 0657 GPS: 11 PAGE 3 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 000 TEMP (°F) 38

WIND DIRECTION: W SPEED (MPH) Low: 10 High: 25 Avg: 15

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	VERD	U	U	1	27	W	OT	N		CBS		✓		CALLED	Y
2	HOLA	U	U	1	10	NW	FL	N		CBS		✓		CALLED	
3	HOLA	M	A	1	90	N	SI TO	N		CBS		✓		SONG FLIGHT	
4	SAGS	M	A	1	90	NW	SI	N		CBS	✓	✓			
5	HOLA	U	U	2	90	NE	OT	N		CBS		✓		CALLED	
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20	HOLA	M	A	1	150	S	SI TO	N		CBS	✓		✓	SONG FLIGHT	

*Check if Auditory only

Comments: VERDIN = stub-tailed HY bird; bursage (Ambrosia dumosa) twig nest in Silver cholla 1M above ~~floor~~ ground

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y4

DATE: 6/16/09 VISIT #: 1 OBSERVER: ELIAS START TIME: 0704 END TIME: 0714 GPS: 11 PAGE 4 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 000 TEMP (°F) 36

WIND DIRECTION: W SPEED (MPH) Low: 10 High: 25 Avg: 15

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	F	A	1	24	SW	OT	N		CBS		✓		CARRY FOOD CALL	Y
2	HOLA	U	A	1	30	SW	OT	N		CBS		✓			
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20	SAGS	M	A	1	130	SW	SI	N		CBS	✓		✓		

*Check if Auditory only

Comments: TWO SPARROW CHASED! COYOTE WHEN IT RAN THRU THEIR TERRITORY THEY WERE PROBLY SAGS & THEY WERE PROBLY ≈150 M FROM PLOT CENTER

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y5

DATE: 4/16/09 VISIT #: 1 OBSERVER: ELIAS START TIME: 0725 END TIME: 0735 GPS: 11 PAGE 5 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 000 TEMP (°F) 41

WIND DIRECTION: W SPEED (MPH) Low: 8 High: 18 Avg: 13

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	80	SW	OT	N		CBS	✓	✓		CALLED	
2	HOLA	U	U	2	60	N	OT	N		CBS			✓	CALLED	
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y6

DATE: 4/16/09 VISIT #: 1 OBSERVER: ELIAS START TIME: 0740 END TIME: 0750 GPS: 11 PAGE 6 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 000 TEMP (°F) 43

WIND DIRECTION: W SPEED (MPH) Low: 5 High: 15 Avg: 10

PRECIPITATION: NONE OTHER:

~~H~~ ~~32~~ ~~43~~

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	100	W	OT	✓		CBS	✓	✓		CALLED	
2	HOLA	U	U	1	35	SW	OT	N		CBS	✓		✓	CALLED	
3	HOLA	M	A	1	20	SW	MA	N		CBS			✓		
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17	HOLA	M	A	1	200+	N	SI TD	N		CBS	✓		✓	SONG FLIGHT	
18	HOLA	M	A	1	200	E	SI TD	N		CBS	✓		✓	SONG FLIGHT	
19	HOLA	M	A	1	200	S	SI TD	N		CBS	✓		✓	SONG FLIGHT	
20	HOLA	M	A	1	150	NW	OT	N		CBS	✓	✓		CALLED	

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT: COUNT ID: Y7

DATE: 4/16/09 VISIT #: 1 OBSERVER: ELIAS START TIME: 0757 END TIME: 0807 GPS: 11 PAGE 7 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) (good) fair poor CLOUD COVER (%) 000 TEMP (°F) 45°

WIND DIRECTION: W SPEED (MPH) Low: 8 High: 18 Avg: 10

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	60	NW	HU	N		CBS		✓			
2	HOLA	F	A	1	60	NW	HU	N		CBS		✓			
3	HOLA	F	A	1	18	N	HU	N		CBS		✓			
4	HOLA	M	A	1	22	N	HU	N		CBS		✓			
5	HOLA	U	U	1	35	SW	FL	Y	NW	CBS			✓	silent	
6	SAGS	M	A	1	90	W	SI	N		CBS	✓		✓		
7	TRES	M	A	3	60	W	FL	Y	S	CBS			✓		
8	SAGS	M	A	1	50	S	SI	N		CBS	✓		✓		
9															
10															
11															
12															
13															
14															
15															
16	SAGS	M	A	1	130	SE	SI	N		CBS	✓		✓		
17	HOLA	U	U	1	200	S	OT	N		CBS	✓		✓	CALLING	
18	HOLA	M	A	1	200	N	SI TD	N		CBS	✓	✓			
19	HOLA	M	A	1	130	NW	SI TD	N		CBS	✓	✓			
20	HOLA	M	A	1	120	NW	SI TD	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT: COUNT ID: Y8

DATE: 4/16/09 VISIT #: 1 OBSERVER: ELIAS START TIME: 0814 END TIME: 0824 GPS: 11 PAGE 8 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 000 TEMP (°F) 45°

WIND DIRECTION: W SPEED (MPH) Low: 5 High: 18 Avg: 8

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	WCSP	U	U	1	80	N	OT	N		CBS	✓	✓		CALL	
2	SAGS	U	U	1	30	N	OT PE	N		CBS		✓		CALL	
3	BGGN	U	U	1	24	SE	OT	N		CBS	✓	✓		CALL	
4	WCSP	M	A	1	90	N	SI	N		CBS	✓	✓		-	
5	SAGS	U	U	1	35	N	OT PE	N		CBS		✓		CALL	
6	HOLA	U	U	1	20	NE	PE	N		CBS		✓			
7	WCSP	U	U	3	60	SW	OT	N		CBS		✓			
8	COHU	M	A	1	50	E	TD	N		CBS	✓		✓		
9	HOLA	U	U	2	40	NE	OT	N		CBS			✓	CHASE	
10															
11															
12															
13															
14															
15															
16															
17															
18	HOLA	M	A	1	150	S	SI TD	N		CBS	✓		✓	SONG FLIGHT	
19	HOLA	M	A	1	150	SW	SI TD	N		CBS	✓		✓	SONG FLIGHT	
20	WCSP	M	A	1	150	NE	SI	N		CBS	✓		✓		

*Check if Auditory only

Comments:

AVIAN INCIDENTAL OBSERVATIONS SOLAR MILLENIUM SITE RIDGECREST OBSERVER ELIAS PAGE 9 OF 9

DATE: 4/16/09 WEATHER: VISIBILITY GOOD PRECIP: NONE

CLOUD COVER 000 TEMP 38 WIND DIRECTION W WIND SPEED 15 OTHER

Obs. No.	Time	Species	Sex	Age	No. of Inds.	Dist from obsr (m)	Activity	Habitat	Flyover? (Y/N)	Dir of Flight	Location/Other Notes
1	0700	HOFI	M/F	A	2	10	PE	CBS	N		BETWEEN Y3 & Y4
2	0914	BTSP	U	A	2	40	PE HU SI	CBS	N		NEAR Y1 FOOD CARRY PROB ♂/♀
3	0914	ROWR	U	A	1	200	SI	CBS	N		R YER trucks
4	0914	AMGO	U	U	1	100	FL	—	Y	S	
5	0926	TUVU	U	U	1	50	FL	CBS	Y	circling	

OTHER SENSITIVE WILDLIFE INCIDENTAL OBSERVATIONS – USE GPS AND FIELD NOTE NOMENCLATURE

Time	GPS Code (Use Nomenclature from back page)	Sex	Age	No. of Inds.	Activity	Habitat	Comments
0715	RODEE 001	U	U	1	RUNNING	CBS	COYOTE

General Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W8

DATE: 4/21/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0540 END TIME: 0550 GPS: 11 PAGE 1 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 010 TEMP (°F) 520

WIND DIRECTION: S SPEED (MPH) Low: 1 High: 4 Avg: 2

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	60	W	SI	N		CBS	✓	✓			
2	SAGS	M	A	1	90	S	SI	N		CBS	✓	✓			
3	BTSP	W	A	1	95	N	SI	N		CBS	✓		✓		
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18	SAGS	M	A	1	180	W	SI	N		CBS	✓		✓		
19	HOLA	M	A	1	150	W	SI TD	N		CBS	✓	✓		SONG FLIGHT	
20	SAGS	M	A	1	130	N	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments: Sunrise 0610

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W7

DATE: 4/21/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0555 END TIME: 0605 GPS: 11 PAGE 2 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 010 TEMP (°F) 52

WIND DIRECTION: S SPEED (MPH) Low: 1 High: 4 Avg: 2

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18	HOLA	M	A	1	300	W	SI TD	N		CBS	✓		✓	ultra flight	
19	SAGS	M	A	1	150	W	SI	N		CBS	✓		✓		
20	HOLA	M	A	1	200	SE	SI TD	N		CBS	✓	✓		some flight	

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W6

DATE: 4/21/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0610 END TIME: 0620 GPS: 11 PAGE 3 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 010 TEMP (°F) 52°

WIND DIRECTION: calm SPEED (MPH) Low: Ø High: Ø Avg: Ø

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	20	SW	FL	Y	N	CBS			✓		
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17	SPGS	M	A	1	110	S	SI	N		CBS	✓		✓		
18	HOLA	U	U	1	150	SE	OT	N		CBS	✓	✓		CALLING	
19	HOLA	M	A	1	210	W	SI	N		CBS	✓	✓			
20	HOLA	M	A	1	170	SW	SI TD	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT: COUNT ID: W5

DATE: 7/21/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0625 END TIME: 0635 GPS: 11 PAGE 4 OF 7

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 010 TEMP (°F) 52°

WIND DIRECTION: South SPEED (MPH) Low: 1 High: 4 Avg: 2

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	20	SE	OT	N		CBS		✓		CALLING	
2	HOLA	U	U	1	35	W	OT	N		CBS		✓		CALLING / Joined	
3	HOLA	M	A	1	10	NW	OT HU	N		CBS		✓		HANDOU CALLED	
4	HOLA	U	U	1	45	NW	FL OT	N		OBS			✓	LANDED	
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19	SAGS	M	A	1	150	E	SI	N		CBS	✓		✓		
20	HOLA	U	U	1	130	S	OT	N		CBS	✓		✓	CALLING	

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W4

DATE: 4/21/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0640 END TIME: 0650 GPS: 11 PAGE 5 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) (good) fair poor CLOUD COVER (%) 020 TEMP (°F) 52°

WIND DIRECTION: S SPEED (MPH) Low: 2 High: 5 Avg: 3

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	80	S	OT	N		CBS	✓	✓		CALLING	
2	HOLA	U	U	1	30	NW	OT	N		CBS		✓		CALLING	
3	HOLA	U	U	1	30	SW	FL	N		CBS		✓		LANDED	
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19	HOLA	U	U	1	150	SE	OT	N		CBS	✓		✓	CALLING	
20	CORA	U	U	1	200	W	OT	N		CBS	✓	✓		CALLING	

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT: COUNT ID: W3

DATE: 4/21/09 VISIT #: 2 OBSERVER: CLAS START TIME: 0656 END TIME: 0706 GPS: 11 PAGE 6 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 015 TEMP (°F) 52°

WIND DIRECTION: S SPEED (MPH) Low: Ø High: 5 Avg: 3

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	70	S	SI TD	N		CBS	✓	✓			
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16	SAGS	M	A	1	130	NW	SI	N		CBS	✓		✓		
17	SAGS	M	A	1	200	N	SI	N		CBS	✓		✓		
18	HOLA	M	A	1	130	NE	SI TD	N		CBS	✓		✓	SONG FLIGHT	
19	HOLA	U	U	1	150	N	OT SI TD	N		CBS	✓	✓		CALLED SONG FLIGHT	
20	HOLA	U	U	2	130	S	OT	N		CBS	✓	✓		CALLED	

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W2

DATE: 4/21/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0710 END TIME: 0720 GPS: 11 PAGE 7 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 0 30 TEMP (°F) 52°

WIND DIRECTION: S SPEED (MPH) Low: Ø High: 5 Avg: 3

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	2	65	S	OT HU	N		CBS		✓		~~HOW~~ CALLING	
2	SAGS	M	A	1	75	W	SI	N		CBS	✓	✓			
3	HOFI	U	U	1	100	SE	OT	Y		CBS	✓	✓		CALL	
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18	SAGS	M	A	1	150	NE	SI	N		CBS	✓		✓		
19	HOLA	U	U	1	170	SW	OT	N		CBS	✓	✓		CALL	
20	HOLA	U	U	1	200	SE	OT	N		CBS	✓	✓		CALL	

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W1

DATE: 4/21/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0725 END TIME: 0735 GPS: 11 PAGE 8 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 015 TEMP (°F) 52°

WIND DIRECTION: S SPEED (MPH) Low: Ø High: 5 Avg: 3

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	100	NE	OT	N		CBS	✓	✓			
2	SAGS	M	A	1	100	SW	SI	N		CBS	✓	✓			
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15	REMINDS	ME	OF	A	DOSQ		TiTi ti ti ti tootootootoo								
16							DECREASING IN VOLUME TO								
17	TRILL?				100-200S		REPEATED every 20secs for DESCENDING			MAMMAL?		LAST	ABOUT 3 secs	≥130+ meters away	
18	SAGS	M	A	1	150	W									
19	SAGS	M	A	1	130	W									
20	HOLA	M	A	1	120	W	SI TD	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN INCIDENTAL OBSERVATIONS SOLAR MILLENIUM SITE RIDGECREST OBSERVER ELIAS PAGE 9 OF 9

DATE: 4/21/09 WEATHER: VISIBILITY GOOD PRECIP: NONE

CLOUD COVER 0/0 TEMP 52° WIND DIRECTION VAR WIND SPEED 1 OTHER

Obs. No.	Time	Species	Sex	Age	No. of Inds.	Dist from obsr (m)	Activity	Habitat	Flyover? (Y/N)	Dir of Flight	Location/Other Notes
1	0921	BGGN	U	U	1	50	OT	CBS	N	—	CALLING

OTHER SENSITIVE WILDLIFE INCIDENTAL OBSERVATIONS – USE GPS AND FIELD NOTE NOMENCLATURE

Time	GPS Code (Use Nomenclature from back page)	Sex	Age	No. of Inds.	Activity	Habitat	Comments

General Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X8

DATE: 4/22/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0530 END TIME: 0540 GPS: 11 PAGE 1 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 005 TEMP (°F) 57

WIND DIRECTION: W SPEED (MPH) Low: Ø High: 5 Avg: 1

PRECIPITATION: NONE OTHER:

28
-3
25
32
57

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	100	N	SI	N		CBS	✓	✓			
2	HOLA	U	U	1	50	S	OT FL	Y	W	CBS	✓		✓		
3	BTSP	M	A	1	75	N	SI	N		CBS	✓		✓		
4															
5															
6															
7															
8															
9															
10															
11															
12															
13	BTSP	M	A	1	130	E	SI	N		CBS	✓		✓		
14	SAGS	M	A	1	250	NE	SI	N		CBS	✓	✓			
15	~~SAGS~~	~~M~~	~~A~~	~~1~~	~~100~~	~~N~~	~~SI~~	~~N~~		~~CBS~~	~~✓~~	~~✓~~			
16	SAGS	M	A	1	150	W	SI	N		CBS	✓	✓			
17	SAGS	M	A	1	180	NW	SI	N		CBS	✓	✓			
18	SAGS	M	A	1	200	E	SI	N		CBS	✓	✓			
19	HOLA	M	A	1	230	S	SI	N		CBS	✓	✓			
20	SAGS	M	A	1	150	SE	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments: SUNRISE = 609

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X7

DATE: 4/22/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0550 END TIME: 0600 GPS: 11 PAGE 2 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 005 TEMP (°F) 57°

WIND DIRECTION: calm SPEED (MPH) Low: 0 High: 1 Avg: 0

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	BTSP	M	A	1	50	N	SI	N		CBS	✓	✓			
2	SAGS	M	A	1	75	SE	SI	N		CBS	✓	✓			
3	SAGS	M	A	1	100	N	SI	N		CBS	✓		✓		
4	LENI	U	A	1	70	N	FL	Y	N	CBS			✓		
5	BGGN	U	A	1	45	NE	OT	N		CBS	✓		✓		
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18	CORA	U	A	1	250	S	FL	Y	NW	CBS			✓		
19	HOLA	M	A	1	400	SW	SI	N		CBS	✓		✓	SUPER FAINT	
20	HOLA	M	A	1	300	S	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X6

DATE: 4/22/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0607 END TIME: 0617 GPS: 11 PAGE 3 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 010 TEMP (°F) 57°

WIND DIRECTION: calm SPEED (MPH) Low: 0 High: 3 Avg: 0

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	80	SW	SI	N		CBS	✓	✓			
2	HOLA	U	U	1	50	S	SI	Y	S	CBS	✓	✓			
3	BGGN	U	U	1	80	W	OT	N		CBS	✓		✓	CALLED	
4	VERD	U	U	1	100	N	OT	N			✓		✓	CALL	
5	HOLA	U	U	1	100	E	OT	N		CBS	✓		✓	CALL	
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16	HOLA	U	U	2	150	NW	FL	N			✓		✓		
17	~~VERD~~	~~U~~	~~U~~	~~1~~		~~N~~	~~OT~~	~~N~~			~~✓~~		~~✓~~	~~CALL~~	
18	~~BGGN~~														
19	SAGS	M	A	1	150	S	SI	N		CBS	✓		✓		
20	BTSP	M	A	1	200	S	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT: COUNT ID: X5

DATE: 4/22/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0622 END TIME: 0632 GPS: 11 PAGE 4 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 005 TEMP (°F) 63

WIND DIRECTION: W SPEED (MPH) Low: 1 High: 5 Avg: 2

PRECIPITATION: NONE OTHER:

17
17
37
-3
31
32
63

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	20	S	FL	Y	W	CBS			✓		
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15	CLSW	U	U	1	150	NE	OT FL	Y	U	CBS	✓		✓	CALLED	
16	SAGS	M	A	1	170	W	SI	N		CBS	✓		✓		
17	SAGS	M	A	1	200	SW	SI	N		CBS	✓		✓		
18	HOLA	U	U	3	170	N	OT	N		CBS	✓		✓	CALL	
19	SAGS	M	A	1	150	NE	SI	N		CBS	✓		✓		
20	HOLA	M	A	1	150	W	SI TO	N		CBS	✓	✓		SONG FLIGHT	

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X4

DATE: 4/22/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0637 END TIME: 0647 GPS: 11 PAGE 5 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 015 TEMP (°F) 67

WIND DIRECTION: W SPEED (MPH) Low: 1 High: 5 Avg: 3

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	100	S	SI TD	N		CBS	✓	✓			
2	HOLA	U	U	1	70	W	OT	N		CBS	✓	✓		CALL	
3	HOLA	U	U	1	60	N	OT	N		CBS	✓		✓	CALL	
4	HOLA	M	A	1	35	NE	PE	N		CBS			✓		
5	VERD	U	U	1	50	NE	OT	N		CBS	✓		✓	CALL	
6	HOFI	U	U	1	30	NE	FL	Y	W	CBS?	✓		✓		
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18	SAGS	M	A	1	170	SE	SI	N		CBS	✓		✓		
19	HOLA	U	U	1	120	NE	OT	N		CBS	✓	✓		CALL	
20	HOLA	M	A	1	150	N	SI TD	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X3

DATE: 4/22/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0654 END TIME: 0704 GPS: 11 PAGE 6 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 005 TEMP (°F) 59

WIND DIRECTION: VAR SPEED (MPH) Low: 0 High: 5 Avg: 1

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	60	S	SI	N		CBS	✓	✓		FROM PREVIOUS PT.	
2	HOLA	U	U	1	30	SE	OT	N		CBS		✓		CALL	
3	HOLA	U	U	1	50	NE	OT	N		CBS			✓	CALL	
4	BTSP	M	A	1	95	W	SI	N		CBS	✓		✓		
5	VERD	M	A	1	50	N	SI	N		CBS	✓		✓		
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17	~~HOLA~~	~~U~~	~~U~~	~~1~~											
18	CORA	U	U	1	300	S	FL	Y	W		✓	✓			
19	HOLA	U	U	1	125	W	OT	N		CBS	✓	✓		CALL	
20	SAGS	M	A	1	250	S	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X2

DATE: 4/22/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0710 END TIME: 0720 GPS: 11 PAGE 7 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 0/0 TEMP (°F) 61

WIND DIRECTION: E SPEED (MPH) Low: 0 High: 5 Avg: 3

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	85	NE	OT	N		CBS	✓	✓		CALL	
2	SAGS	M	A	1	100	SE	SI	N		CBS		✓			
3	BCHU	M	A	1	12	SW	FL	Y	N				✓	LURED INTO FLAGGING	
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15	CORA	U	U	1	350	SE	OT	N		CBS	✓		✓	CALL	
16	~~SAGS~~	~~M~~	~~A~~	~~1~~	~~120~~	~~SE~~	~~SI~~	~~N~~		~~CBS~~	~~✓~~		~~✓~~		
17	HOLA	U	U	1	200	W	OT	N		CBS	✓	✓		CALL	
18	HOLA	M	A	1	200	N	SI TD	N		CBS	✓	✓		SONG FLIGHT	
19	SAGS	M	A	1	250	S	SI	N		CBS	✓	✓			
20	SAGS	M	A	1	280	W	SI	N		CBS	✓	✓		PREVIOUS 2 POINTS	

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X1

DATE: 4/22/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0724 END TIME: 0734 GPS: 11 PAGE 8 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 010 TEMP (°F) 66

WIND DIRECTION: E SPEED (MPH) Low: 0 High: 6 Avg: 2

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	CLSW	U	U	1	100	E	FL	Y	U		✓		✓		
2	VERD	U	U	1	80	E	OT	N		CBS	✓		✓		
3	HOLA	M	A	1	100	E	SI	N		CBS	✓		✓		
4	SAGS	M	A	1	90	SW	SI	N		CBS	✓		✓		
5															
6															
7															
8															
9															
10															
11															
12															
13															
14	SAGS	M	A	1	170	ESE	SI	N		CBS	✓	✓			
15	HOLA	U	U	1	250	SW	OT	N		CBS	✓	✓		CALL	
16	SAGS	M	A	1	250	S	SI	N		CBS	✓	✓			
17	SAGS	M	A	1	250	N	SI	N		CBS	✓	✓			
18	CORA	U	U	1	350	S		N		CBS	✓	✓		PREVIOUS	
19	HOLA	M	A	1	150	N	SI TD	N		CBS	✓	✓		SONG FLIGHT	
20	BTSP	M	A	1	150	N	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN INCIDENTAL OBSERVATIONS **SOLAR MILLENIUM** SITE RIDGECREST OBSERVER ELIAS PAGE 9 OF 9

DATE: 4/22/09 WEATHER: VISIBILITY GOOD PRECIP: NONE

CLOUD COVER 010 TEMP 60 WIND DIRECTION VAR WIND SPEED LIGHT OTHER

Obs. No.	Time	Species	Sex	Age	No. of Inds.	Dist from obsr (m)	Activity	Habitat	Flyover? (Y/N)	Dir of Flight	Location/Other Notes
1	0750	WIWA	U	A	1	30	HU	CBS	N		ON ROAD ≈ X8

OTHER SENSITIVE WILDLIFE INCIDENTAL OBSERVATIONS – USE GPS AND FIELD NOTE NOMENCLATURE

Time	GPS Code (Use Nomenclature from back page)	Sex	Age	No. of Inds.	Activity	Habitat	Comments

General Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT: COUNT ID: 8

DATE: 4/23/09 VISIT #: 2 OBSERVER: CHAS START TIME: 0535 END TIME: 0545 GPS: 11 PAGE 1 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 66

WIND DIRECTION: W SPEED (MPH) Low: Ø High: 10 Avg: 4

PRECIPITATION: NONE OTHER:

19
19
38
57
32

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	MODO	U	U	1	75	SE	FL	N		CBS	✓	✓		TOOKOFF	
2	WCSP	U	U	1	30	SW	OT	N		CBS	✓	✓		CALLED	
3	SAGS	M	A	1	100	SE	SI	N		CBS	✓	✓			
4	WCSP	M	A	1	80	S	SI	N		CBS	✓		✓		
5	BRSP	M	A	1	40	N	SI	N		CBS	✓		✓		
6	HOLA	M	A	1	100	N	SI	N		CBS	✓		✓		
7															
8															
9															
10															
11															
12															
13															
14															
15	BRSP	M	A	1	150	NE	SI	N		CBS	✓		✓		
16	HOLA	M	A	1	250	NE	SI	N		CBS	✓		✓		
17	HOLA	M	A	1	200	E	SI	N		CBS	✓	✓			
18	HOLA	M	A	1	200	S	SI	N		CBS	✓	✓			
19	~~SAGS~~	~~M~~	~~A~~	~~1~~	~~130~~	~~SE~~	SI	N		CBS	✓	✓			
20	SAGS	M	A	1	250	NE	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X7

DATE: 4/23/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0555 END TIME: 0605 GPS: 11 PAGE 2 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 005 TEMP (°F) 66

WIND DIRECTION: W SPEED (MPH) Low: 0 High: 8 Avg: 2

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	100	S	SI TD	N		CBS	✓	✓		SONG FLIGHT	
2	~~HOLA~~	~~M~~	~~A~~	~~1~~	~~170~~	~~W~~	~~SI TD~~	~~N~~		~~CBS~~	~~✓~~	~~✓~~		~~SONG FLIGHT~~	
3	MODO	U	U	2	30	S	FL	Y	W			✓			
4	HOLA	M	A	1	100	E	SI TD	N		CBS	✓	✓		SONG FLIGHT	
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17	SAGS	M	A	1	200	NW	SI	N		CBS	✓		✓		
18	~~HOLA~~	~~M~~	~~A~~	~~1~~	~~100~~	~~E~~	~~SI TD~~	~~N~~		~~CBS~~	~~✓~~	~~✓~~		~~SONG FLIGHT~~	
19	HOLA	M	A	1	300	SE	SI TD	N		CBS	✓	✓		SONG FLIGHT	
20	HOLA	M	A	1	170	W	SI TD	N		CBS	✓	✓		SONG FLIGHT	

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y6

DATE: 4/23/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0613 END TIME: 0623 GPS: 11 PAGE 3 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 020 TEMP (°F) 66

WIND DIRECTION: VAR SPEED (MPH) Low: 0 High: 10 Avg: 3

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	10	SW	FL	N		CBS		✓			
2	HOLA	M	A	1	10	S	SI TD	N		CBS	✓	✓		MOVED CLOSER	
3	HOLA	M	A	1	75	NW	SI TD	N		CBS	✓		✓	MOVED CLOSER	
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14	SAGS	M	A	1	250	W	SI	N		CBS	✓		✓		
15	~~HOLA~~	~~M~~	~~A~~	~~1~~	~~150~~	~~NW~~	~~SI~~	~~N~~		~~CBS~~	~~✓~~		~~✓~~	MOVED	CLOSER
16	HOLA	M	A	1	250	W	SI	N		CBS	✓		✓		
17	VERD	U	U	1	150	SE	SI	N		CBS	✓	✓			
18	HOLA	M	A	1	300	SW	SI	N		CBS	✓	✓		NEW BIRD	
19	~~HOLA~~	~~M~~	~~A~~	~~1~~	~~250~~	~~S~~	~~SI TD~~	~~N~~		~~CBS~~	~~✓~~	~~✓~~		~~PREVIOUS BIRD~~	
20	HOLA	M	A	1	150	N	SI TD	N		CBS	✓	✓		PREVIOUS BIRD	

*Check if Auditory only

Comments: MOVED CLOSER

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y5

DATE: 4/23/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0628 END TIME: 0638 GPS: 11 PAGE 4 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 030 TEMP (°F) 70

WIND DIRECTION: W SPEED (MPH) Low: 0 High: 5 Avg: 2

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	95	W	SI TD	N		CBS		✓		SONG FLIGHT	
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15	VERD	U	U	1	300	E	OT	N		CBS	✓		✓	CALL	
16	VERD	U	U	1	150	W	OT	N		CBS	✓		✓	CALL	
17	HOLA	M	A	1	250	SW	SI	N		CBS	✓		✓		
18	HOLA	M	A	1	300	S	SI	N		CBS	✓		✓		
19	HOLA	M	A	1	300	N	SI TD	N		CBS	✓	✓		SONG FLIGHT	
20	SAGS	M	A	1	150	SW	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments: I wonder if since there is more of a breeze today if that's why its been HOLA central. It may be easier for them to do their undulating, gliding song flights where it is breezy.

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y4

DATE: 4/23/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0650 END TIME: 0700 GPS: 11 PAGE 5 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 080 TEMP (°F) 68

WIND DIRECTION: W SPEED (MPH) Low: 0 High: 10 Avg: 7

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	100	S	SI TD	N		CBS	✓	✓		SONG FLIGHT	
2	SAGS	M	A	1	90	S	SI	N		CBS	✓	✓			
3	HOLA	U	U	1	30	W	~~SI~~ FL	N		CBS		✓			
4	HOLA	M	A	1	60	SW	SI TD	N		CBS		✓		SONG FLIGHT	
5	HOLA	M	A	1	70	NW	SI	N		CBS	✓		✓		
6	HOLA	M	A	1	10	S	SI TD	N		CBS			✓	SONG FLIGHT	
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19	HOLA	M	A	1	250	W	SI	N		CBS	✓	✓			
20	SAGS	M	A	1	150	W	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: V3

DATE: 4/23/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0707 END TIME: 0717 GPS: 11 PAGE 6 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 050 TEMP (°F) 65

WIND DIRECTION: W SPEED (MPH) Low: 10 High: 20 Avg: 15

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	80	N	S1	N		CBS	✓		✓		
2	BRSP	M	A	1	65	N	S1	N		CBS	✓		✓		
3	SAGS	M	A	1	40	S	S1	N		CBS			✓		
4	HOLA	M	A	1	60	W	S1 TD	N		CBS			✓		
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16	VERD	M	A	1	150	W	OT	N		CBS	✓	✓		CALL	
17	HOLA	M	A	1	300	SE	S1	N		CBS	✓	✓			
18	SAGS	M	A	1	200	SE	S1	N		CBS	✓	✓			
19	SAGS	M	A	1	140	W	S1	N		CBS	✓	✓			
20	HOLA	M	A	1	150	W	S1	N		CBS	✓	✓			

*Check if Auditory only

Comments:

SCAN

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y2

DATE: 4/23/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 723 END TIME: 0733 GPS: 11 PAGE 7 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 050 TEMP (°F) 65

WIND DIRECTION: W SPEED (MPH) Low: 5 High: 20 Avg: 10

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	13	NW	PE	N		CBS		✓			
2	HOLA	F	A	1	11	NW	PE	N		CBS		✓			
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17	SAGS	M	A	1	250	N	SI	N		CBS	✓		✓		
18	CORA	U	U	2	180	N	PE	N		CBS			✓		
19	HOLA	M	A	1	200	N	SI	N		CBS	✓	✓			
20	HOLA	U	U	1	175	NW	OT	N		CBS	✓	✓		CALL	

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y1

DATE: 4/23/09 VISIT #: 2 OBSERVER: ELIAS START TIME: 0737 END TIME: 0747 GPS: 11 PAGE 8 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 030 TEMP (°F) 68

WIND DIRECTION: W SPEED (MPH) Low: 5 High: 15 Avg: 9

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	13	W	PE HM	N		CBS			✓		
2	HOLA	F	A	1	18	W	PE HM	N		CBS			✓		
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13	HOLA	U	U	1	180	E	OT	N		CBS	✓		✓		
14	HOLA	U	U	1	300	E	OT	N		CBS	✓		✓	FAINT CALL	
15	HOLA	M	A	1	130	S	SI	N		CBS		✓			
16	HOLA	M	A	1	250	SW	SI	N		CBS	✓	✓			
17	HOLA	U	U	1	150	S	OT	N		CBS	✓	✓		CALL	
18	ROWR	U	U	1	200	W	OT	N		CBS	✓	✓		CALL	
19	SAGS	M	A	1	140	W	SI	N		CBS	✓	✓			
20	HOLA	M	A	1	130	NW	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN INCIDENTAL OBSERVATIONS **SOLAR MILLENIUM** SITE RIDGECREST OBSERVER ELIAS PAGE 9 OF 9

DATE: 4/23/09 WEATHER: VISIBILITY GOOD PRECIP: NONE

CLOUD COVER 020 TEMP 70° WIND DIRECTION E WIND SPEED 5 OTHER

Obs. No.	Time	Species	Sex	Age	No. of Inds.	Dist from obsr (m)	Activity	Habitat	Flyover? (Y/N)	Dir of Flight	Location/Other Notes
1	0806	BGGN	U	U	1	40	PE CALL	CBS	N		100M SW of Y7

OTHER SENSITIVE WILDLIFE INCIDENTAL OBSERVATIONS – USE GPS AND FIELD NOTE NOMENCLATURE

Time	GPS Code (Use Nomenclature from back page)	Sex	Age	No. of Inds.	Activity	Habitat	Comments

General Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W1

DATE: 4/29/09 VISIT #: 3 OBSERVER: ELIAS START TIME: 0522 END TIME: 0532 GPS: 11 PAGE 1 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 48

WIND DIRECTION: W SPEED (MPH) Low: 0 High: 1 Avg: 0

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	100	S	SI	N		CBS	✓	✓			
2	HOLA	M	A	1	100	SE	SI	N		CBS	✓	✓			
3	SAGS	M	A	1	90	NE	SI	N		CBS	✓		✓		
4															
5															
6															
7															
8															
9															
10															
11															
12															
13	SAGS	M	A	1	250	NE	SI	N		CBS	✓		✓		
14	SAGS	M	A	1	150	NE	SI	N		CBS	✓		✓		
15	SAGS	M	A	1	250	W	SI	N		CBS	✓		✓		
16	SAGS	M	A	1	150	NW	SI	N		CBS	✓		✓		
17	HOLA	M	A	1	225	SW	SI	N		CBS	✓	✓			
18	HOLA	M	A	1	250	N	SI TD	N		CBS	✓	✓			
19	HOLA	M	A	1	250	NE	SI TD	N		CBS	✓	✓			
20	SAGS	M	A	1	200	E	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT: COUNT ID: W2

DATE: 4/29/09 VISIT #: 3 OBSERVER: [illegible] START TIME: 0539 END TIME: 0549 GPS: #11 PAGE 2 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 43

WIND DIRECTION: SW SPEED (MPH) Low: Ø High: 4 Avg: 1

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	75	E	SI	N		CBS	✓	✓			
2	HOLA	M	A	1	85	NW	OT FL	Y	S	CBS	✓	✓			
3	HOLA	U	U	1	50	NW	OT	N		CBS	✓	✓		CALL	
4	HOLA	U	U	1	100	E	OT	N		CBS	✓		✓	CALL	
5	HOLA	U	U	1	30	E	OT	N		CBS			✓	CALL LANDOWN	
6															
7															
8															
9															
10															
11															
12															
13															
14	SAGS	M	A	1	275	NW	SI	N		CBS	✓		✓		
15	SAGS	M	A	1	250	NE	SI	N		CBS	✓		✓		
16	HOLA	U	U	1	250	E	OT	N		CBS	✓		✓	CALL	
17	HOLA	M	A	1	150	S	SI	N		CBS	✓		✓		
18	SAGS	M	A	1	250	W	SI	N		CBS	✓	✓			
19	SAGS	M	A	1	300	SW	SI	N		CBS	✓	✓			
20	SAGS	M	A	1	150	NW	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W5

DATE: 4/29/09 VISIT #: 3 OBSERVER: [illegible] START TIME: 0555 END TIME: 0605 GPS: 11 PAGE 3 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 41

WIND DIRECTION: SW SPEED (MPH) Low: 0 High: 4 Avg: 2

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15	CORA	U	U	1	200	W	OT FL	Y	N	CBS	✓		✓		
16	HOLA	U	U	1	200	N	OT	Y	SW	CBS	✓		✓		
17	SAGS	M	A	1	150	NW	SI	N		CBS	✓		✓		
18	HOLA	M	A	1	300	W	SI	N		CBS	✓		✓		
19	SAGS	M	A	1	250	W	SI	N		CBS	✓	✓			
20	HOLA	M	A	1	300	N	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W4

DATE: 4/29/09 VISIT #: 3 OBSERVER: ELIAS START TIME: 0614 END TIME: 0624 GPS: 11 PAGE 4 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 42

WIND DIRECTION: SW SPEED (MPH) Low: 0 High: 1 Avg: 0

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	100	W	FL OT	Y	W	CBS		✓		TOOK OFF CALL FLEW WEST	
2	HOLA	U	U	2	80	W	FL OT	Y	SE	CBS			✓		
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16	SAGS	M	A	1	200	W	SI	N		CBS	✓		✓		
17	CORA	U	U	1	400	E	OT	N		CBS	✓		✓		
18	CORA	U	U	1	200	S	OT	N		CBS			✓		
19	HOLA	M	A	1	250	N	SI	N		CBS	✓	✓			
20	HOLA	M	A	1	300	NW	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W5

DATE: 4/29/09 VISIT #: 83 OBSERVER: ELIAS START TIME: 0630 END TIME: 0640 GPS: 11 PAGE 5 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 43

WIND DIRECTION: SW SPEED (MPH) Low: 0 High: 1 Avg: 0

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	80	N	FL	Y	S	CBS			✓	CALL	
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17	HOLA	M	A	1	150	N	SI	N		CBS	✓		✓		
18	HOLA	M	A	1	200	SW	SI	N		CBS	✓	✓			
19	HOLA	U	U	1	150	SE	OT	N		CBS	✓	✓		CALL	
20	SAGS	M	A	1	130	NW	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W 6

DATE: 4/29/09 VISIT #: 3 OBSERVER: ELIAS START TIME: 646 END TIME: 656 GPS: 11 PAGE 6 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 0 TEMP (°F) 48

WIND DIRECTION: SW SPEED (MPH) Low: 0 High: 1 Avg: 0

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	U	U	1	42	W	SI	N		CBS		✓			
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16	HOLA	M	A	1	300	SE	SI	N		CBS	✓		✓		
17	HOLA	M	A	1	250	S	SI	N		CBS	✓		✓		
18	SAGS	M	A	1	200	W	SI	N		CBS	✓		✓		
19	HOLA	M	A	1	300	NW	SI	N		CBS	✓	✓			
20	HOLA	M	A	1	250	N	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W7

DATE: 4/29/09 VISIT #: 3 OBSERVER: ELIAS START TIME: 0702 END TIME: 0712 GPS: 11 PAGE 7 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 55

WIND DIRECTION: SW SPEED (MPH) Low: 0 High: 1 Avg: 0

PRECIPITATION: NONE OTHER: JOINED BY JIMMY TODAY FOR ALL POINTS

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	80	NE	SI	N		CBS		✓			
2	HOLA	U	U	2	20	S	OT	N		CBS			✓	BUZZED US CALL	
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17	HOLA	U	U	2	150	SE	OT	N		CBS	✓		✓	CALL	
18	SAGS	M	A	1	200	N	SI	N		CBS	✓	✓			
19	SAGS	M	A	1	300	W	SI	N		CBS	✓	✓			
20	HOLA	M	A	1	130	NE	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W8

DATE: 4/29/09 VISIT #: 3 OBSERVER: ELIAS START TIME: 0720 END TIME: 0730 GPS: 11 PAGE 8 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) ϕ TEMP (°F) 60

WIND DIRECTION: calm SPEED (MPH) Low: ϕ High: ϕ Avg: ϕ

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	50	S	OT	N		CBS	✓	✓		calm	
2	HOLA	U	U	2	20	NW	OT	N		CBS		✓			
3	HOLA	M	A	1	15	NE	HU	N		CBS			✓	silent	
4	SAGS	U	U	2	20	SW	HU	N		CBS			✓	silent	
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16	HOLA	M	A	1	200	NE	SI	N		CBS	✓	✓			
17	SAGS	M	A	1	250	SE	SI	N		CBS	✓	✓			
18	SAGS	M	A	1	140	SW	SI	N		CBS	✓	✓			
19	HOLA	M	A	1	300	SW	SI	N		CBS	✓	✓			
20	HOLA	M	A	1	150	SW	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN INCIDENTAL OBSERVATIONS SOLAR MILLENIUM SITE RIDGECREST OBSERVER ELIAS PAGE 9 OF 9

DATE: 4/29/2009 WEATHER: VISIBILITY GOOD PRECIP: NONE

CLOUD COVER Ø TEMP 60 WIND DIRECTION calm WIND SPEED Ø OTHER

Obs. No.	Time	Species	Sex	Age	No. of Inds.	Dist from obsr (m)	Activity	Habitat	Flyover? (Y/N)	Dir of Flight	Location/Other Notes
1	0735	VERD	U	A	1	35	OT	CBS	N		CALLING

OTHER SENSITIVE WILDLIFE INCIDENTAL OBSERVATIONS – USE GPS AND FIELD NOTE NOMENCLATURE

Time	GPS Code (Use Nomenclature from back page)	Sex	Age	No. of Inds.	Activity	Habitat	Comments

General Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X1

DATE: 4/30/09 VISIT #: 3 OBSERVER: ELIAS START TIME: 0520 END TIME: 0530 GPS: 11 PAGE 1 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 52

WIND DIRECTION: W SPEED (MPH) Low: 0 High: 4 Avg: 0

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	70	SW	SI TO	N		CBS	✓		✓	SONG FLIGHT	
2	UNKNOWN	U	U	1	50	E	OT	Y	U	CBS	✓		✓	CALL PASSERINE	
3	MODO	U	U	1	5	N	FL	Y	E	CBS			✓		
4															
5															
6															
7															
8															
9															
10															
11															
12	SAGS	M	A	1	200	NE	SI	N		CBS	✓		✓		
13	BTSP	M	A	1	250	NE	SI	N		CBS	✓		✓		
14	SAGS	M	A	1	270	E	SI	N		CBS	✓		✓		
15	HOFI	M	A	1	200	NW	SI	N		CBS	✓		✓		
16	HOLA	M	A	1	200	SW	SI	N		CBS	✓	✓			
17	SAGS	M	A	1	150	SW	SI	N		CBS	✓	✓			
18	SAGS	M	A	1	300	N	SI	N		CBS	✓	✓			
19	BHOW	U	U	1	250	N	SI	N		CBS	✓	✓			
20	SAGS	M	A	1	200	S	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X2

DATE: 4/30/09 VISIT #: 3 OBSERVER: ELINS START TIME: 0538 END TIME: 0548 GPS: 11 PAGE 2 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 51

WIND DIRECTION: SW SPEED (MPH) Low: 0 High: 5 Avg: 0

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	95	SE	S1	N		CBS	✓	✓			
2	HOLA	M	A	1	80	W	S1	N		CBS	✓	✓			
3	BTSP	M	A	1	85	NW	S1	N		CBS	✓	✓			
4															
5															
6															
7															
8															
9															
10															
11															
12															
13	BUOW	U	U	1	350	ENE	S1	N		CBS	✓		✓	SAME AS PREVIOUS	
14	SAGS	M	A	1	150	W	S1	N		CBS	✓	✓			
15	BTSP	M	A	1	150	NW	S1	N		CBS	✓	✓			
16	~~BTSP~~	~~M~~	~~A~~	~~1~~	~~100~~	~~NW~~	~~S1~~	~~N~~		~~CBS~~	~~✓~~	~~✓~~			
17	HOLA	M	A	1	150	NW	S1	N		CBS	✓	✓			
18	MODO	M	A	1	200	E	S1	N		CBS	✓	✓			
19	HOLA	M	A	1	120	SW	S1	N		CBS	✓	✓			
20	HOLA	M	A	1	200	SE	S1	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X3

DATE: 4/30/09 VISIT #: 3 OBSERVER: ELAB START TIME: 0554 END TIME: 0604 GPS: 11 PAGE 3 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 0 TEMP (°F) 48

WIND DIRECTION: S SPEED (MPH) Low: 0 High: 1 Avg: 0

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	90	ENE	OT	N		CBS	✓		✓	CALLING	
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17	CORA	U	U	1	500	W	~~S~~ OT	N		CBS	✓		✓	ULTRA FAINT	
18	BTSP	M	A	1	250	NE	SI	N		CBS	✓		✓	PROB'Y SAME	
19	HOLA	M	A	1	150	SW	SI	N		CBS	✓		✓		
20	SAGS	M	A	1	300	S	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X4

DATE: 4/30/09 VISIT #: 3 OBSERVER: ELIAS START TIME: 0610 END TIME: 0620 GPS: 11 PAGE 4 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 5 TEMP (°F) 47

WIND DIRECTION: SE SPEED (MPH) Low: 0 High: 5 Avg: 0

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	VERD	U	U	1	70	E	SI	N		CBS	✓	✓			
2	DUFL	M	A	1	80	NE	SI	N		CBS	✓		✓	SANG & CALLED	
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14	CORA	U	U	1	300	N	OT	N		CBS	✓		✓		
15	HOLA	U	U	1	200	N	OT	N		CBS	✓		✓	CALL	
16	HOLA	M	A	1	400	N	SI	N		CBS	✓		✓		
17	SAGS	M	A	1	270	W	SI	N		CBS	✓		✓		
18	SAGS	M	A	1	300	N	SI	N		CBS	✓		✓		
19	HOLA	M	A	1	300	SW	SI	N		CBS	✓	✓			
20	SAGS	M	A	1	250	SW	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X6

DATE: 4/30/05 VISIT #: 3 OBSERVER: ELIAS START TIME: 0645 END TIME: 0655 GPS: 11 PAGE 6 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 10 TEMP (°F) 57

WIND DIRECTION: SE SPEED (MPH) Low: 0 High: 5 Avg: 1

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	40	NW	SI	N		CBS		✓			Y
2	EMPI	U	U	1	15	S	FL	Y	W	CBS			✓	SILENT	
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14	MODO	M	A	1	150	SE	SI	N		CBS	✓		✓		
15	HOLA	M	A	1	200	SE	SI	N		CBS	✓		✓		
16	SAGS	M	A	1	300	S	SI	N		CBS	✓		✓		
17	ATFL	U	U	1	125	S	OT	N		CBS	✓				
18	CORA	U	U	1	250	W	OT	N		CBS	✓				
19	HOLA	M	A	1	250	S	SI	N		CBS	✓	✓			
20	CORA	U	U	5	150	S	FL	Y	E	CBS		✓		SAME	

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** . SITE: RIDGECREST POINT COUNT ID: X5

DATE: 4/30/09 VISIT #: 3 OBSERVER: CLAS START TIME: 0626 END TIME: 0636 GPS: 11 PAGE 5 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 10 TEMP (°F) 50

WIND DIRECTION: S SPEED (MPH) Low: 0 High: 1 Avg: 0

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	CORA	U	U	6	100	S	FL	Y	N	CBS		✓			
2	HOLA	U	U	4	100	SW	OT	N	N	CBS			✓		
3	HOLA	U	U	3	100	NE	OT	N	N	CBS			✓		
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17	HOLA	M	A	1	300	NW	SI	N	N	CBS	✓		✓		
18	HOLA	U	U	1	250	W	OT	N	N	CBS	✓		✓	CALL	
19	HOLA	M	A	1	400	SE	SI	N	N	CBS	✓	✓		SUPER FAINT	
20	SAGS	M	A	1	200	SW	SI	N	N	CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X7

DATE: 4/30/09 VISIT #: 3 OBSERVER: ELIAS START TIME: 0705 END TIME: 0715 GPS: 11 PAGE 7 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 20 TEMP (°F) 66

WIND DIRECTION: VARIABLE SPEED (MPH) Low: 0 High: 4 Avg: 1

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	100	NW	SI	N		CBS	✓	✓			
2	HOLA	U	U	1	20	SW	~~LAN~~ OT	N		CBS		✓		LANDING	
3	CLSW	U	U	1	25	E	FL	Y	NW	CBS			✓		
4	HOLA	M	A	1	50	N	SI TO	N		CBS	✓		✓		
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16	HOLA	U	U	1	170	S	OT	Y	E	CBS			✓	CALLED	
17	HOFINCH	U	U	1	250	W	OT	Y		CBS	✓		✓		
18	HOLA	M	A	1	250	N	SI	N		CBS	✓		✓		
19	CORA	U	U	1	350	W	OT FL	Y	S	CBS		✓		FLYING	
20	SAGS	M	A	1	200	NW	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X8

DATE: 4/30/09 VISIT #: 3 OBSERVER: ELIAS START TIME: 0722 END TIME: 0732 GPS: 11 PAGE 8 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 20 TEMP (°F) 69

WIND DIRECTION: W SPEED (MPH) Low: 0 High: 4 Avg: 0

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	60	NE	SI	N		CBS	✓		✓	THIS SPARROW AGITATED BY LOSH	
2	LOSH	U	A	1	80	W	OT	N		CBS			✓		
3	HOLA	U	U	2	40	N	OT	Y	W	CBS			✓		
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16	HOLA	M	A	1	250	NW	SI TO	N		CBS	✓		✓		
17	HOLA	U	U	3	150	W	OT	Y	S	CBS	✓	✓			
18	SAGS	M	A	1	110	E	SI	N		CBS	✓	✓			
19	SAGS	M	A	1	250	SE	SI	N		CBS	✓	✓			
20	HOLA	U	U	1	200	S	OT	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN INCIDENTAL OBSERVATIONS SOLAR MILLENIUM SITE RIDGECREST OBSERVER ELIAS PAGE 9 OF 9

DATE: 4/30/09 WEATHER: VISIBILITY GOOD PRECIP: NONE

CLOUD COVER Ø TEMP 56 WIND DIRECTION W WIND SPEED 5 OTHER

Obs. No.	Time	Species	Sex	Age	No. of Inds.	Dist from obsr (m)	Activity	Habitat	Flyover? (Y/N)	Dir of Flight	Location/Other Notes

OTHER SENSITIVE WILDLIFE INCIDENTAL OBSERVATIONS – USE GPS AND FIELD NOTE NOMENCLATURE

Time	GPS Code (Use Nomenclature from back page)	Sex	Age	No. of Inds.	Activity	Habitat	Comments
0505	RBLEE001	U	A	1	CALLING	CBS	calling about 150 m to north of X1
0735	RLSEE001	U	A	1		CBS	HUNTING AROUND X8

General Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT: COUNT ID: Y1

DATE: 5/1/09 VISIT #: 3 OBSERVER: ELIAS START TIME: 0521 END TIME: 0531 GPS: 11 PAGE 1 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 15 TEMP (°F) 61

WIND DIRECTION: W SPEED (MPH) Low: 1 High: 13 Avg: 7

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	100	SW	SI TD	N		CBS	✓	✓			
2	HOLA	M	A	1	100	NW	SI TD	N		CBS	✓	✓			
3	HOLA	M	A	1	100	SE	SI TD	N		CBS	✓	✓			
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16	HOLA	M	A	1	250	N	SI	N		CBS	✓		✓		
17	SAGS	M	A	1	200	SE	SI	N		CBS	✓		✓		
18	SAGS	M	A	1	220	N	SI	N		CBS	✓	✓			
19	HOLA	M	A	1	200	SW	SI TD	N		CBS	✓	✓			
20	HOLA	M	A	1	120	SW	SI TD	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y2

DATE: 5/1/09 VISIT #: 3 OBSERVER: ELIAS START TIME: 537 END TIME: 547 GPS: 11 PAGE 2 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 15 TEMP (°F) 61

WIND DIRECTION: W SPEED (MPH) Low: 2 High: 14 Avg: 7

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	100	N	SI	N		CBS	✓	✓			
2	~~SAGS~~	~~M~~	~~A~~	~~1~~	~~250~~	~~W~~	~~SI~~	~~N~~		~~CBS~~	~~✓~~	~~✓~~			
3	~~SAGS~~	~~M~~	~~A~~	~~1~~	~~270~~	~~NW~~	~~SI~~	~~N~~		~~CBS~~	~~✓~~	~~✓~~			
4	HOLA	U	U	1	65	S	OT	N		CBS	✓		✓	CALL	
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15	SAGS	M	A	1	250	S	SI	N		CBS	✓		✓		
16	HOLA	M	A	1	300	E	SI	N		CBS	✓		✓		
17	HOLA	M	A	1	300	SW	SI	N		CBS	✓	✓		these two from pt 1	
18	HOLA	M	A	1	300	SW	SI	N		CBS	✓	✓			
19	SAGS	M	A	1	270	NW	SI	N		CBS	✓	✓			
20	SAGS	M	A	1	250	W	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y3

DATE: 5/1/09 VISIT #: 3 OBSERVER: ELIAS START TIME: 553 END TIME: 603 GPS: 11 PAGE 3 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 15 TEMP (°F) 57

WIND DIRECTION: W SPEED (MPH) Low: 2 High: 9 Avg: 5

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	60	N	OT	N		CBS	✓	✓		CALL	
2	HOLA	M	A	1	90	S	SI TD	N		CBS	✓	✓			
3	VERD	U	U	1	55	N	OT	N		CBS	✓	✓		CALL	
4	HOLA	U	U	1	75	E	OT	N		CBS	✓		✓	CALL	
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15	CORA	U	U	1	300	E	OT	N		CALL	✓		✓	CALL	
16	HOLA	M	A	1	130	NE	SI TD	N		CBS	✓		✓		
17	HOLA	M	A	1	150	SE	SI TD	N		CBS	✓	✓			
18	SAGS	M	A	1	130	E	SI	N		CBS	✓	✓			
19	HOLA	M	A	1	150	W	SI	N		CBS	✓	✓			
20	SAGS	M	A	1	120	NW	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

SCAN

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X4

DATE: 5/1/09 VISIT #: 3 OBSERVER: ELIAS START TIME: 0609 END TIME: 0619 GPS: 11 PAGE 4 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 15 TEMP (°F) 59

WIND DIRECTION: W SPEED (MPH) Low: 3 High: 22 Avg: 16

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	100	SE	SI	N		CBS	✓	✓			
2	HOLA	U	U	1	10	N	OT	N		CBS		✓			
3	HOLA	M	A	1	22	NW	SI TD	N		CBS		✓			
4	HOLA	U	U	1	30	NE	OT	N		CBS		✓		CALL	
5	HOLA	U	U	1	40	W	OT	N		CBS		✓		CALL	
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17	BARS	U	A	2	40	E	FL	Y	N	CBS			✓		
18	CORA	U	U	1	300	N	OT	N		CBS	✓		✓	CALL	
19	HOLA	M	A	1	150	NW	SI	N		CBS	✓	✓			
20	SAGS	M	A	1	120	W	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

SCAN

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y5

DATE: 5/1/09 VISIT #: 3 OBSERVER: ELIAS START TIME: 626 END TIME: 636 GPS: 11 PAGE 5 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 30 TEMP (°F) 60

WIND DIRECTION: W SPEED (MPH) Low: 3 High: 14 Avg: 8

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	J	2	26	S	HU	N		CBS		✓			
2	HOLA	U	U	1	60	W	FL	Y	E	CBS			✓		
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17	CORA	U	U	1	600	S	FL	Y	W	CBS			✓		
18	HOLA	U	U	1	200	E	OT	N		CBS	✓		✓	CALL	
19	SAGS	M	A	1	120	S	SI	N		CBS	✓	✓			
20	HOLA	M	A	1	150	SW	SI TD	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y6

DATE: 5/1/09 VISIT #: 3 OBSERVER: ELIAS START TIME: 641 END TIME: 651 GPS: 11 PAGE 6 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 40 TEMP (°F) 61

WIND DIRECTION: W SPEED (MPH) Low: Ø High: 11 Avg: 6

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	55	S	SI	N		CBS	✓	✓			
2	HOLA	U	U	6	40	N	OT	N		CBS		✓		CALL	
3	HOLA	U	U	1	80	NW	OT	N		CBS	✓	✓		CALL	
4	HOLA	U	U	2	30	NE	FL	N		CBS			✓		
5	HOLA	U	U	4	20	N	FL	N		CBS			✓		
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18	HOLA	M	A	1	200	NE	SI	N		CBS	✓		✓		
19	VERD	U	U	1	130	S	OT	N		CBS	✓	✓		CALL	
20	HOLA	M	A	1	200	S	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y7

DATE: 5/1/09 VISIT #: 3 OBSERVER: ELIAS START TIME: 0702 END TIME: 0712 GPS: 11 PAGE 7 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) (good) fair poor CLOUD COVER (%) 40 TEMP (°F) 62

WIND DIRECTION: W SPEED (MPH) Low: 10 High: 23 Avg: 16

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	U	J	1	20	N	HU	N		CBS		✓			
2	HOLA	U	U	1	40	NE	OT	N		CBS			✓	CALL	
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17	HOLA	M	A	1	200	W	SI	N		CBS	✓		✓		
18	VERD	U	U	1	200	SW	OT	N		CBS	✓		✓	CALL	
19	HOLA	M	A	1	200	S	SI	N		CBS	✓		✓		
20	HOLA	U	U	2	130	W	OT	N		CBS		✓		CALL	

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y8

DATE: 5/1/09 VISIT #: 3 OBSERVER: ELMS START TIME: 718 END TIME: 728 GPS: 11 PAGE 8 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 50 TEMP (°F) 62

WIND DIRECTION: W SPEED (MPH) Low: 5 High: 19 Avg: 12

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	U	J	5	30	SW	OT	N		CBS		✓		FLOCKED CALL UP	
2	BRSP	M	A	1	30	SW	SI	N		CBS		✓		FLOCKING WITH ↑	
3	HOLA	U	U	1	11	E	OT	N		CBS			✓	CALL	
4	SAGS	U	A	1	12	NW	OT	N		CBS			✓	CALL	
5	HOLA	U	U	1	40	W	OT	N		CBS			✓	CALL	
6	HOLA	U	U	1	100	SW	OT	N		CBS	✓		✓	CALL	
7	YRWA	U	A	2	45	NE	OT FL	Y	NW	CBS			✓	CALL	
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															

*Check if Auditory only

Comments:

AVIAN INCIDENTAL OBSERVATIONS **SOLAR MILLENIUM** SITE RIDGECREST OBSERVER ELIAS PAGE 9 OF 9

DATE: 5/1/2009 WEATHER: VISIBILITY GOOD PRECIP: NONE

CLOUD COVER ≈40 TEMP 60 WIND DIRECTION W WIND SPEED HIGH OTHER

Obs. No.	Time	Species	Sex	Age	No. of Inds.	Dist from obsr (m)	Activity	Habitat	Flyover? (Y/N)	Dir of Flight	Location/Other Notes
		NONE									

OTHER SENSITIVE WILDLIFE INCIDENTAL OBSERVATIONS – USE GPS AND FIELD NOTE NOMENCLATURE

Time	GPS Code (Use Nomenclature from back page)	Sex	Age	No. of Inds.	Activity	Habitat	Comments
	NONE						

General Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT: COUNT ID: W8

DATE: 5/6/09 VISIT #: 4 OBSERVER: EAE START TIME: 0530 END TIME: 0540 GPS: 11 PAGE 1 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 59

WIND DIRECTION: W SPEED (MPH) Low: Ø High: 13 Avg: 4.0

PRECIPITATION: NONE OTHER:

15
15
30
-3
27
32
59

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	U	U	1	40	NW	OT	N		CBS	✓	✓		CALLED	
2	HOFI	M	A	1	10	SW	SI	Y	NE	CBS	✓		✓		
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17	HOLA	M	A	1	200	NW	SI	N		CBS	✓	✓			
18	HOLA	M	A	1	300	W	SI	N		CBS	✓	✓			
19	CORA	U	U	1	400	N	SI	N		CBS	✓	✓			
20	HOLA	M	A	1	300	N	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W7

DATE: 5/6/09 VISIT #: 4 OBSERVER: ELIAS START TIME: 0550 END TIME: 0600 GPS: 11 PAGE 20 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) (good) fair poor CLOUD COVER (%) Ø TEMP (°F) 59

WIND DIRECTION: W SPEED (MPH) Low: Ø High: 11 Avg: 6

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	U	U	1	60	N	OT	N		CBS	✓	✓		CALL	
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18	SAGS	M	A	1	200	NW	SI	N		CBS	✓		✓		
19	CORA	U	U	1	400	NE	OT	N		CBS	✓	✓		CALL	
20	HOLA	M	A	1	200	NW	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W6

DATE: 5/6/09 VISIT #: 4 OBSERVER: ELIAS START TIME: 611 END TIME: 0621 GPS: 11 PAGE 3 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) (good) fair poor CLOUD COVER (%) Ø TEMP (°F) 59

WIND DIRECTION: W SPEED (MPH) Low: 2 High: 20 Avg: 6

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	100	W	SI	N		CBS	✓	✓			
2	SMGS	M	A	1	100	SW	SI	N		CBS		✓			
3	HOLA	U	U	2	30	W	OT	Y	E	CBS	✓	✓		CAU	
4	CORA	U	U	1	70	N		Y	E	CBS		✓			
5	SMGS	M	A	1	80	SE	SI	N		CBS			✓		
6	YRWA	U	U	1	20	SE	OT PL	Y	NW	CBS			✓		
7	HOLA	U	U	1	65	S	OT			CBS			✓	CAU	
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20	HOLA	U	U	1	150	SW	OT	Y	E	CBS	✓		✓		

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGEFIELD POINT COUNT ID: W5

DATE: 5/6/09 VISIT #: 4 OBSERVER: ELIAS START TIME: 0628 END TIME: 0638 GPS: 11 PAGE 4 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 0 TEMP (°F) 63

WIND DIRECTION: W SPEED (MPH) Low: 0 High: 15 Avg: 7

PRECIPITATION: NONE OTHER:

17
17
34
-5
31
32
63

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	35	SW	SI TO	N		CBS		✓			
2	HOLA	U	U	1	90	SW	OT	N		CBS		✓		CALL FLEW NORTH	
3	HOLA	U	U	1	60	S	OT	N		CBS			✓		
4	HOLA	F	A	1	10	E	OT	N		CBS			✓	CALL	
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20	SAGS	M	A	1	200	NW	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: WH

DATE: 5/6/09 VISIT #: 4 OBSERVER: ELIAS START TIME: 647 END TIME: 657 GPS: 11 PAGE 5 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 63

WIND DIRECTION: W SPEED (MPH) Low: 3 High: 14 Avg: 8

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOFI	U	U	1	90	W	OT	Y	NE	CBS	✓		✓		
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15	~~HOFI~~	~~U~~	~~U~~	~~1~~	~~100~~										
16	HOLA	M	A	1	250	SW	SI	N		CBS	✓	✓			
17	HOLA	M	A	1	200	NW	SI	N		CBS	✓		✓		
18	SAGS	M	A	1	200	W	SI	N		CBS	✓	✓			
19	SAGS	M	A	1	250	E	SI	N		CBS	✓	✓			
20	CORA	U	U	1	400	NE	OT	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W3

DATE: 5/6/09 VISIT #: 4 OBSERVER: ELIAS START TIME: 0705 END TIME: 0715 GPS: 11 PAGE 6 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 66

WIND DIRECTION: W SPEED (MPH) Low: Ø High: 18 Avg: 9

PRECIPITATION: NONE OTHER:

19
19
38
4
34
32
66

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	80	N	OT	N		CBS	✓		✓		
2	HOLA	M	A	1	100	NW	S1 TO	N		CBS	✓		✓		
3	YRWA	U	U	1	50	W	OT	Y	SE	CBS			✓		
4	HOLA	U	J	1	38	SW	4U	N		CBS			✓		
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19	SAGS	M	A	1	150	W		N		CBS	✓	✓			
20	HOLA	M	A	1	200	W		N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W2

DATE: 5/6/09 VISIT #: 4 OBSERVER: ELIAS START TIME: 0723 END TIME: 0733 GPS: 11 PAGE 7 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 68

WIND DIRECTION: W SPEED (MPH) Low: 2 High: 19 Avg: 9

PRECIPITATION: NONE OTHER:

40
-4
36
32
68

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	70	NW	SI TO	N		CBS		✓		SOME FLIGHT	
2	HOLA	M	A	1	40	NE	SI TO	N		CBS		✓		SOME FLIGHT	
3	SAGS	M	A	1	100	NW	SI	N		CBS	✓		✓		
4	SAGS	M	A	1	80	NW	SI	N		CBS	✓		✓		
5	BGGN	U	U	1	50	E	OT	N		CBS	✓		✓		
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19	SAGS	M	A	1	250	N	SI	N		CBS	✓	✓			
20	HOLA	U	U	1	120	S	FL	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: W1

DATE: 5/6/09 VISIT #: 11 OBSERVER: ELIAS START TIME: 740 END TIME: 750 GPS: 11 PAGE 8 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 70

WIND DIRECTION: W SPEED (MPH) Low: 0 High: 10 Avg: 5

PRECIPITATION: NONE OTHER:

21
21
42
4
38
32

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	3	45	W	HU	N		CBS		✓			
2	SAGS	M	A	1	95	W	SI	N		CBS		✓			
3	HOLA	U	U	2	32	W	HU	N		CBS			✓		
4	BRSP	M	A	1	85	NW	SI	N		CBS	✓		✓		
5	HOLA	U	A	1	50	SW	HU	N		CBS			✓		
6	SAGS	M	A	1	100	S	SI	N		CBS			✓		
7	HOLA	M	A	1	40	SE	HU	N		CBS					
8	BTSP	M	A	1	75	NW	SI	N		CBS	✓				
9	WIWA	U	U	1	65	SW	OT	N		CBS	✓			CHIP NOTE CALL	
10															
11															
12															
13															
14															
15															
16	DUFL	U	U	1	120	NW	OT	N		CBS	✓		✓	DUSKY/GRAY 'WHIT' CALL	
17	~~SAGS~~	~~M~~	~~A~~	~~1~~	~~170~~	~~S~~	~~SI~~	~~N~~						(AFTER SURVEY ENDED HEARD 'DEW' CALL)	
18	SAGS	M	A	1	250	N	SI	N		CBS	✓	✓			
19	SAGS	M	A	1	120	N	SI	N		CBS	✓	✓			
20	SAGS	M	A	1	170	NE	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN INCIDENTAL OBSERVATIONS SOLAR MILLENIUM SITE RIDGECREST OBSERVER ELIAS PAGE 9 OF 9

DATE: 5/6/09 WEATHER: VISIBILITY GOOD PRECIP: NONE

CLOUD COVER Ø TEMP 70 WIND DIRECTION W WIND SPEED MODERATE OTHER

Obs. No.	Time	Species	Sex	Age	No. of Inds.	Dist from obsr (m)	Activity	Habitat	Flyover? (Y/N)	Dir of Flight	Location/Other Notes
1	0701	PISI	U	U	1	50	FL	CBS	Y	N	

OTHER SENSITIVE WILDLIFE INCIDENTAL OBSERVATIONS – USE GPS AND FIELD NOTE NOMENCLATURE

Time	GPS Code (Use Nomenclature from back page)	Sex	Age	No. of Inds.	Activity	Habitat	Comments

General Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X8

DATE: 5/7/09 VISIT #: 4 OBSERVER: ELIAS START TIME: 0520 END TIME: 0530 GPS: 11 PAGE 1 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 61

WIND DIRECTION: W SPEED (MPH) Low: 3 High: 14 Avg: 5

PRECIPITATION: NONE OTHER:

16
16
32
13
29
32
61

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	65	N	SI	N		CBS	✓	✓			
2	SAGS	M	A	1	90	NE	SI	N		CBS	✓	✓			
3	HOLA	U	U	1	60	S	OT	N		CBS	✓			CALL	
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17	HOLA	M	A	1	250	NW	SI	N		CBS	✓		✓		
18	SAGS	M	A	1	250	W	SI	N		CBS	✓		✓		
19	HOLA	M	A	1	200	SW	SI	N		CBS	✓	✓			
20	SAGS	M	A	1	120	NW	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X7

DATE: 5/7/09 VISIT #: 4 OBSERVER: ELIAS START TIME: 0535 END TIME: 0545 GPS: 11 PAGE 2 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 61

WIND DIRECTION: W SPEED (MPH) Low: 2 High: 12 Avg: 7

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	LENI	U	U	1	18	SE	FL	N		CBS		✓		LAMPROPELTIS IGNIGRA CALL	
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17	HOLA	M	A	1	250	SW	SI	N		CBS	✓		✓		
18	SAGS	M	A	1	250	NW	SI	N		CBS	✓		✓		
19	HOLA	U	U	1	150	SW	OT	N		CBS	✓	✓			
20	SAGS	M	A	1	200	SE	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X6

DATE: 5/7/09 VISIT #: 4 OBSERVER: [illegible] START TIME: 0558 END TIME: 0608 GPS: 11 PAGE 3 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 61

WIND DIRECTION: W SPEED (MPH) Low: Ø High: 12 Avg: 5

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	U	U	1	40	SW	OT	N		CBS	✓	✓		CALLING	
2	WIWA	U	U	1	16	NE	OT	N		CBS			✓	CALLING	
3	HOLA	U	U	1	90	SE	OT	Y	NW	CBS			✓	CALLING	
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17	HOLA	U	U	1	150	N	OT	N		CBS	✓		✓	CALLING	
18	SAGS	M	A	1	120	SW	SI	N		CBS	✓	✓			
19	SAGS	M	A	1	250	S	SI	N		CBS	✓	✓			
20	SAGS	M	A	1	170	S	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X5

DATE: 5/7/09 VISIT #: 4 OBSERVER: ELIAS START TIME: 615 END TIME: 625 GPS: 11 PAGE 4 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 63

WIND DIRECTION: W SPEED (MPH) Low: Ø High: 11 Avg: 6

PRECIPITATION: NONE OTHER:

17
17
34
31
32

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	OTGR	F	A	1	100	S	OT FL	Y	NW	CBS			✓	CALLING	
2	HOLA	M	A	1	45	SW	HU	N		CBS			✓		
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16	HOLA	M	A	1	200	S	OT	N		CBS	✓		✓		
17	HOLA	U	U	3	150	SW	OT	Y	W	CBS	✓		✓	CALLING	
18	SAGS	M	A	1	150	N	SI	N		CBS	✓	✓			
19	SAGS	M	A	1	250	S	SI	N		CBS	✓	✓			
20	HOLA	U	U	1	150	S	OT	Y	NE	CBS	✓	✓		CALL	

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X4

DATE: 5/7/09 VISIT #: 4 OBSERVER: ELIAS START TIME: 638 END TIME: 648 GPS: 11 PAGE 5 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 64

WIND DIRECTION: W SPEED (MPH) Low: Ø High: 14 Avg: 6

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	100	W	SI	N		CBS	✓	✓			
2	HOLA	U	U	2	30	S	OT	Y	N	CBS		✓		CALL	
3	SAGS	U	U	1	35	N	FL HU	N		CBS			✓		
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18	SAGS	M	A	1	250	W	SI	N		CBS	✓	✓			
19	HOLA	U	U	2	150	S	OT	N		CBS		✓		CALL	
20	HOLA	M	A	1	200	S	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X3

DATE: 5/7/09 VISIT #: 4 OBSERVER: ELIAS START TIME: 656 END TIME: _____ GPS: 11 PAGE 6 OF 7

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 68

WIND DIRECTION: W SPEED (MPH) Low: Ø High: 10 Avg: 4

PRECIPITATION: NONE OTHER: _____

20
20
40
-4
36
32
68

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	VERD	U	A	2	30	E	HU	N		CBS			✓		
2	MODO	M	A	1	65	S	SI	N		CBS	✓		✓		
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19	CORA	U	U	1	300	W	OT	N		CBS	✓	✓		CALL	
20	SAGS	M	A	1	160	S	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments: _____

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X2

DATE: 5/7/09 VISIT #: 4 OBSERVER: ELIAS START TIME: 0714 END TIME: 0724 GPS: 11 PAGE 7 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 73

WIND DIRECTION: VAR SPEED (MPH) Low: Ø High: 9 Avg: 6

PRECIPITATION: NONE OTHER:

23
23
46
5
41
32

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	2	80	W	OT HU	N		CBS		✓			
2	HOFI	U	U	1	60	E	FL	Y	N	CBS		✓			
3	HOLA	U	U	1	40	W	FL	Y	S	CBS		✓			
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16	SAGS	M	A	1	150	SW	SI	N		CBS	✓		✓		
17	CORA	U	U	1	300	N	OT	N		CBS	✓		✓	CALLING	
18	HOLA	U	U	2	140	NW	FL	Y	W	CBS	✓	✓			
19	SAGS	M	A	1	200	SE	SI	N		CBS	✓	✓			
20	SAGS	M	A	1	120	S	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: X1

DATE: 5/7/09 VISIT #: 4 OBSERVER: ELIAS START TIME: 0731 END TIME: 0741 GPS: 11 PAGE 8 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 21

WIND DIRECTION: VARIABLE SPEED (MPH) Low: 0 High: 5 Avg: 0

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	90	N	SI	N		CBS	✓	✓			
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16	HOLA	M	A	1	120	S	SI	N		CBS	✓		✓		
17	SAGS	M	A	1	150	S	SI	N		CBS	✓		✓		
18	CORA	U	U	1	500	W	FL	Y	E	CBS			✓		
19	SAGS	M	A	1	300	W	SI	N		CBS	✓	✓		SUPER FAINT	
20	SAGS	M	A	1	200	SW	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN INCIDENTAL OBSERVATIONS SOLAR MILLENIUM SITE RIDGECREST OBSERVER ELIAS PAGE 9 OF 9

DATE: 5/7/09 WEATHER: VISIBILITY GOOD PRECIP: NONE

CLOUD COVER Ø TEMP WARM WIND DIRECTION WEST TO VARIABLE WIND SPEED LIGHT OTHER

Obs. No.	Time	Species	Sex	Age	No. of Inds.	Dist from obsr (m)	Activity	Habitat	Flyover? (Y/N)	Dir of Flight	Location/Other Notes
1	0630	RWBL	M	A	1	110	FL	CBS	Y	NW	BETWEEN X5 & X4
2	0630	CORA	U	U	1	50	FL	CBS	Y	N	SAME
3	0730	BTSP	M	A	1	70	SI	CBS	N	—	@ X1
4	0743	AMGO	U	U	1	60	FL	CBS	Y	N	@ X1

OTHER SENSITIVE WILDLIFE INCIDENTAL OBSERVATIONS – USE GPS AND FIELD NOTE NOMENCLATURE

Time	GPS Code (Use Nomenclature from back page)	Sex	Age	No. of Inds.	Activity	Habitat	Comments

General Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y8

DATE: 5/8/09 VISIT #: 4 OBSERVER: ELIAS START TIME: 0515 END TIME: 0525 GPS: 11 PAGE 1 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 0 TEMP (°F) 57

WIND DIRECTION: SW SPEED (MPH) Low: 1 High: 8 Avg: 4

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	MODO	U	U	1	50	S	OT	N		CBS	✓	✓		WING NOISE	
2	LCTH	U	U	1	15	S	OT	N		CBS	✓	✓		CALLING	
3	SAGS	M	A	1	35	S	SI	N		CBS	✓	✓			
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16	SAGS	M	A	1	200	N	SI	N		CBS	✓		✓		
17	SAGS	M	A	1	170	E	SI	N		CBS	✓	✓			
18	SAGS	M	A	1	120	W	SI	N		CBS	✓	✓			
19	HOLA	M	A	1	150	SW	SI	N		CBS	✓	✓			
20	HOLA	M	A	1	200	S	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y7

DATE: 5/8/09 VISIT #: 4 OBSERVER: [illegible] START TIME: 0537 END TIME: 0547 GPS: 11 PAGE 2 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 57

WIND DIRECTION: SW SPEED (MPH) Low: Ø High: 12 Avg: 8

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	20	E	OT	Y	S	CBS	✓	✓		CALLING	
2	BGGN	U	U	1	25	S	OT	N		CBS	✓	✓		(1) CALLING	
3	SAGS	U	U	1	10	N	HU	N		CBS		✓		CALLING	
4	SAGS	U	U	1	20	W	HU	N		CBS		✓		VISUAL	
5	HOLA	U	U	1	20	E	HU	N		CBS			✓	CALLING	
6	MODO	U	U	1	60	W	OT	N		CBS	✓		✓	WING	
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17	SAGS	M	A	1	200	W	SI	N		CBS	✓		✓		
18	HOLA	M	A	1	200	S	SI	N		CBS	✓		✓		
19	SAGS	M	A	1	200	N	SI	N		CBS	✓	✓			
20	HOLA	M	A	1	120	W	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments: (1) BEGAN PERFORMING WHISPER SONG – A FIRST FOR ME IN THIS SPECIES

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y6

DATE: 5/8/09 VISIT #: 4 OBSERVER: [illegible] START TIME: 0554 END TIME: 0604 GPS: 11 PAGE 3 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 0 TEMP (°F) 57

WIND DIRECTION: W SPEED (MPH) Low: 2 High: 13 Avg: 7

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	50	W	OT	N		CBS	✓	✓		CALLING	
2	HOLA	U	U	2	60	N	OT	N		CBS		✓		CALLING (1)	X
3	HOFI	U	U	2	70	E	OT	Y	W	CBS	✓		✓	CALLING	
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17	HOLA	M	A	1	150	N	SI	N		CBS	✓		✓		
18	HOLA	U	U	1	130	NW	OT	N		CBS	✓		✓		
19	HOLA	M	A	1	150	SW	SI	N		CBS	✓		✓		
20	SAGS	M	A	1	110	W	SI	N		CBS	✓		✓		

*Check if Auditory only

Comments: (1) ONE OF THESE IS A BEGGING JUVIE.

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y5

DATE: 5/8/09 VISIT #: 4 OBSERVER: ELIAS START TIME: 0619 END TIME: 0629 GPS: 11 PAGE 4 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 61

WIND DIRECTION: W SPEED (MPH) Low: 4 High: 13 Avg: 7

PRECIPITATION: NONE OTHER:

16
16
32
-3
29
32
61

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	100	W	OT	N		CBS	✓	✓		CALLING	
2	HOFI	U	U	1	40	W	OT	N		CBS	✓		✓	CALL	
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17	HOLA	U	U	1	150	SE	OT	N		CBS	✓		✓	CALL	
18	HOLA	U	U	1	200	SW	OT	N		CBS	✓	✓		CALL	
19	HOLA	U	U	1	120	N	OT	N		CBS	✓	✓		CALL	
20	SAGS	M	A	1	150	NW	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: YY

DATE: 5/8/09 VISIT #: 4 OBSERVER: ELIAS START TIME: 0635 END TIME: 0645 GPS: 11 PAGE 5 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) 0 TEMP (°F) 61

WIND DIRECTION: W SPEED (MPH) Low: 3 High: 15 Avg: 8

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	48	S	OT	N		CBS		✓		CALLED	
2	HOLA	U	U	1	40	S	OT	N		CBS		✓		VISUAL	
3	HOLA	F	A	1	25	S	OT	N		CBS		✓		VISUAL	
4	SAGS	M	A	1	90	E	SI	N		CBS			✓		
5	CORA	U	U	1	400	SE	OT	N		CBS	✓		✓	CALLING	
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20	SAGS	M	A	1	200	SW	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y3

DATE: 5/8/09 VISIT #: 4 OBSERVER: ELIAS START TIME: 0651 END TIME: 0701 GPS: 11 PAGE 6 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 64

WIND DIRECTION: NW SPEED (MPH) Low: 0 High: 16 Avg: 9

PRECIPITATION: NONE OTHER:

18
18
36
54
32
32

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	SAGS	M	A	1	100	NW	SI	N		CBS	✓	✓			
2	HOLA	U	U	2	70	E	OT	N		CBS	✓	✓		CALLING	
3	~~SAGS~~	~~M~~	~~A~~	~~1~~	~~210~~	~~NW~~	~~SI~~	~~N~~		~~CBS~~	~~✓~~	~~✓~~			
4	PISI	U	U	1	22	S	OT	Y	N	CBS			✓	CALLING	
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18	SAGS	M	A	1	210	NW	SI	N		CBS	✓	✓			
19	DUFL	U	U	1	130	NW	OT	N		CBS	✓		✓		
20	HOLA	M	A	1	150	W	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y2

DATE: 5/8/09 VISIT #: 4 OBSERVER: ELIAS START TIME: 0708 END TIME: 0718 GPS: 11 PAGE 7 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 68

WIND DIRECTION: NW SPEED (MPH) Low: 2 High: 14 Avg: 10

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	M	A	1	50	N	SI	N		CBS		✓			
2	HOLA	U	U	3	60	N	OT	N		CBS		✓		FOOD LARKY	
3	HOLA	U	U	6	70	NE	OT	N		CBS			✓	6 LANDED	
4	HOLA	U	U	2	40	SE	OT	N		CBS			✓	2 LANDED	
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19	SAGS	M	A	1	150	W	SI	N		CBS	✓		✓		
20	SAGS	M	A	1	200	N	SI	N		CBS	✓	✓		SAME IND. AS PREVIOUS PT.	

*Check if Auditory only

Comments:

AVIAN FIXED POINT OBSERVATION DATA SHEET: **SOLAR MILLENIUM** SITE: RIDGECREST POINT COUNT ID: Y1

DATE: 5/8/09 VISIT #: 4 OBSERVER: ELIAS START TIME: 0724 END TIME: 0734 GPS: 11 PAGE 8 OF 9

WEATHER: VISIBILITY (CIRCLE ONE) good fair poor CLOUD COVER (%) Ø TEMP (°F) 67

WIND DIRECTION: NW SPEED (MPH) Low: 4 High: 17 Avg: 10

PRECIPITATION: NONE OTHER:

Obs No.	Species	Sex	Age	# Inds.	Observer Dist. (m)	Observer Dir.	Activity	Flyover? Y/N	Flyover? Dir.	Habitat	A*	Time Increment 0-3 min.	Time Increment 3-10 min.	Notes	Breeding Confirmed? (Y/N)
1	HOLA	U	U	1	5	E	FL	N		CBS		✓		WANDER	
2	HOLA	U	U	1	90	SW	FL	N		CBS			✓		
3	HOLA	U	U	1	80	E	~~OT~~ PE	N		CBS			✓		
4	SAGS	U	U	2	55	N	OT	N		CBS			✓	CALLING	
5	HOLA	M	A	1	20	N	~~PE~~ PE HU	N		CBS			✓		
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19	SAGS	M	A	1	150	N	SI	N		CBS	✓		✓		
20	HOLA	M	A	1	150	NW	SI	N		CBS	✓	✓			

*Check if Auditory only

Comments:

AVIAN INCIDENTAL OBSERVATIONS **SOLAR MILLENIUM** SITE RIDGECREST OBSERVER QWAS PAGE 9 OF 9

DATE: 5/8/09 WEATHER: VISIBILITY GOOD PRECIP: NONE

CLOUD COVER Ø TEMP WARM WIND DIRECTION W WIND SPEED ~~MODERATE~~ OTHER

Obs. No.	Time	Species	Sex	Age	No. of Inds.	Dist from obsr (m)	Activity	Habitat	Flyover? (Y/N)	Dir of Flight	Location/Other Notes

OTHER SENSITIVE WILDLIFE INCIDENTAL OBSERVATIONS – USE GPS AND FIELD NOTE NOMENCLATURE

Time	GPS Code (Use Nomenclature from back page)	Sex	Age	No. of Inds.	Activity	Habitat	Comments
0526	RLTEE001	U	U	2	OT PE	CBS	CALLING

General Comments:

ATTACHMENT J

DESERT TORTOISE TECHNICAL REPORT

SOLAR MILLENNIUM
RIDGECREST SOLAR POWER PROJECT
DESERT TORTOISE TECHNICAL REPORT
KERN COUNTY, CALIFORNIA

Prepared for:

Solar Millennium, LLC
1625 Shattuck Avenue
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Prepared by:

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September 2009

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4 Desert Tortoise Observations and Sign

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SUMMARY

EDAW AECOM (EDAW) performed biological resources studies for Solar Millennium, LLC who is the Applicant for the proposed Ridgecrest Solar Power Project (Project or RSPP). The Project is proposed on public lands managed by the Bureau of Land Management (BLM) in Kern County, California, and the Applicant has submitted an application to BLM for a right-of-way (ROW) grant. The RSPP will be a 250-megawatt (MW) solar thermal electric-generating facility using parabolic trough technology. The Project would be located approximately 5 miles southwest of Ridgecrest, in Kern County, California (Figure 1 [all figures referred to herein are included in Attachment 1]). The primary solar energy facilities and associated construction and operations footprint are located within an approximate 1,740-acre disturbance area (Figure 2).

As a component of the needed biological resources work, presence/absence surveys for the Federal and State threatened desert tortoise (*Gopherus agassizii*; DT) were conducted within the proposed Solar Millennium RSPP site in 2009.

PROJECT DESCRIPTION

Solar Millennium, LLC (the Applicant) is proposing to construct a commercial solar thermal electric power generating project. The Ridgecrest Solar Power Project (RSPP) would be located in the high northern Mojave Desert in northeastern Kern County, California, approximately 5 miles southwest of the City of Ridgecrest, approximately 6 miles southeast of the town of Inyokern, and less than 1 mile southwest of U.S. Highway 395. The Project would be located on a 3,920-acre right-of-way (ROW) owned by the Federal government and leased by the Applicant from the Bureau of Land Management (BLM). The Project facilities would occupy approximately 1,440 acres of the ROW (referred to as the facility footprint). In addition to solar fields and a main power generating facility (power block), the site would include a main office building and parking lot, a main warehouse with laydown area, onsite access roads, a tie-in switchyard, and a bioremediation area.

The Project would have a nominal output of 250 MW. The Project would utilize solar parabolic trough technology to generate electricity. With this technology, arrays of parabolic mirrors collect heat energy from the sun and refocus the radiation on a receiver tube located at the focal point of the parabola. A heat transfer fluid (HTF) is heated to high temperature (750°F) as it circulates through the receiver tubes. The heated HTF is then piped through a series of heat exchangers where it releases its stored heat to generate high-pressure steam. The steam is then fed to a traditional steam turbine generator where electricity is produced.

The Project would include two solar fields, each occupying roughly 700 acres and comprised of piping loops arranged in parallel groups connected to supply and return header piping. The power block would be located south of Brown Road, just north of the southern solar field. The power block would be comprised of its own administration, control, warehouse, maintenance, and lab buildings; an HTF pumping and freeze protection system; steam generator; propane-fired auxiliary boiler; one steam turbine generator; an air-cooled condenser (ACC); generator step-up transformer, transmission lines, and related electrical system; and auxiliary equipment (i.e., water treatment system, diesel-powered emergency generator, and firewater system). A new 12-inch-diameter, approximately 5-mile-long water pipeline would be installed within the Brown Road and China Lake Boulevard ROWs to connect the Project with the Indian Wells Valley Water District (IWVWD) supply. A new 230-kilovolt (kV) transmission line from the turbine generator to a new nearby switchyard would interconnect with Southern California Edison's (SCE) existing 230-kV Inyokern/Kramer Junction transmission line passing west of the Project site. The transmission line would be approximately 0.5 mile long and located within the facility footprint.

Access to the site would be provided by a new 700-foot-long, 24-foot-wide paved access road from Brown Road, located approximately 2.25 miles west of the intersection of Brown Road with U.S. Highway 395. Only a small portion of the overall facility footprint would be paved: the site access road, the service road to the power block, and portions of the power block. The remaining portions of the power block would be gravel surfaced. The area of the power block area would be approximately 18 acres, with approximately 6 acres of paved area. The solar field would remain unpaved and without a gravel surface to prevent rock damage from mirror wash vehicle traffic. A dust suppression coating would be used on the dirt roadways within and around the solar field. The Project solar field and support facilities perimeter would be secured with chain link metal-fabric security fencing. Along the north and south sides of the facility, the fence would be 8 feet tall, with 1-foot barbed wire or razor wire on top. Thirty-foot tall wind fencing, composed of A-frames and wire mesh, would be installed along the east and west sides of each solar field. Controlled access gates would be located at the site entrance.

Following completion of spring 2009 surveys, several changes were made to the disturbance area limits. First, a conceptual footprint of a possible water line was identified (Figure 2). The final Project water line route has not yet been selected. The possible water line route would be approximately 5 miles long and outside the currently proposed disturbance area. The possible water line footprint has not yet been surveyed and, therefore, is not discussed in this report. Surveys for the possible water line will be conducted following selection of the final water line route (anticipated spring 2010).

In addition, several portions of the disturbance area, totaling approximately 288 acres, are no longer a part of the proposed Project and have been removed from the disturbance area (Figure 2). However, because the 288 acres were included in the spring 2009 surveys, in the interest of contributing to the body of scientific information, survey results for these areas are included in this document. Also, as a result of the changes to the proposed disturbance area, approximately 15 acres have not yet been surveyed. Surveys for the additional 15 acres will be completed following final Project design (anticipated spring 2010).

Project construction is scheduled to begin in late 2010 and continue into 2013.

SITE DESCRIPTION

The proposed Project site is composed of a large, contiguous area consisting of approximately 3,920 acres (BLM right-of-way) of land administered by BLM.

The proposed Project site is located on an alluvial fan that slopes northward from the El Paso Mountains in the southwest; it consists primarily of undeveloped open space. Topography in the proposed Project site is generally flat with elevations ranging from approximately 2,580 feet in the north to approximately 2,800 feet in the south. The most notable topographic features include an ephemeral drainage passing from southeast to northwest, and a series of rock outcrops located in the eastern portion of the site near the intersection of Brown Road and U.S. Highway 395.

The survey area associated with the expected disturbance limits of the proposed Project will hereafter be defined as the "disturbance area." The buffer around the disturbance area includes a 1,000-foot survey area around the proposed Project linear features and a 1-mile buffer around the disturbance area (hereafter collectively defined as the "buffer"). The entire survey area, consisting of the disturbance area plus the buffer, is referred to as the Biological Resources Survey Area (BRSA).

The disturbance area consists of largely undisturbed vegetation, with the exception of localized disturbances associated with roads and a few high-use recreation areas in the east and southwest portions of the Project site. Brown Road, a two-lane paved road, bisects the disturbance area generally from west to east. Additionally, a fairly extensive network of single-lane dirt roads is distributed throughout the disturbance area (more than 10 miles), used primarily by off-highway vehicles. Evidence of off-road vehicle use occurs in several locations along washes, occasionally in uplands, and extensively in the east and southwest portions of the Project site. The El Paso Mountains border the disturbance area to the southwest. Private property borders the disturbance

area to the northwest and southeast. U.S. Highway 395 borders the site to the northwest. The China Lake Naval Air Weapons Station occurs approximately 6 miles to the north and more than 15 miles to the east.

The proposed Project site is located on Federal BLM land that is entirely within the West Mojave Plan (WEMO) area. The disturbance area is located within the Mohave Ground Squirrel Conservation Area (the portion of the disturbance area south of Brown Road); however, it does not occur in any WEMO-designated DT Desert Wildlife Management Areas or in DT critical habitat. BLM land in the Project site is designated as BLM Multiple Use Class L (Limited Use), and land that is unclassified by BLM. Public lands designated as Multiple Use Class L are "managed to provide for generally lower intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished." The El Paso Mountains Wilderness Area is located just more than 1 mile to the southwest of the proposed Project site.

The BRSA encompasses 9,312 acres, and the primary solar energy facilities and associated construction and operations for the proposed Project are located within the approximately 1,740 acre disturbance area.

Four vegetation communities and other cover types were identified within the BRSA during the surveys. Vegetation types are described in detail below and based on a classification system by R. Holland (1986). When appropriate, vegetation classification by J.O. Sawyer and T. Keeler-Wolf (1995) are also considered. These vegetation communities include Mojave Desert wash scrub, unvegetated ephemeral dry wash, Mojave creosote bush scrub, and developed areas (Figure 3).

The majority of the BRSA is composed of Mojave creosote bush scrub. A large volcanic outcrop occurs in the western edge of the BRSA, where the Mojave creosote bush scrub becomes sparser and the herbaceous layer becomes more diverse, including such species as Parish's larkspur (*Delphinium parishii* ssp. *parishii*), Coulter's desert dandelion (*Malacothrix coulteri*), and dwarf cottonrose (*Logfia depressa*). In the central-eastern portion of the BRSA, large granite boulder outcrops occur within the Mojave creosote bush scrub. In this area, sub-shrubs such as desert brickellbush (*Brickellia desertorum*), Mojave buckwheat (*Eriogonum fasciculatum* var. *polifolium*), and Cooper's goldenbush (*Ericameria cooperi*) become more common. Plants indicative of the Mojave Desert wash scrub occur in and among the dry wash that traverses the entire central portion of the BRSA from north to south, and in the southwestern portion of the BRSA. The unvegetated ephemeral dry wash occurs in transition zones between areas of desert

wash scrub, where washes transition to sheet flow. Developed areas consist of roadways (Brown Road) traversing the entire central portion of the BRSA from east to west, and residential lots.

SPECIES BACKGROUND INFORMATION

The DT is federally listed as threatened under the Federal Endangered Species Act, with critical habitat designated by the U.S. Fish and Wildlife Service (USFWS 1994a). The listing was initially made on August 4, 1989, by emergency rule (USFWS 1989) and by final rule on April 2, 1990 (USFWS 1990). This listing status applies to the entire population of DT, except in Arizona south and east of the Colorado River, and in Mexico. An approved recovery plan was published by USFWS (1994b). However, USFWS formed the Desert Tortoise Recovery Office, and published a draft revision to the Recovery Plan (USFWS 2008). The DT was listed as threatened under the California Endangered Species Act on June 22, 1989 (CFGC 1989). No federally designated critical habitat for the DT occurs within the BRSA. The BRSA occurs within the boundaries of the West Mojave Recovery Unit (USFWS 2008), within which four sub-populations, all outside the BRSA, have been identified: Ord-Rodman, Superior-Cronese, Fremont-Kramer, and Joshua Tree. Within these sub-populations, DT density is highly heterogeneous, with clusters of high densities surrounded by areas of rather low densities in seemingly suitable habitat (BLM 2005). Outside of these subpopulations, the DT generally occurs at very low densities, ranging from 0 to 20 individuals per km^2 (Berry and Nicholson 1984).

The DT is widely distributed in the deserts of California, southern Nevada, extreme southwestern Utah, western and southern Arizona, and throughout most of Sonora, Mexico. Generally DTs prefer creosote bush scrub habitat with a high diversity and cover of perennial plant species and high productivity of ephemeral plants. Less commonly, DT will occur in blackbrush (*Coleogyne ramosissima*), Joshua tree (*Yucca brevifolia*), and juniper (*Juniperus* sp.) at higher elevations, and saltbush (*Atriplex* sp.) at lower elevations (Nussear et al. 2009). DT home range varies with locality, year, resource availability, and social interactions (Berry 1986; O'Connor et al. 1994). Male DT home range (25 to 200 acres) is estimated to be twice the size of that for females (Burge 1977; Berry 1986). DTs use multiple dens throughout individual home ranges and appear to migrate to steeper, rockier slopes in the winter (Barrett 1990).

Populations over approximately 50 percent of the DT U.S. range (30 percent of its overall range) began declining in the late 1960s and early 1970s (USFWS 1990, 1994b). These declines have

been attributed to several factors, paramount of which are habitat destruction, degradation, and fragmentation. Threats to DTs often work synergistically.

An onsite loss of habitat will cause a reduction in the local DT population. There will also be increased mortality rates in the area through increased road mortality; increased predation by opportunistic predators such as domestic dogs and ravens; stresses from disease; increases in livestock trampling; shooting; and collecting (USFWS 1994b). While drought is sometimes mentioned as a cause of reductions in DT populations, population declines are mostly a result of human and disease-related mortality accompanied by habitat loss. Drought can work synergistically to exacerbate conditions that lead to reductions, but drought is natural in DT habitat and the DT is adapted to survive long periods with low rainfall (Van Devender et al. 1987). Mortality of DTs in the western Mojave Desert may be due to upper respiratory tract disease (URTD) caused by *Mycoplasma agassizii* (Brown et al. 1994; Berry 1997). The probability of infection leading to death in DTs is not based solely on the presence of the URTD; it appears that chronic stress in addition to the infectious agent is necessary for death to occur. An additional stressor, such as habitat degradation, is necessary for DT mortality. A direct cause/effect relationship between URTD and population decline in DTs has not been established (Tracy et al. 2004). Common raven (*Corvus corax*), coyote, and feral dog populations, all of which are predators to DT, increase with increased human presence in the desert. Discarded garbage is a prime food source for these species. The presence of humans can also increase the availability of water as well as nesting and roosting sites and nesting materials for ravens. Boarman and Berry (1995) have documented an increase of 1,500 percent in the common raven population within the Mojave Desert from 1968 to 1988. In the West Mojave Plan area, common raven depredation of juvenile DT populations have ranged from 9 percent in the Fremont-Kramer and Superior-Cronese Desert Wildlife Management Area (DWMA) to 72 percent elsewhere, while DT populations may grow at rates as low as 1 to 2 percent per year (BLM 2005; Liebezeit and George 2002; USFWS 1994b). This needs to be considered in the context of DT reproduction and survivorship. Juvenile DTs are at a higher risk of mortality than adults. While recruitment of juvenile DTs into adults DTs is low (Turner and Berry 1984; Germano 1994), the survivorship of adults is high, so survivorship of adult females offsets this low recruitment. A female DT produces one clutch of eggs during most years of her mature life. To create a stable population size, a female needs only to produce two offspring that reach maturity in her lifetime, one of each sex (Howland and Rorabaugh 2002).

In the 1994 DT Recovery Plan (USFWS), it was estimated that DT populations have declined at rates ranging from 3 to 59 percent per year (Berry et al. 1990). However, while these data are

suitable for describing general DT population trends, they should be interpreted cautiously in relation to quantifying population losses at the range-wide scale because of the sampling design that was used for the long-term monitoring plots (1979 to present; USFWS 2008; Tracy et al. 2004). Since the implementation of the DT Recovery Plan (USFWS 1994), the understanding of DT demographics and population dynamics for this species has advanced very little (Tracy et al. 2004).

While regional population changes cannot be estimated using the existing data from the long-term sample plots, it can provide some general insight that there have been appreciable declines in adult DT densities. These declines have been documented at the local level and are most notable in the western extent of the listed range (Western Mojave; Tracy et al. 2004), where the proposed Project is located.

Large areas of unfragmented habitat and connections between habitat are essential components to the survival of the species (USFWS 2008). Metapopulation dynamics are likely more important to DT conservation and conservation planning than originally thought (Tracy et al. 2004; USFWS 2008). The frequency of movement between populations is as typically described in island biogeography; a function of the distance between populations (more migration within shorter distances), physical size of the habitat areas (more immigrants into larger areas), size of source populations (more emigrants from larger, denser source populations), and the characteristics of intervening areas (determines how readily these areas can be crossed). Metapopulations are groups within a population that are typically confined to specific regions through habitat barriers or some other form of border. Size, number, and resource availability contribute to whether or not a metapopulation is sustainable. If a metapopulation becomes fragmented it may no longer be sustainable because the population size has been reduced to below a threshold where the metapopulation will survive. Metapopulation analysis is important for the recovery of DT. It follows that areas suitable for DT, but that are occasionally vacant of DT, can be important for DT (Tracy et al 2004).

SURVEY METHODOLOGY

Prior to beginning field surveys, EDAW biologists consulted the California Department of Fish and Game (CDFG) California Natural Diversity Database (CNDDB) (RareFind Version 3.1.0; CDFG 2009). The Special Animals list (CDFG 2009) and range maps were consulted to determine historic occurrence of special-status plant and wildlife species and other natural resources within the BRSA. Additionally, USFWS provided a letter detailing special-status species that it requires to be considered.

A habitat assessment was conducted in spring 2009 to determine which wildlife species identified through the CNDDB search and a review of the Special Animals list had the potential to occur within the BRSA. Project biologists Arthur Davenport, Shelly Dayman, Charles German, Katie Hall, Gregg Lukasek, and Milo Rivera conducted wildlife species habitat assessments on February 14, 2009. Habitat assessments consisted of walking and driving throughout the BRSA. Topographic maps and aerial photographs were used to aid in determining if there were any special habitat types that should be assessed.

General surveys for biological resources were conducted within the solar facility footprint (area inside the facility fence line: solar fields, office and maintenance buildings, lay down area, drainage channels, bioremediation area, leach fields, a corridor for the transmission line, and roads) and within the proposed disturbance area (area inside and outside the facility fence line that will be disturbed by the Project) as well as a 1,000-foot buffer survey area around the proposed Project linear features and a 1-mile buffer around the disturbance area, as required by the California Energy Commission (CEC).

Spring 2009 surveys followed guidelines published in the USFWS *Field Survey Protocol for any Non-Federal Action That May Occur within the Range of the Desert Tortoise* (USFWS protocol) (USFWS 1992), with the following exception: no surveys of the five Zone of Influence (ZOI) transects that are typically required outside of and parallel to the disturbance area at 100, 300, 600, 1,200, and 2,400 feet were conducted. These ZOI transects were eliminated after discussions with USFWS, as it was concluded that the usual rationale for these ZOI transects, i.e., the potential for a Federal action to affect offsite individuals of an endangered species and therefore necessitate consultation under Section 7 of the Federal Endangered Species Act, was a moot point as consultation was already determined to be necessary. CEC 1-mile buffer requirements would result in substantial offsite survey activity, in any case. The use of the 1992 protocol (in conjunction with the tortoise abundance estimation algorithm outlined in the 2009 revised protocol, as requested by USFWS) and this modification to the DT survey protocol was agreed upon by the USFWS, CDFG, BLM and CEC prior to survey initiation per an email communication dated March 10, 2009, from Kimberly Nicol of CDFG (refer to Section 5.3.2.4 of the Application for Certification [AFC]). To comply with the recommendations of the CEC Draft Guidelines, transects outside of and parallel to the disturbance area were surveyed for DT at 3,960-foot (3/4-mile) and 5,280-foot (1-mile) intervals from and parallel to the edge of the disturbance area (see Special Status Wildlife Surveys in Section 5.3.2.4 of the AFC). These transects are more broadly focused than the USFWS DT protocol transects; they provide information on DT presence/absence and habitat suitability, as well as other biological resources, in the area surrounding the BRSA.

Presence/absence surveys for DT were completed between March 7 and May 28, 2009. Project biologists were Arthur Davenport, Shelly Dayman, Kim Duncan, Elias Elias, Michael Gallagher, Charles German, Katie Hall, James Huelsman, James Jennings, Gregg Lukasek, James Luttrell, Milo Rivera, Ellen Schafhauser, and Rob Wolfson.

The entire disturbance area (with the exception of the water line route, which has not yet been finalized, and an additional 15 acres) was surveyed according to protocol by spacing transects 32.8 feet apart along north-to-south-oriented transects. The survey was conducted by slowly and systematically walking linear transects while surveyors visually searched for DT and sign. Particular emphasis was placed on searching around the bases of shrubs and along the banks of shallow washes. All types of DT sign were recorded using GPS. Surveys were conducted throughout the day. On days when temperatures were above 95° Fahrenheit, when possible, surveys were conducted closer to dawn and dusk hours. DTs were measured for their midline carapace length (MCL) and evaluated for health. Photographs of DT observations were taken when possible (i.e., animal not deep in burrow). Photographs of large carcasses and/or unusual sign were also taken.

Burrows, scat, and shell remains were classed using the Information Index for Desert Tortoise Sign: Burrows and Dens, Scats and Shell Remains as in the USFWS *Field Survey Protocol for any Non-Federal Action That May Occur within the Range of the Desert Tortoise* (USFWS protocol) (USFWS 1992) (Attachment 2).

Generally, under this classification system, burrows and pallets coded by the observer as Class 1, 2, or 3 have been identified as DT burrows/pallets with greater confidence than burrows or pallets coded as Class 4 or 5, which have the potential to be DT burrows/pallets but cannot be confirmed as DT. The DT burrow classification system requires that observers determine if the burrows/pallets have been recently used and are therefore active burrows (there is DT sign present such as scat, tracks, etc.); if the burrows/pallets can be classed as definitely or possibly DT; and if the burrows are in good condition (i.e., could be used by a DT in the current condition) or deteriorated condition (i.e., would need modification by a DT to be used). Height, width, and depth (estimated) measurements of DT burrows/pallets were taken.

DT scat was classified based on qualitative observations of variables that change over time. Fresh DT scat is wet, has odor, is tightly packed, and is dark brown with a glaze. As DT scat ages, it becomes dry, the odor disappears, the color becomes bleached, and the fibers become loosely packed. Qualitative observations (whether or not the scat was wet; if it had obvious odor or was odorless; if it was glazed or had no glaze; if it was dark brown, light brown or bleached; if

the scats were loose or tightly packed) were used to classify scats according to the Information Index in Attachment 2. Scat measurements (length and width) were taken whenever possible.

DT shell remains were classed based on qualitative observations regarding the condition of the shell remains. Fresh or putrid shell remains were classified as Class 1 and disarticulated/scattered pieces of DT bone were classified as Class 5. The following characteristics were used to determine the class of shell remains: color of the shell remains; location of scutes (adhering to bone or peeling off); condition of scutes (if scutes were peeling off bone, if growth rings on scutes were peeling); and condition of shell bones (intact or falling apart, if bone fragments are disarticulated and scattered). If bone fragments were observed, notes were taken as to whether the bones had begun to mineralize, since mineralization was observed on DT bones within this BRSA. Bones were assessed to determine whether they were becoming chalky as part of the aging process or if it appeared that the bone was being replaced by minerals and was therefore becoming more rock-like. Several bones with mineralization were shown to paleontological crew members and it was confirmed that some of the DT bones within the BRSA had begun to mineralize. MCL measurements were taken or estimated on DT shell remains whenever possible.

Adult DT abundance was estimated within the disturbance area. As described in the Preparing for Any Action That May Occur Within the Range of the Mojave Desert Tortoise (*Gopherus agassizii*) survey methodology (USFWS 2009), the estimated abundance of adult DTs within the disturbance area (area surveyed) is:

$$\text{Estimated \# of Tortoises} = \frac{\text{Number of DTs observed above ground}}{(P_a)\,(P_d)}$$

where:

P_a = the probability that a tortoise is above ground based on estimated rainfall from October 2008 through March 2009 (source: Western Regional Climate Center site http://www.wrcc.dri.edu/summary/Climsmsca.html monthly totals and Table 1 from the USFWS protocol). The total rainfall at the Inyokern weather station during this time period was 1.5 inches, which corresponds to a probability (P_a) of 0.64, with a variance of 0.08.

P_d = the probability of detecting a tortoise, if above ground (specified as 0.63 in the USFWS protocol).

The following additional information was used to estimate abundance of adult DTs within the disturbance area:

- The number of DTs observed above ground includes only DTs that are greater than or equal to 6.3 inches midline carapace length (adult) that were observed above ground by surveyors.
- Above ground is defined as all DTs that were observed (in burrows and above ground).
- DTs for which it wasn't possible to determine size class (i.e., deep in burrow) were included as adult DTs in this calculation (unknown size class DT = 5).
- Abundance estimates are valid only for the disturbance area (area surveyed).

Density of adult DTs within the disturbance area was also calculated.

Survey Limitations

Not all DTs present within a survey area will typically be observed because of the cryptic nature of the species. DT activity or presence in deep burrows can prevent the surveyor from observing an individual. Not all above-ground DTs are observed. Abundance estimates calculated as part of the protocol implemented within the Project disturbance area during spring 2009 account for the less than perfect probability of detecting DT during surveys.

Results

During habitat assessments in spring 2009, it was determined that the entirety of the disturbance area (1,738 acres) where focused DT surveys were conducted, and the majority of the BRSA contains suitable habitat for DT. Suitable landscapes for DT are generally defined as alluvial fans and plains and rocky slopes at elevations of 1,969 to 3,937 feet above sea level (USFWS 2008). The topography and landscape of the disturbance area is generally flat, with a few large washes in the central portion. The area on the northwestern side of the disturbance area is bordered by several single family residences. On the eastern side is U.S. Highway 395, and farther east of this highway is Ridgecrest. Single family residences associated with the town are present on the eastern side of the disturbance area.

Focused DT surveys were completed between March 7 and May 28, 2009, by project biologists Arthur Davenport, Shelly Dayman, Kim Duncan, Elias Elias, Michael Gallagher, Charles German, Katie Hall, James Huelsman, James Jennings, Gregg Lukasek, James Luttrell, Milo

Rivera, Ellen Schafhauser, and Rob Wolfson. Conditions during surveys were typical for the area for the DT survey season. Surveys were rarely ended due to temperature extremes, but high winds were sometimes problematic. When windy conditions were affecting detection ability, surveys were terminated and resumed later.

A total of 50 DTs were observed in the BRSA in 2009 surveys, 40 of which occurred within the disturbance area (Table 1, Figure 4). Of all detections within the BRSA, 29 were adult DTs, 12 were juveniles, and nine were DTs of unknown age. Ten DTs were observed outside of the disturbance area within the buffer, six of which were adults. As per the 2009 USFWS protocol, adults DTs are defined as having a MCL of greater than 160 mm (6¼ inches) and juveniles are defined as having a MCL of less than or equal to 6¼ inches.

Table 1
DT and DT Sign Observed Within Disturbance Area and BRSA during Spring 2009 Surveys

Sign	Description*	Number of Observations		
		Disturbance Area	Buffer	Total
Tortoises	Adult	23	6	29
	Juvenile	12**	0	12
	Unknown Age	5	4	9
	Total	40	10	50
Tortoise Burrows	Active (recent DT sign) - Class 1	36	12	48
	Occupied - Class 1	18	4	22
	Class 4 or 5	111	23	134
	Total	165	39	204
Tortoise Pallets	Active (recent DT sign) - Class 1	4	1	5
	Class 4 or 5	23	5	28
	Total	27	6	33
Tortoise Scat	Fresh (Class 1 or 2)	12	1	13
	Class 3 to 5	87	22	109
	Total	99	23	122
Tortoise Shell Remains	Carcass (Class 1 to 4) - Adult	2	4	6
	Carcass (Class 1 to 4) - Juvenile	3	3	6
	Bone Fragments (Class 5)	8	7	15
	Total	13	14	27
Tortoise Tracks		0	1	1

* Classified using the USFWS Protocol USFWS 1992 (Attachment 2).

** Includes individual that was killed on Brown Road.

During a site visit with the wildlife agencies on April 29, 2009, a juvenile DT (~4.5 inch MCL) was observed on Brown Road that appeared to have been recently hit by a vehicle; the individual

died within a few minutes. The location of this detection was less than ½ mile west of the main wash along Brown Road, approximately 2.25 miles west of the intersection with U.S. highway 395 (Figure 4).

More than 200 DT burrows were observed. Forty-eight burrows observed were active (with DT sign) and an additional 22 burrows were occupied, for a total of 70 Class 1 burrows. Thirty-six of the active burrows and 18 of the occupied burrows were within the disturbance area. Thirty-three DT pallets were noted, five of these were active and 27 were within the disturbance area. One hundred twenty-two observations of DT scat were made within the BRSA. Of these, 12 observations of fresh DT scat (Class 1 and 2) were made within the disturbance area (one observation of fresh scat was within the buffer). DT carcasses (relatively intact, Classes 1 through 4) and bone fragments (Class 5) were observed throughout the BRSA. Twelve carcasses were observed, six adult and six juvenile. Three juvenile carcasses and two adult carcasses were observed within the disturbance area. Carcasses were more common in the southern portion of the BRSA. Fifteen observations of DT bone fragments (disarticulated and scattered DT remains) were made; eight of these were recorded within the disturbance area. Many of these observations were made in the southern and eastern areas of the BRSA. DT tracks were observed within a wash just west of the disturbance area, to the north of Brown Road. A complete list of all DT observations (individuals and sign) recorded during USFWS DT protocol surveys is included in Attachment 4.

Historic DT occurrences occur in close proximity to the RSPP site; CNDDB records show seven DT records within 10 miles of the BRSA (CDFG 2009). Of the nearest DT detections, one record from 2004 overlaps the southern portion of the BRSA adjacent to the Project disturbance area; three additional DT records from 1988, and one from 2006, occur approximately 1 mile northwest of the BRSA; and one DT record from 1990 occurs approximately 1 mile to the northeast of the BRSA. CNDDB record data is largely incomplete, so it may not provide an accurate depiction of the actual population size and distribution within the area, but it can provide some insight into the distribution of DT here.

All species observed incidentally during USFWS protocol DT surveys are included in Attachment 5. A total of 42 wildlife species and one cactus were detected incidentally, in addition to the DT. Special-status wildlife (or their sign) observed during 2009 DT surveys include DT, the American badger (*Taxidea taxus*), western burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanus ludovicianus*), Le Conte's thrasher (*Toxostoma lecontei*), desert kit fox (*Vulpes macrotis arsipus*), and cottontop cactus (*Echinocactus polycephalus*) (Attachment 4 and 5).

Desert Tortoise Abundance Estimation

A total of 28 adult DTs or DTs of unknown age class were detected above ground during USFWS DT protocols (Table 1). This corresponds to an estimated abundance of 69 adult DTs within the disturbance area according to the revised DT survey methodology (USFWS 2009).

$$\text{Estimated \# of Tortoises} = \frac{\text{Number of DTs observed above ground}}{(P_a)\,(P_d)}$$
$$= 28/[(0.64)(0.63)]$$
$$= 69.44$$

The density of DTs within the disturbance area is therefore 0.040 DT/acre (69 DTs/1,738 acres).

Discussion

Habitat assessments in spring 2009 confirmed DT habitat suitability throughout the disturbance area (1,738 acres) and the majority of the buffer (with the exception of single family residences and roads). Focused DT surveys during spring 2009 further confirmed habitat within the disturbance area to be currently occupied by DT; 40 DTs, 54 Class 1 (active or occupied) burrows, and numerous additional DT sign (pallets, scat, and carcasses) were detected in the disturbance area.

Winter rainfall in the season prior to the DT survey period (November 2008 to February 2009) was 44 percent lower than average (as recorded at Inyokern; WRCC 2009); however, despite lower than average rainfall, growth of annual plants, upon which DT depend, did not appear depressed during spring 2009 (see Botanical Survey Report as Attachment F of the Biological Resources Technical Report). Therefore, adequate forage for DT was likely present on site during spring 2009 surveys. In fact, annual plant production was noted to be high during the initiation of surveys in 2009.

DT density estimates within the disturbance area were calculated based on the 2009 USFWS protocol and were determined to be 0.04/acre or 9.8/km^2. In comparison, density estimates based on 2001 distance sampling in the West Mojave indicate approximate densities of 7.3 tortoises/km^2 for the Fremont-Kramer DWMA and 9.6 tortoises/km^2 for the Ord-Rodman DWMA (Tracy et al. 2004). Those observed for the permanent study plots near the same two DWMAs revealed two tortoises/km^2 and five tortoises/km^2 (Tracy et al. 2004). However, it should be noted there are several differences in the methods used to estimate abundance. Firstly, for the distance sampling estimates, adults were noted as being greater than 208 mm MCL, and

for the permanent study plots, adults were noted as greater than or equal to 180 mm MCL. Here, adults were defined according to the USFWS (2009) protocol, which is 160 mm MCL. Also, the current study's abundance estimate takes into account the probability of detecting DTs that were not observed; neither the distance sampling nor the permanent study plots use a formula to account for DTs that were present and not detected. Despite the differences in methodologies, it is probable that the DT density within the Ridgecrest disturbance area is relatively high.

While the historical data for estimating DT density and abundance and, therefore, population changes over time is flawed, with data manipulation, some insight into population trends can be gleaned. There have been declines in adult DT densities, and these declines are most notable in the western extent of the listed range (Western Mojave) (Tracy et al. 2004), which is within the range of the Project. Specifically in relation to the Project, the region in the northern portion of the Fremont-Kramer DWMA and the northwestern portion of the Superior-Cronese DWMA have noticeably lower probabilities of encountering live DT relative to other portions of the DWMAs (Tracy et al. 2004). Analysis of the DT data for the areas in the West Mojave Recovery Unit suggests that the management actions for DT in this area have not slowed the decline of the DT populations here (Tracy et al. 2004), and data suggest die-offs in this area. So, within the disturbance area, there is a high density DT population within a larger landscape area where DT abundance is dropping. The DT population within the disturbance footprint could be important in the area.

CERTIFICATION STATEMENT

Qualified EDAW biologists who conducted DT surveys for the Solar Millennium Ridgecrest Project certify that the information in this survey report fully and accurately represents the work performed by EDAW biologists. The results of focused surveys for listed species are typically considered valid for 1 year by the resource agencies.

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ATTACHMENT 1

FIGURES

Map Location

1 inch = 40 miles

0 40 80 Miles

Ridgecrest Solar Power Project Desert Tortoise Technical Report

Figure 1
Regional Map

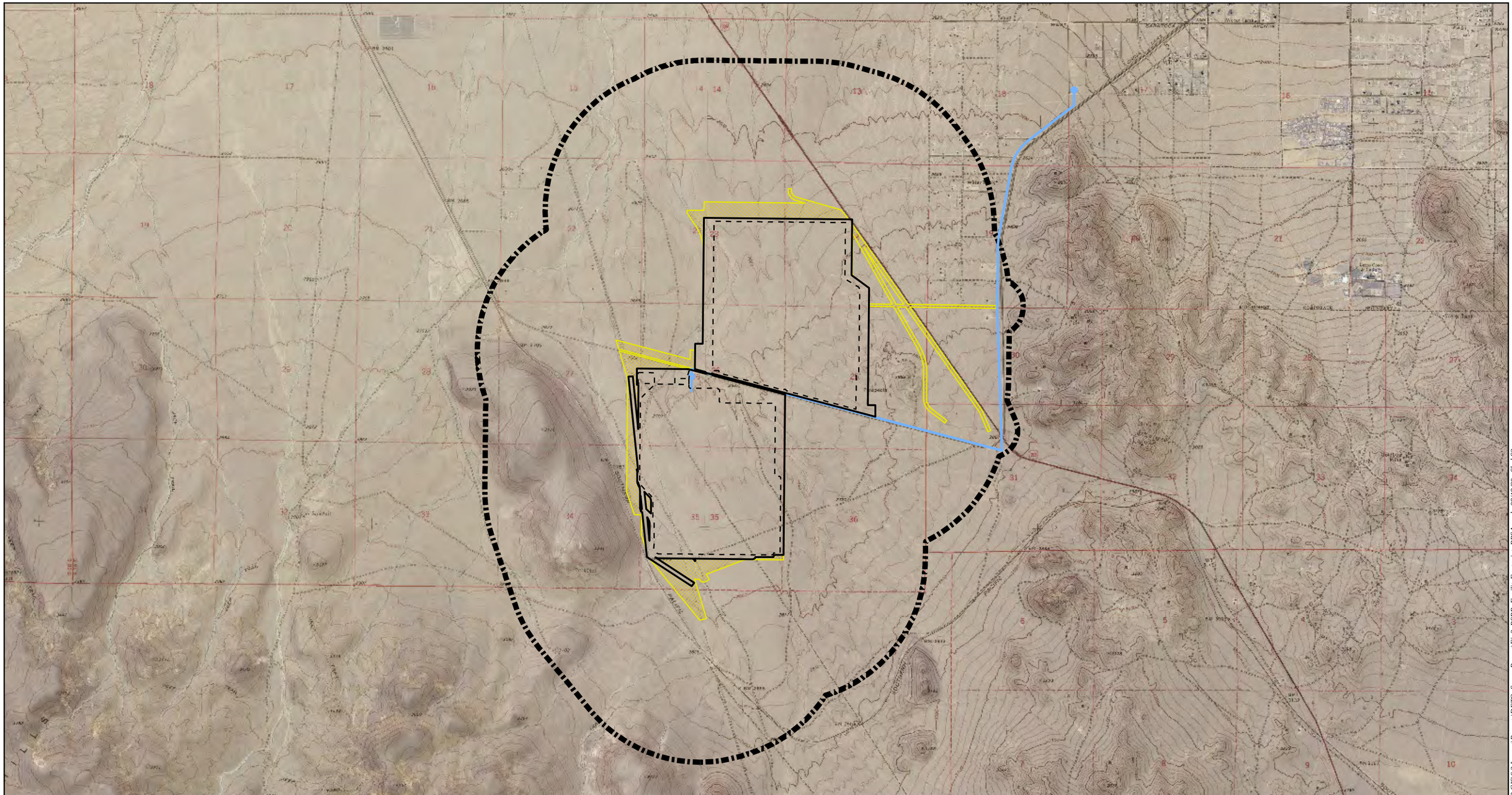
Source: ESRI; AECOM 2009

Solar Millennium

AECOM

Date: September 2009

Path: P:\2009\09080080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Reports\DETO_SurveyReport\Fig1_RSPP_RegionalLocation.mxd, 08/11/09, ShahS2



Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)
- Disturbance Area (Surveyed - No Longer Proposed)

Source: USGS; NAIP 2005; AECOM 2009

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Desert Tortoise
Technical Report

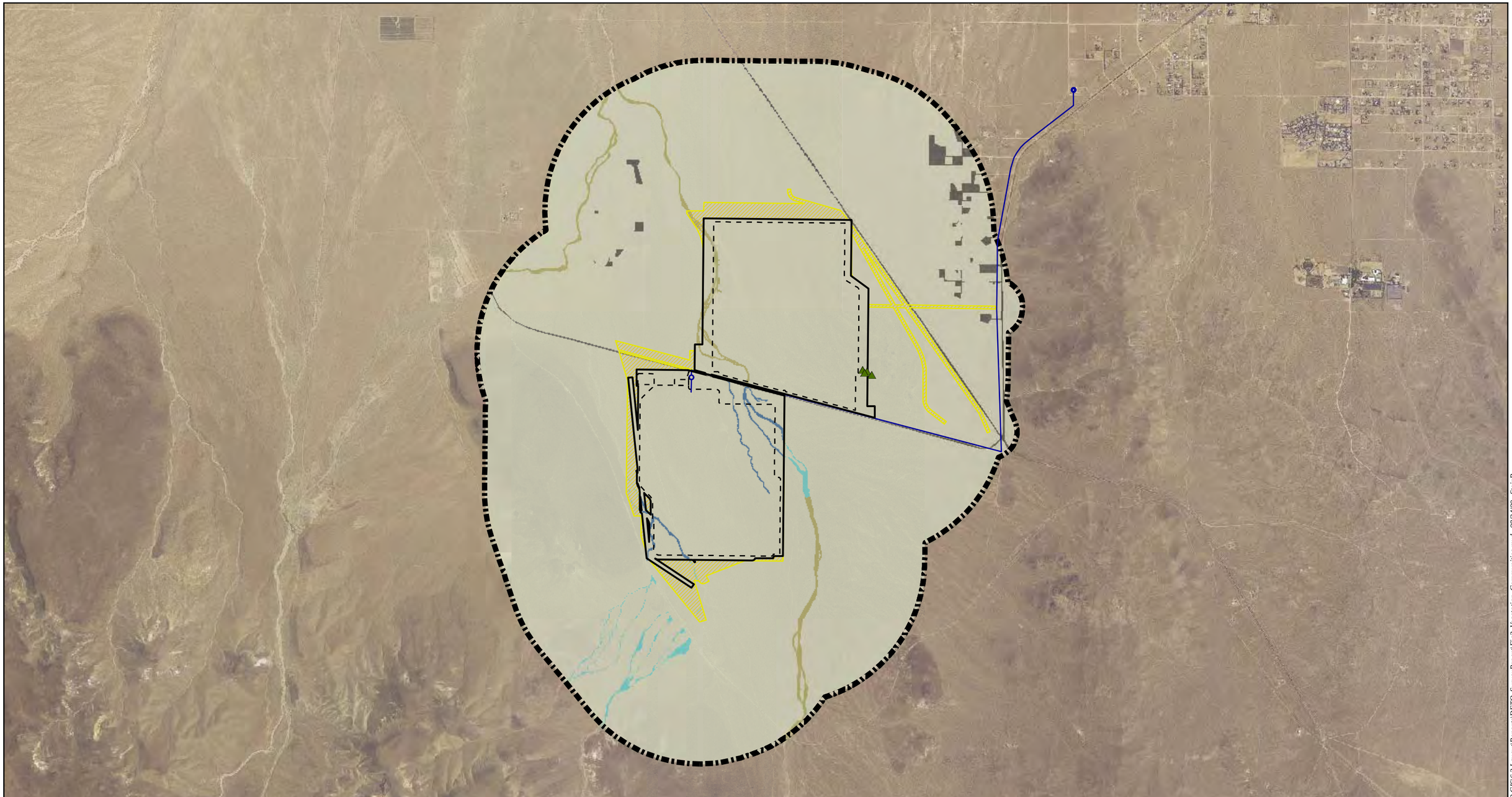
Figure 2
Facility Footprint, Disturbance Area, and Biological Resources Survey Area

Solar Millennium

AECOM

Date: September 2009

Path: P:\2009\09080080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Reports\DETO_SurveyReport\Fig2_RSPP_FacilityFootprint_BRSA.mxd, 08/18/09, ShahS2



Map Location

Legend

- Disturbance Area
- Facility Footprint
- Disturbance Area (Surveyed - No Longer Proposed)
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)

BLM Targeted Cactus Observations

- Cottontop Cactus

Vegetation Communities

Riparian

- Mojave Desert Wash Scrub
- Unvegetated Ephemeral Dry Wash
- Unvegetated Ephemeral Dry Wash (Presumed)[1]

Upland

- Mojave Creosote Bush Scrub

Other

- Developed

[1] NOTE: Due to minimum mapping unit within buffer (1.0 mile), these areas are presumed to be unvegetated

Source: NAIP 2005; CNDDB 2009; AECOM 2009; EDAW 2009

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Desert Tortoise
Technical Report

Figure 3
Vegetation Communities and
BLM Targeted Cactus Observations

Solar Millennium

AECOM

Date: September 2009

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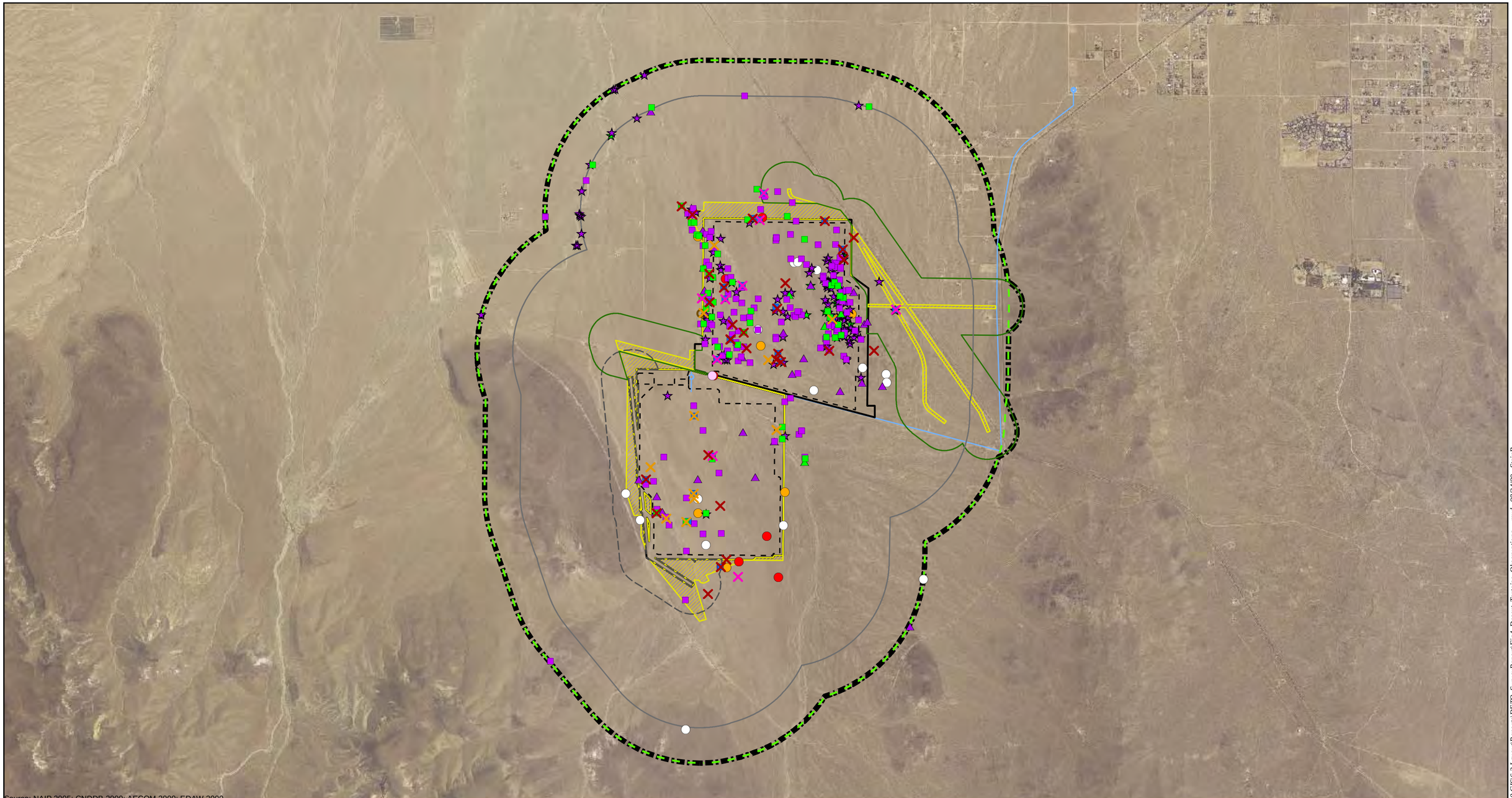

Source: NAIP 2005; CNDDB 2009; AECOM 2009; EDAW 2009

Map Location

Legend

- Disturbance Area
- Facility Footprint
- Disturbance Area (Surveyed - No Longer Proposed)
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)

Desert Tortoise and CEC Buffer Transects

- 1-mile Transect[1]
- 0.75-mile Transect[1]
- 1,000-foot Transect (Surveyed)
- 1,000-foot Transect (Unsurveyed)

Desert Tortoise Observations

- Adult Tortoise
- Juvenile Tortoise
- Tortoise (Unknown Age)
- Tortoise Burrow - Active
- Tortoise Burrow - Occupied
- Tortoise Burrow
- Tortoise Pallet
- Tortoise Pallet - Active
- Tortoise Scat
- Tortoise Scat - Fresh
- Tortoise Tracks
- Tortoise Bone Fragments
- Tortoise Carcass - Adult
- Tortoise Carcass - Juvenile
- Juvenile Tortoise – Vehicle Collision

[1] Note:
The 1-mile and ¾-mile CEC Buffer Transects on the southern side are greater than these distances from the disturbance area due to changes in project design.

N
W E
S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Desert Tortoise
Technical Report

Figure 4
Desert Tortoise Observations

Solar Millennium

AECOM

Date: September 2009

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ATTACHMENT 2

INFORMATION INDEX FOR DESERT TORTOISE SIGN

ATTACHMENT 2

INFORMATION INDEX FOR DESERT TORTOISE SIGN
Burrows and Dens, Scats, and Shell Remains

From: USFWS *Field Survey Protocol for any Non-Federal Action That May Occur within the Range of the Desert Tortoise* (USFWS 1992)

(1) Burrows and Dens:
1. currently active, with tortoise or recent tortoise sign
2. good condition, definitely tortoise; no evidence of recent use
3. deteriorated condition (please describe); definitely tortoise
4. deteriorated condition; possibly tortoise (please describe) good condition; possibly tortoise (please describe)

(2) Scats:
1. wet (not from rain or dew) or freshly dried; obvious odor
2. dried with glaze; some odor; dark brown
3. dried; no glaze or odor; signs of bleaching (light brown), tightly packed material
4. dried; light brown to pale yellow, loose material; scaly appearance
5. bleached, or consisting only of plant fiber

(3) Shell Remains:
1. fresh or putrid
2. normal color; scutes adhere to bone
3. scutes peeling off bone
4. shell bone is falling apart; growth rings on scutes are peeling
5. disarticulated and scattered

ATTACHMENT 3

FIELD DATASHEETS

Data Sheet for Live Desert Tortoise

Located by Michael Gallagher Tortoise GPS ID # RDLMG002

Project site name Ridgecrest Date

Time

Map ID Sex unknown

GPS Unit UTM 0431816 n 3934619 e

Elevation m Accuracy +/- m

County Kern State CA

Tortoise Location Burrow Data Survey Type

Cover site type

X burrow GPS ID# RDBMG004 ☐ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
X burrow	GPS ID # 0431818/3934616	☐ Tortoise Habitat Assessment
tortoise went into this	Orientation	☐ Tortoise Focused Survey
burrow @ base of shrub	Length (depth)	☐ Burrowing Owl Focused Survey
	Width 180 mm	☐ Botanical Survey
	Height 70 mm	☐ Mojave Ground Squirrel Survey
	Location under creosote	☐ Other
	Soil Cover	☐ Focused tortoise survey

MCL ~ 180 mm

Data Sheet for Live Desert Tortoise

Located by Kimberly Duncan Tortoise GPS ID # RD2KD002

Project site name Ridgecrest (SM) Date 3/23/09
Time

Map ID Sex unknown

GPS Unit UTM 0431808 n 3933741 e

Elevation m Accuracy +/- m
County State

Tortoise Location Burrow Data Survey Type

Cover site type
✗ burrow GPS ID# RDBKD002 ☐ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
☐ burrow	GPS ID # 0431810 / 3933741	☐ Tortoise Habitat Assessment
	Orientation	✗ Tortoise Focused Survey
	Length (depth)	☐ Burrowing Owl Focused Survey
	Width	☐ Botanical Survey
	Height	☐ Mojave Ground Squirrel Survey
	Location under creosote shrub	☐ Other
	Soil ~~Cover~~ ~10" from DETO	☐ Focused tortoise survey

MCL ~ 180 mm

all limbs intact, shell looked good

Data Sheet for Live Desert Tortoise

Located by Micheal Gallager Tortoise GPS ID # RDLmG001

Project site name Ridgecrest (Sm) Date 3/23/09
Time 11:10 Am

Map ID (Tile) Sex m ♂

GPS Unit UTM 0431728 n 3933420 e

Elevation _____m Accuracy +/-_____m
County_____State_____

Tortoise Location Burrow Data Survey Type

Cover site type
☒ burrow ☐ GPS ID# RDLmG001 ☐ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
☒ burrow	GPS ID #_____	☐ Tortoise Habitat Assessment
- located 1 foot	Orientation NW	☒ Tortoise Focused Survey
minumum from DETO	Length (depth) NA (not taken)	☐ Burrowing Owl Focused Survey
	Width 180 mm	☐ Botanical Survey
	Height 70 mm	☐ Mojave Ground Squirrel Survey
	Location on-site, Creoside scrub	☐ Other_____
	Soil Cover loose dirt, compact burrow entrance	☐ Focused tortoise survey

MCL 110
soil temp 68.9°F

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by: Michael Gallagher
Processed by:
Study site name: Ridgecrest
Township: Range:
Section: Quadrat:
Coordinates (Reference SW corner)
meters North: meters East:
UTM's: 0431728 n 3933420 e
County: State:
☒ On Plot ○ Off Plot (on-site)

Show location of tortoise in quadrat

Tortoise ID #: RDLMG001
Year first marked:
Verification of ID: ☐
Capture type: Sex: M ♂
Date (dd/mm/yy): 3/23/09
Time (PST): Start 11:0 End 11:25
Shell wear class:
Process time: 15 ~~hours~~ min
Frequency: NA
Transmitter #: NA

BEAK & NARES

Beak/nares wet	○ Yes	○ No	● Unk
Beak/nose damp	○ Yes	○ No	● Unk
Nasal exudate present	○ Yes	○ No	● Unk
Exudate color	☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green		
Bubble(s) from nares	○ Yes	○ No	● Unk
One nare occluded	○ Yes	○ No	● Unk
Both nares occluded	○ Yes	○ No	● Unk
Dirt on nose/beak	○ Yes	○ No	● Unk
Dirt in nares	○ Yes	○ No	● Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	● Yes	○ No	○ Unk
Moisture on forelegs	○ Yes	● No	○ Unk
Dried exud. on scales	○ Yes	● No	○ Unk
Scales cracking	○ Yes	● No	○ Unk

BREATHING

Smooth	● Yes	○ No	○ Unk
Wheezing	○ Yes	● No	○ Unk
Rasping, clicking	○ Yes	● No	○ Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	○ Yes	● No	○ Unk
Eyelids swollen	○ Yes	● No	○ Unk
Eyes/lids wet	○ Yes	● No	○ Unk
Discharge from eyes	○ Yes	● No	○ Unk
Eyes sunken	○ Yes	● No	○ Unk
Eyes clear, bright	● Yes	○ No	○ Unk
Eyes dull, cloudy	○ Yes	● No	○ Unk
Chin glands draining	○ Yes	○ No	● Unk

INTEGUMENT

Integument dull	○ Yes	○ No	○ Unk
Integument glossy	○ Yes	○ No	○ Unk
Normal elasticity	○ Yes	○ No	○ Unk
Abnormal skin peeling	○ Yes	○ No	○ Unk

POSTURE/BEHAVIOR

Alert, responsive	● Yes	○ No	○ Unk
Lethargic	○ Yes	● No	○ Unk
Can withdraw tightly into shell	● Yes	○ No	○ Unk
Limbs, head hanging loose	○ Yes	● No	○ Unk

ORAL CAVITY

Observed	○ Yes	○ No	● Unk
Discharge present	○ Yes	○ No	● Unk
Membranes pink	○ Yes	○ No	● Unk
Membranes pale, white	○ Yes	○ No	● Unk
Smells/mouth rot	○ Yes	○ No	● Unk

EVIDENCE OF SHELL DISEASE

Lesions present	○ Yes	● No	○ Unk
Lesions active	○ Yes	● No	○ Unk
Lesions healed	○ Yes	● No	○ Unk
Scute laminae peeling	○ Yes	● No	○ Unk
Scutes missing/peeling	○ Yes	● No	○ Unk
Pitting	○ Yes	● No	○ Unk
Scutes depressed/concave	○ Yes	● No	○ Unk
Fungal areas	○ Yes	● No	○ Unk

EVIDENCE OF TRAUMA

Head	○ Yes	● No	○ Unk
Gular	● Yes	○ No	○ Unk
Forelimbs	○ Yes	● No	○ Unk
Hindlimbs	○ Yes	● No	○ Unk
Shell	● Yes	○ No	○ Unk
Scute/bone replacement	● Yes	○ No	○ Unk

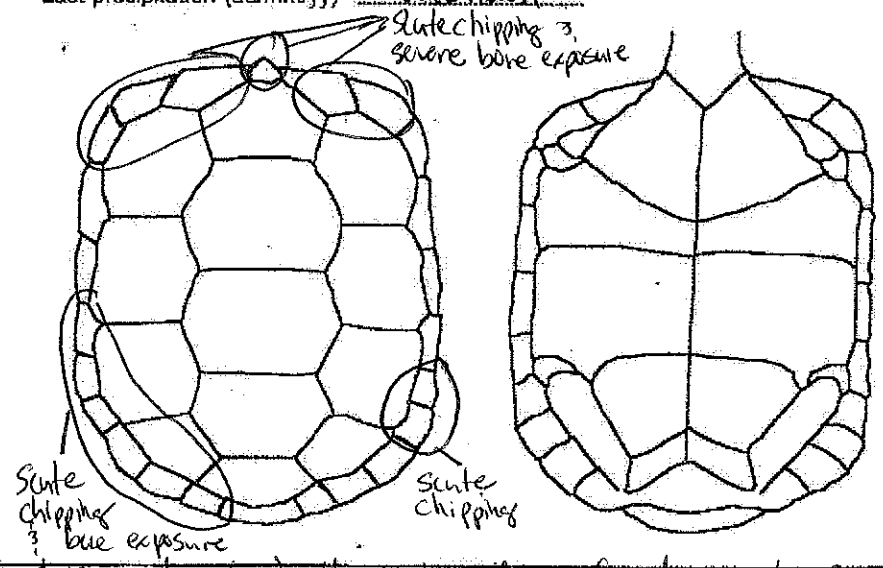
Describe: Scutes appeared to be healing w/ bone exposure

Soil dryness: ○ wet ● damp ○ dry

Last precipitation (dd/mm/yy): unknown

Urine (vol):
Color: NA
Viscosity:
Particulates:
Color:
Nasal wash collected:
Amt. blood/lymph taken (cc):
# of needle sticks:
Time (min) of needle sticks:
Location:
PCV%:
Other samples taken:
Describe/draw parasites:

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes: no evidence of shell disease due to healthy scutes, all visible damage to carapace to appears to have been created by coyote teeth & ATU use on site

© Berry 1997

(1) RDLMG001

3/23/09

(DETO) MCL 110

possible ~~female~~ male

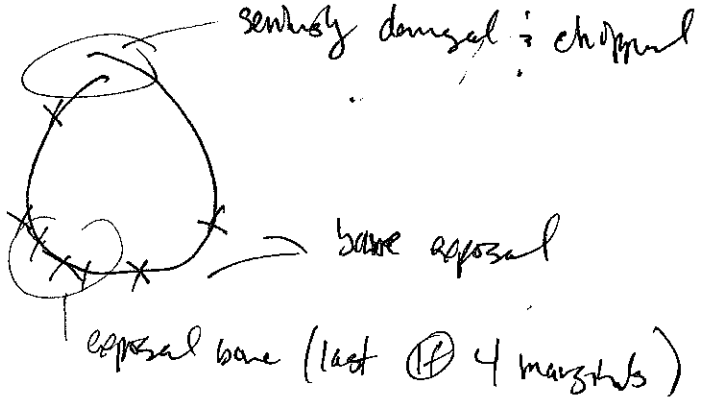
damage on

immature/sub adult

clear eyes

nostrils ?

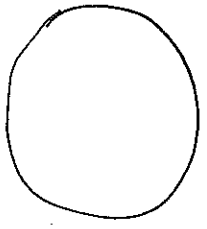
all limbs intact



68.9°F ground temperature

RDLKD002

(DETO) MCL 4 1/4" x 3 1/2"



shell looks good

eyes ?

nostrils ?

all limbs intact

RDLMG002

(DETO) MCL measurements similar to RDLKD002

shell looks good

miniature

clear eyes

nostrils clear

all limbs intact

x70

8		
9		
10		
11		
12		

[illegible]	625	X
KF	635	X
KD	645	X
RW	655	X
MG	665	X
JH	675	X

no reading

KF	695	X	KD	755		RW	815		
KD	705	X	RW	765	X	MG	825	X	
RW	715	X	MG	775	X	JH	835	X	
MG	725	X	JH	785	X		845		
JH	735	X	KF	795	X		855		

12 (James)
13 (Michael Gallagher)

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Page 1 of _____

Site: Ridgecrest

Date: 3/23/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	8		KD, KH	

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	9:00 AM	57.3°F	16.2 / max 22.3 N	clear + windy
Mid-day	12:30 PM	84.2°F	avg 18.3 max 24.2	clear + windy
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RKBJH001	0431682	KF	A J U	M F U	Y N	6 openings (some scat)			
	3934553		A J U	M F U	Y N				
			A J U	M F U	Y N				
RMAKD001	0431648		A J U	M F U	Y N	could be modified			
	3934209		A J U	M F U	Y N				
RMARW001	0431660		A J U	M F U	Y N	could be modified			
	3934080		A J U	M F U	Y N				
RMAMG001	0431664		A J U	M F U	Y N				
	3933958		A J U	M F U	Y N				
RMAJH001	0431675		A J U	M F U	Y N	under shrub			
	3932995		A J U	M F U	Y N	1' deep; 200mm wide; 150mm high	5		
RDBJH001	0431730		A J U	M F U	Y N	under creosote			
	3933092		A J U	M F U	Y N	see health sheet labeled w/ code			
RDLMG001	0431728	DETO	A J U	M F U	Y N				
	3933420		A J U	M F U	Y N	burrow 180mm width x 70mm high	1		
RDBMG001	0431728	DETO	A J U	M F U	Y N				
	3933418	1	A J U	M F U	Y N		5		
RDBMG002	0431730		A J U	M F U	Y N				
	3933697		A J U	M F U	Y N	old fox scat / under creosote			
RKBMG001	0431729	KF	A J U	M F U	Y N				
	3934003		A J U	M F U	Y N				

*See Reverse

(file) 832-592

Site: Ridgecrest

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 3/23/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	8			

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments)		
							Burr	Scat	Shell
RBBKH001	0431707	BUOW	A J U	M F U	Y N	pellets + white wash / also bit fox scat			
	3934023		A J U	M F U	Y N				
RMBKD002	0431711		A J U	M F U	Y N	under creosote			
	3935017		A J U	M F U	Y N				
RMARW002	0431763		A J U	M F U	Y N	5 collapsed burrows; could be modified			
	3934981		A J U	M F U	Y N				
RMARW003	0431770		A J U	M F U	Y N	under creosote			
	3934728		A J U	M F U	Y N				
RMAKD003	0431754		A J U	M F U	Y N	under creosote			
	3934572		A J U	M F U	Y N				
RMAJJ001	0431746		A J U	M F U	Y N	could be modified			
	3933925		A J U	M F U	Y N				
RMAMG002	0431783		A J U	M F U	Y N	under creosote			
	3933727		A J U	M F U	Y N				
RKBKD001	0431756		A J U	M F U	Y N	5 openings; 1 looks like fox; the			
	3933608		A J U	M F U	Y N	others are larger + flatter			
RDBKD001	0431752	DETO	A J U	M F U	Y N	DETO in burrow under creosote	1		
	3933425		A J U	M F U	Y N	looks like DETO identified earlier			
			A J U	M F U	Y N	@ 0431728 / 3933418			
			A J U	M F U	Y N	~170mm x 80mm	3		
			A J U	M F U	Y N	~~RBB~~ RDLMG004 RDBMG001			

*See Reverse

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Pidgeon

Date: 3/23/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	8			

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments)		
							Burr	Scat	Shell
RDBMG003	0431818		A J U	M F U	Y N	under creosote bush	5		
	3933405		A J U	M F U	Y N				
RBBMG001	0431828	BHOW	A J U	M F U	Y N	old owl pellets; also KF scat			
	3933634		A J U	M F U	Y N	2 opening + 3 collapsed			
RMAKD004	0431807		A J U	M F U	Y N	large hole			
	3933632		A J U	M F U	Y N				
RKBMG002	0431814		A J U	M F U	Y N	partially collapsed			
	3933685		A J U	M F U	Y N				
RDLKD002	0431808	DETO	A (J) U	M F (U)	(Y) N	see health sheet labeled by code			
	3933741		A J U	M F U	Y N				
RDBKD002	0431810	DETO	A J U	M F U	Y N	under creosote ~10" from DETO	1		
	3933741		A J U	M F U	Y N				
RMARW004	0431816		A J U	M F U	Y N	under creosote			
	3934311		A J U	M F U	Y N				
RMAJH002	0431841		A J U	M F U	Y N	large burrow under creosote			
	3934323		A J U	M F U	Y N				
RKBRW003	0431815		A J U	M F U	Y N	4 opening under creosote + adjacent bush			
	3934494		A J U	M F U	Y N				
RMARW005	0431805		A J U	M F U	Y N	ends @ 2'; some KF scat (old)			
	3734547		A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

Site: Ridgecrest

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 3/23/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	8			

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments)		
							Burr	Scat	Shell
RDLMG002	0431816	DETO	A (J) U	M F (U)	(Y) N	see health sheet w/ code			
	3934619		A J U	M F U	Y N	out in open near shrub			
RDBMG004	0431818		A J U	M F U	Y N	↑ tortoise went into burrow	1		
	39346116		A J U	M F U	Y N	@ base of shrub (~180 mm × 70 mm)			
RDBRW003	0431813	DETO	A J U	M F U	Y N	in open area; grey feels ~3 m	2	3	
	9934733		A J U	M F U	Y N	5" x 9"			
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

(1) RDLMG001

(DETO) MCL 110

possible ~~female~~ male

damage on

immature/sub adult

clear eyes

nostrils ?

all limbs intact

seriously damaged & chipped

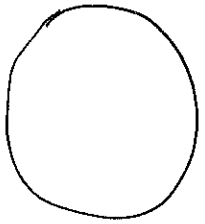
bone exposed

exposed bone (last (H) 4 months)

68.9°F ground temperature

RDLKD002

(DETO) MCL 4 1/4" x 3 1/2"



shell looks good

eyes ?

nostrils ?

all limbs intact

RDLMG002

(DETO) MCL measurements similar to RDLKD002

shell looks good

~~DD~~ x20

miniature

clear eyes

nostrils clear

all limbs intact

Data Sheet for Live Desert Tortoise

Located by Micheal Gallager Tortoise GPS ID # RDLmG001

Project site name Ridgecrest (Sm) Date 3/23/09
Time 11:10 AM

Map ID (Tile) Sex m ♂

GPS Unit UTM n e

Elevation m Accuracy +/- m
County State

Tortoise Location Burrow Data Survey Type

Cover site type
☒ burrow ☐ GPS ID# RDLmG001 ☐ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
☒ burrow	GPS ID #	☐ Tortoise Habitat Assessment
- located 1 foot	Orientation NW	☒ Tortoise Focused Survey
minumum from DETO	Length (depth) NA (not taken)	☐ Burrowing Owl Focused Survey
	Width 180 mm	☐ Botanical Survey
	Height 70 mm	☐ Mojave Ground Squirrel Survey
	Location on-site, Creosote scrub	☐ Other
	Soil Cover loose dirt, compact burrow entrance	☐ Focused tortoise survey

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by .....
Processed by .....
Study site name [ ]

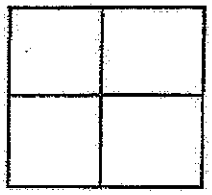
Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
..... meters North ..... meters East

UTM's ..... n ..... e

County ..... State .....

☒ On Plot ○ Off Plot (on-site)



Show location of tortoise in quadrat

Tortoise ID # RDLMG001
Year first marked .....
Verification of ID ☐
Capture type ..... Sex M ♂
Date (dd/mm/yy) 3/23/09
Time (PST): Start 11:10 End 11:25
Shell wear class .....
Process time 15 ~~hours~~ min
Frequency NA
Transmitter # NA

BEAK & NARES

Beak/nares wet	○ Yes	○ No	● Unk
Beak/nose damp	○ Yes	○ No	● Unk
Nasal exudate present	○ Yes	○ No	● Unk
Exudate color	☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green		
Bubble(s) from nares	○ Yes	○ No	● Unk
One nare occluded	○ Yes	○ No	● Unk
Both nares occluded	○ Yes	○ No	● Unk
Dirt on nose/beak	○ Yes	○ No	● Unk
Dirt in nares	○ Yes	○ No	● Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	● Yes	○ No	○ Unk
Moisture on forelegs	○ Yes	● No	○ Unk
Dried exud. on scales	○ Yes	● No	○ Unk
Scales cracking	○ Yes	● No	○ Unk

BREATHING

Smooth	● Yes	○ No	○ Unk
Wheezing	○ Yes	● No	○ Unk
Rasping, clicking	○ Yes	● No	○ Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	○ Yes	● No	○ Unk
Eyelids swollen	○ Yes	● No	○ Unk
Eyes/lids wet	○ Yes	● No	○ Unk
Discharge from eyes	○ Yes	● No	○ Unk
Eyes sunken	○ Yes	● No	○ Unk
Eyes clear, bright	● Yes	○ No	○ Unk
Eyes dull, cloudy	○ Yes	● No	○ Unk
Chin glands draining	○ Yes	○ No	● Unk

INTEGUMENT

Integument dull	○ Yes	○ No	○ Unk
Integument glossy	○ Yes	○ No	○ Unk
Normal elasticity	○ Yes	○ No	○ Unk
Abnormal skin peeling	○ Yes	○ No	○ Unk

POSTURE/BEHAVIOR

Alert, responsive	● Yes	○ No	○ Unk
Lethargic	○ Yes	● No	○ Unk
Can withdraw tightly into shell	● Yes	○ No	○ Unk
Limbs, head hanging loose	○ Yes	● No	○ Unk

ORAL CAVITY

Observed	○ Yes	○ No	● Unk
Discharge present	○ Yes	○ No	● Unk
Membranes pink	○ Yes	○ No	● Unk
Membranes pale, white	○ Yes	○ No	● Unk
Smells/mouth rot	○ Yes	○ No	● Unk

EVIDENCE OF SHELL DISEASE

Lesions present	○ Yes	● No	○ Unk
Lesions active	○ Yes	● No	○ Unk
Lesions healed	○ Yes	● No	○ Unk
Scute laminae peeling	○ Yes	● No	○ Unk
Scutes missing/peeling	○ Yes	● No	○ Unk
Pitting	○ Yes	● No	○ Unk
Scutes depressed/concave	○ Yes	● No	○ Unk
Fungal areas	○ Yes	● No	○ Unk

EVIDENCE OF TRAUMA

Head	○ Yes	● No	○ Unk
Gular	● Yes	○ No	○ Unk
Forelimbs	○ Yes	● No	○ Unk
Hindlimbs	○ Yes	● No	○ Unk
Shell	● Yes	○ No	○ Unk
Scute/bone replacement	● Yes	○ No	○ Unk

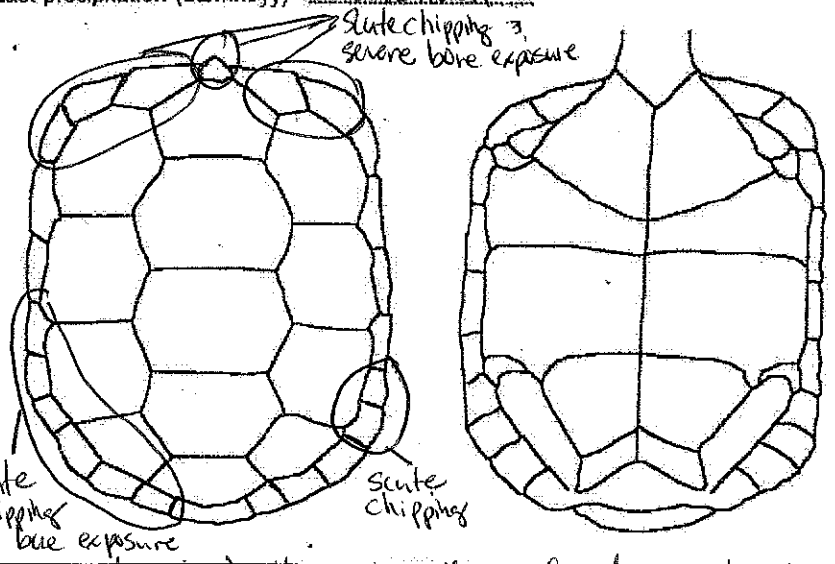
Describe: Scutes appear to be healing w/ bone exposure

Soil dryness: ○ wet ● damp ○ dry

Last precipitation (dd/mm/yy) unknown

Urine (vol) .....
Color ..... NA
Viscosity .....
Particulates .....
Color .....
Nasal wash collected .....
Amt. blood/lymph taken (cc) .....
# of needle sticks .....
Time (min) of needle sticks .....
Location .....
PCV% .....
Other samples taken .....
Describe/draw parasites

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes: no evidence of shell disease due to healthy scutes all raised damage to carapace to appears to have been created by coyote teeth ? ATU use on-site

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Data Sheet for Live Desert Tortoise

Located by Michael Gallagher Tortoise GPS ID # RDLMG003

Project site name Ridgecrest (SM) Date 3/24/09
Time 12:15 PM

Map ID C11 (tel) Sex F

GPS Unit SM 8 UTM 0431975 n 3934180 e

Elevation 831 m Accuracy +/- ____ m
County ____ State CA

Tortoise Location Burrow Data Survey Type

Cover site type
☐ burrow ☐ GPS ID# ____ ☐ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
☐ burrow	GPS ID # ____	☐ Tortoise Habitat Assessment
	Orientation	☒ Tortoise Focused Survey
	Length (depth)	☐ Burrowing Owl Focused Survey
	Width	☐ Botanical Survey
	Height	☐ Mojave Ground Squirrel Survey
	Location	☐ Other ____
	Soil Cover	☐ Focused tortoise survey

size
~200-220 mm

Soil temp
90.5°F

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by Michael Gallagher
Processed by
Study site name SM Ridgeline

Township ____ Range ____
Section ____ Quadrat ____

Coordinates (Reference SW corner)
____ meters North ____ meters East

UTM's 0431975 n 3934180 e

County ____ State ____

☒ On Plot ○ Off Plot (on-site)

Show location of tortoise in quadrat

Tortoise ID # RDLM4003
Year first marked
Verification of ID ☐
Capture type ____ Sex F
Date (dd/mm/yy) 3/24/09
Time (PST): Start 12:15 pm End 12:30 pm
Shell wear class
Process time 15 ~~hours~~ minutes
Frequency
Transmitter #

BEAK & NARES

Beak/nares wet	○ Yes	☒ No	○ Unk
Beak/nose damp	○ Yes	☒ No	○ Unk
Nasal exudate present	○ Yes	☒ No	○ Unk
Exudate color	☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green		
Bubble(s) from nares	○ Yes	☒ No	○ Unk
One nare occluded	○ Yes	☒ No	○ Unk
Both nares occluded	○ Yes	☒ No	○ Unk
Dirt on nose/beak	○ Yes	☒ No	○ Unk
Dirt in nares	○ Yes	☒ No	○ Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	○ Yes	☒ No	○ Unk
Moisture on forelegs	○ Yes	☒ No	○ Unk
Dried exud. on scales	○ Yes	☒ No	○ Unk
Scales cracking	○ Yes	☒ No	○ Unk

BREATHING

Smooth	☒ Yes	○ No	○ Unk
Wheezing	○ Yes	☒ No	○ Unk
Rasping, clicking	○ Yes	☒ No	○ Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	○ Yes	○ No	○ Unk
Eyelids swollen	○ Yes	○ No	○ Unk
Eyes/lids wet	○ Yes	○ No	○ Unk
Discharge from eyes	○ Yes	○ No	○ Unk
Eyes sunken	○ Yes	○ No	○ Unk
Eyes clear, bright	☒ Yes	○ No	○ Unk
Eyes dull, cloudy	○ Yes	○ No	○ Unk
Chin glands draining	○ Yes	○ No	○ Unk

INTEGUMENT

Integument dull	○ Yes	○ No	○ Unk
Integument glossy	☒ Yes	○ No	○ Unk
Normal elasticity	○ Yes	○ No	○ Unk
Abnormal skin peeling	○ Yes	☒ No	○ Unk

POSTURE/BEHAVIOR

Alert, responsive	☒ Yes	○ No	○ Unk
Lethargic	○ Yes	○ No	○ Unk
Can withdraw tightly into shell	○ Yes	○ No	○ Unk
Limbs, head hanging loose	○ Yes	○ No	○ Unk

ORAL CAVITY

Observed	○ Yes	○ No	○ Unk
Discharge present	○ Yes	○ No	○ Unk
Membranes pink	○ Yes	○ No	○ Unk
Membranes pale, white	○ Yes	○ No	○ Unk
Smells/mouth rot	○ Yes	○ No	○ Unk

EVIDENCE OF SHELL DISEASE

Lesions present	○ Yes	○ No	○ Unk
Lesions active	○ Yes	○ No	○ Unk
Lesions healed	○ Yes	○ No	○ Unk
Scute laminae peeling	○ Yes	○ No	○ Unk
Scutes missing/peeling	○ Yes	○ No	○ Unk
Pitting	○ Yes	○ No	○ Unk
Scutes depressed/concave	○ Yes	○ No	○ Unk
Fungal areas	○ Yes	○ No	○ Unk

EVIDENCE OF TRAUMA

Head	○ Yes	○ No	○ Unk
Gular	○ Yes	○ No	○ Unk
Forelimbs	○ Yes	○ No	○ Unk
Hindlimbs	○ Yes	○ No	○ Unk
Shell	○ Yes	○ No	○ Unk
Scute/bone replacement	○ Yes	○ No	○ Unk

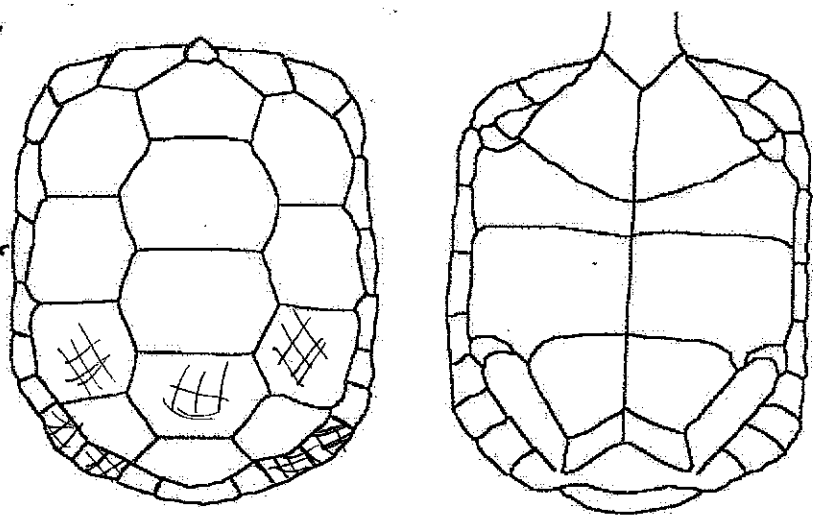
Describe:

Soil dryness: ○ wet ○ damp ☒ dry

Last precipitation (dd/mm/yy)

Urine (vol) n/a
Color
Viscosity
Particulates
Color
Nasal wash collected
Amt. blood/lymph taken (cc)
# of needle sticks
Time (min) of needle sticks
Location
PCV%
Other samples taken
Describe/draw parasites

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes indicates wear mark in shell @ peak of DETO

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C8	JM 431845	X	431895 JS	X	431945 JS	X	431995 JS	X	GPS 8
9	KD 855	X	KD 905	X	KD 955	X	432005 KD	X	10
10	RW 865	X	RW 915	X	RW 965	X	432015 RW	X	11
11	MG 875	X	MG 925	X	MG 975	X	432025 MG	X	12
12	JH 885	X	JH 935	X	JH 985	X	432035 JH	X	13

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridgecrest

Date: 3/24/09

Page 1 of _____

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO				

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	8:00 AM	53.20 F	no wind	clear + sunny / no wind
Mid-day	11:15 AM	61.9°F	5-10 mph	clear
End	3:10 PM	73.4°F	—	clear

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RMARW006	0431873		A J U	M F U	Y N	under creosote bush			
	3934665		A J U	M F U	Y N				
RKBJJ001	0431852 / 3934429	KF	A J U	M F U	Y N	scat w/ fur; could also be BUOW			
RDPKD001	0431860 / 3933907	DETO ?	A J U	M F U	Y N	pellet under Senna bush			
RDCRW001	0431863 / 3933686	DETO	A J U	M F U	Y N	pieces of plastron (~30% of plastron)			5
RDCRW002	0431865 / 3933522	DETO	A J U	M F U	Y N	DETO shell; mostly intact, missing front ½ (~70mm)			2
RNEJH001	0431885 / 3933411		A J U	M F U	Y N	possible horned lark; low to the ground			
RKBKD002	0431857 / 3933246		A J U	M F U	Y N	3 large entrances; some KF scat			
RDBRW004	0431920 / 3933287	DETO	A J U	M F U	Y N	old scat present; under creosote bush	2	5	
RMBKD005	0431905 / 3933642		A J U	M F U	Y N	under creosote			
RDBRW005	0431917 / 3934456		A J U	M F U	Y N	(~220mm x 116mm); mammal scat around	4		
RKBJH002	0431930 / 3934579		A J U	M F U	Y N	large hole w/ 3 entrances			
RBBJH001	0431940 / 3934818	BUOW	A J U	M F U	Y N	6 openings (active); 1 opening has a lg. collection			
			A J U	M F U	Y N	of tortoise scat; live BUOW seen flying from location;			
			A J U	M F U	Y N	feathers, whitewash + pellets present			
RMAJJ002	0431898 / 3935167		A J U	M F U	Y N	under creosote bush; some KF scat			
RDLMG003	0431975 / 3934180	DETO	A J U	M F U	Y N	see health sheet			
RKBKD003	0431958 / 3934028		A J U	M F U	Y N	6 openings under creosote + bush; also signs of whitewash			
RKBJJ002	0431955 / 3933513		A J U	M F U	Y N	8 openings; lots of fox scat (also entrances w/ DETO scat)			
RDSJJ001	0431956 / 3933518		A J U	M F U	Y N	scat @ opening		3	
RDCKD001	0431955 / 3933157		A J U	M F U	Y N	3 pieces of plastron (mixed pieces)			5

*See Reverse

- horned lark
- Migrant pass
- whiptail

+ 2 rock piles; maybe for arch. to look at
RDDRW001 0431973 / 3933121

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridgecrest

Date: 3/24/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	8			

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments)		
							Burr	Scat	Shell
RMAJS003	0431998 / 3932978		A J U	M F U	Y N	fox scat			
RDBMG005	0432020 / 3934126	DETO	A J U	M F U	Y N	no scat, however there is sign of tracks	1		
RDBJH002	0432023 / 3934164	DETO	A J U	M F U	Y N	human does ~~not~~ go by pile for, scat present	3	3	
RNEKD001	0432008 / 3934479		A J U	M F U	Y N	[illegible] nest in gravel w/ 4 eggs			
RKBMG003	0432025 / 3935214		A J U	M F U	Y N				
RMBMG004	0431971 / 3935262		A J U	M F U	Y N	under a shrub			
RMAKD006	0431954 / 3935235		A J U	M F U	Y N	under shrub			
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by: Michael Gallagher
Processed by:
Study site name: SM Ridgeline
Township: Range:
Section: Quadrat:
Coordinates (Reference SW corner)
meters North: meters East:
UTM's: 0431975 n 3934180 e
County: State:
☒ On Plot ○ Off Plot (on-site)

Show location of tortoise in quadrat

Tortoise ID #: RDLMG003
Year first marked:
Verification of ID: ☐
Capture type: Sex: F
Date (dd/mm/yy): 3/24/09
Time (PST): Start 12:15 pm End 12:30pm
Shell wear class:
Process time: 15 minutes / hours
Frequency:
Transmitter #:

BEAK & NARES

Beak/nares wet	○ Yes	☒ No	○ Unk
Beak/nose damp	○ Yes	☒ No	○ Unk
Nasal exudate present	○ Yes	☒ No	○ Unk

Exudate color: ☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green

Bubble(s) from nares	○ Yes	☒ No	○ Unk
One nare occluded	○ Yes	☒ No	○ Unk
Both nares occluded	○ Yes	☒ No	○ Unk
Dirt on nose/beak	○ Yes	☒ No	○ Unk
Dirt in nares	○ Yes	☒ No	○ Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	○ Yes	☒ No	○ Unk
Moisture on forelegs	○ Yes	☒ No	○ Unk
Dried exud. on scales	○ Yes	☒ No	○ Unk
Scales cracking	○ Yes	☒ No	○ Unk

BREATHING

Smooth	☒ Yes	○ No	○ Unk
Wheezing	○ Yes	☒ No	○ Unk
Rasping, clicking	○ Yes	☒ No	○ Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	○ Yes	○ No	○ Unk
Eyelids swollen	○ Yes	○ No	○ Unk
Eyes/lids wet	○ Yes	○ No	○ Unk
Discharge from eyes	○ Yes	○ No	○ Unk
Eyes sunken	○ Yes	○ No	○ Unk
Eyes clear, bright	☒ Yes	○ No	○ Unk
Eyes dull, cloudy	○ Yes	○ No	○ Unk
Chin glands draining	○ Yes	○ No	○ Unk

INTEGUMENT

Integument dull	○ Yes	○ No	○ Unk
Integument glossy	☒ Yes	○ No	○ Unk except forearm
Normal elasticity	○ Yes	○ No	○ Unk
Abnormal skin peeling	○ Yes	☒ No	○ Unk

POSTURE/BEHAVIOR

Alert, responsive	☒ Yes	○ No	○ Unk
Lethargic	○ Yes	○ No	○ Unk
Can withdraw tightly into shell	○ Yes	○ No	○ Unk
Limbs, head hanging loose	○ Yes	○ No	○ Unk

ORAL CAVITY

Observed	○ Yes	○ No	○ Unk
Discharge present	○ Yes	○ No	○ Unk
Membranes pink	○ Yes	○ No	○ Unk
Membranes pale, white	○ Yes	○ No	○ Unk
Smells/mouth rot	○ Yes	○ No	○ Unk

EVIDENCE OF SHELL DISEASE

Lesions present	○ Yes	○ No	○ Unk
Lesions active	○ Yes	○ No	○ Unk
Lesions healed	○ Yes	○ No	○ Unk
Scute laminae peeling	○ Yes	○ No	○ Unk
Scutes missing/peeling	○ Yes	○ No	○ Unk
Pitting	○ Yes	○ No	○ Unk
Scutes depressed/concave	○ Yes	○ No	○ Unk
Fungal areas	○ Yes	○ No	○ Unk

EVIDENCE OF TRAUMA

Head	○ Yes	○ No	○ Unk
Gular	○ Yes	○ No	○ Unk
Forelimbs	○ Yes	○ No	○ Unk
Hindlimbs	○ Yes	○ No	○ Unk
Shell	○ Yes	○ No	○ Unk
Scute/bone replacement	○ Yes	○ No	○ Unk

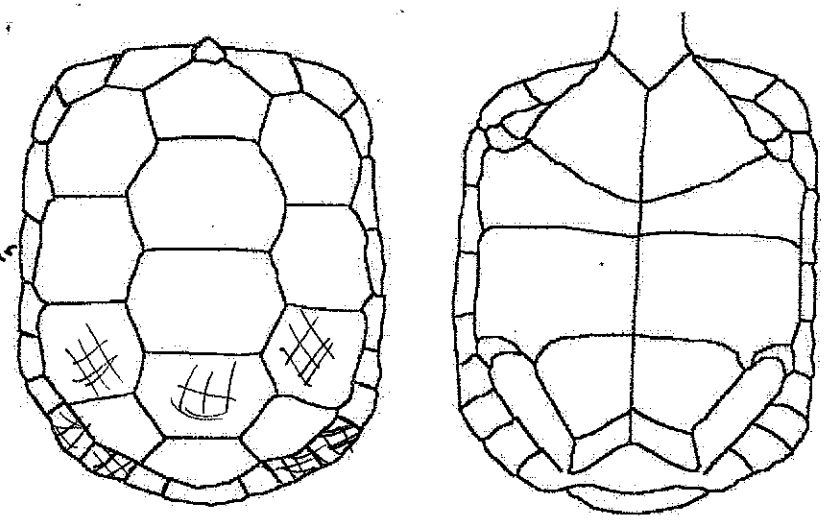
Describe:

Soil dryness: ○ wet ○ damp ☒ dry

Last precipitation (dd/mm/yy):

Urine (vol): n/a
Color:
Viscosity:
Particulates:
Color:
Nasal wash collected:
Amt. blood/lymph taken (cc):
# of needle sticks:
Time (min) of needle sticks:
Location:
PCV%:
Other samples taken:
Describe/draw parasites:

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell diseases; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes: indicate wear mark in shell @ back of DETO

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Data Sheet for Live Desert Tortoise

Located by Michael Gallagher Tortoise GPS ID # RDLMG003

Project site name Ridgecrest (SM) Date 3/24/09
Time 12:15 PM

Map ID C11 (tel) Sex F

GPS Unit SM 8 UTM 0431975 n 3934180 e

Elevation 831 m Accuracy +/- ____ m
County ____ State CA

Tortoise Location Burrow Data Survey Type

Cover site type
☐ burrow ☐ GPS ID# ____ ☐ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
☐ burrow	GPS ID # ____	☐ Tortoise Habitat Assessment
	Orientation	☒ Tortoise Focused Survey
	Length (depth)	☐ Burrowing Owl Focused Survey
	Width	☐ Botanical Survey
	Height	☐ Mojave Ground Squirrel Survey
	Location	☐ Other ____
	Soil Cover	☐ Focused tortoise survey

size
~200-220 mm

soil temp
90.5°F

Data Sheet for Live Desert Tortoise

Located by Ron W Tortoise GPS ID # RDLRW001

Project site name Ridgecrest Date 03/25/09
Time 9:50 AM

Map ID C11 Sex F

GPS Unit SM 8 UTM 0432109 n 3933604 e

Elevation _____m Accuracy +/-_____m
County_____State CA

Tortoise Location Burrow Data Survey Type

Cover site type
☐ burrow ☐GPS ID# _____ ☐ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
☐ burrow	GPS ID #_____	☐ Tortoise Habitat Assessment
	Orientation	☒ Tortoise Focused Survey
	Length (depth)	☐ Burrowing Owl Focused Survey
	Width	☐ Botanical Survey
	Height	☐ Mojave Ground Squirrel Survey
	Location	☐ Other_____
	Soil Cover	☐ Focused tortoise survey

soil temp 62.6°F

size: 210-220 mm

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by Rob W.
Processed by
Study site name Ridgeline SM
Township ..... Range .....
Section ..... Quadrat .....
Coordinates (Reference SW corner)
..... meters North ..... meters East
UTM's 0432109 n 3933604 e
County ..... State CA
☒ On Plot ○ Off Plot (on-site)

Show location of tortoise in quadrat

Tortoise ID # RDLRW001
Year first marked
Verification of ID ☐
Capture type ..... Sex F?
Date (dd/mm/yy) 03/25/09
Time (PST): Start 9:50 End 10:00 AM
Shell wear class
Process time 10 ~~hours~~ min
Frequency
Transmitter #

BEAK & NARES

Beak/nares wet	○ Yes	● No	○ Unk
Beak/nose damp	○ Yes	● No	○ Unk
Nasal exudate present	○ Yes	● No	○ Unk
Exudate color	☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green		
Bubble(s) from nares	○ Yes	● No	○ Unk
One nare occluded	○ Yes	● No	○ Unk
Both nares occluded	○ Yes	● No	○ Unk
Dirt on nose/beak	○ Yes	● No	○ Unk
Dirt in nares	○ Yes	● No	○ Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	○ Yes	● No	○ Unk
Moisture on forelegs	○ Yes	● No	○ Unk
Dried exud. on scales	○ Yes	● No	○ Unk
Scales cracking	○ Yes	● No	○ Unk

BREATHING

Smooth	☒ Yes	○ No	○ Unk
Wheezing	○ Yes	● No	○ Unk
Rasping, clicking	○ Yes	● No	○ Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	☒ Yes	○ No	○ Unk
Eyelids swollen	○ Yes	● No	○ Unk
Eyes/lids wet	○ Yes	● No	○ Unk
Discharge from eyes	○ Yes	● No	○ Unk
Eyes sunken	○ Yes	● No	○ Unk
Eyes clear, bright	○ Yes	● No	○ Unk
Eyes dull, cloudy	○ Yes	● No	○ Unk
Chin glands draining	☒ Yes	☒ No	☒ Unk

INTEGUMENT

Integument dull	○ Yes	○ No	○ Unk
Integument glossy	○ Yes	○ No	○ Unk
Normal elasticity	○ Yes	○ No	○ Unk
Abnormal skin peeling	☒ Yes	○ No	○ Unk

POSTURE/BEHAVIOR

Alert, responsive	☒ Yes	○ No	○ Unk
Lethargic	○ Yes	● No	○ Unk
Can withdraw tightly into shell	○ Yes	● No	○ Unk
Limbs, head hanging loose	○ Yes	● No	○ Unk

ORAL CAVITY

Observed	☒ Yes	○ No	○ Unk
Discharge present	○ Yes	○ No	○ Unk
Membranes pink	○ Yes	○ No	○ Unk
Membranes pale, white	○ Yes	○ No	○ Unk
Smells/mouth rot	○ Yes	○ No	○ Unk

EVIDENCE OF SHELL DISEASE

Lesions present	○ Yes	○ No	○ Unk
Lesions active	○ Yes	○ No	○ Unk
Lesions healed	○ Yes	○ No	○ Unk
Scute laminae peeling	○ Yes	○ No	○ Unk
Scutes missing/peeling	☒ Yes	○ No	○ Unk
Pitting	○ Yes	○ No	○ Unk
Scutes depressed/concave	☒ Yes	○ No	○ Unk
Fungal areas	○ Yes	☒ No	○ Unk

EVIDENCE OF TRAUMA

Head	○ Yes	● No	○ Unk
Gular	○ Yes	● No	○ Unk
Forelimbs	○ Yes	● No	○ Unk
Hindlimbs	○ Yes	● No	○ Unk
Shell	○ Yes	● No	○ Unk
Scute/bone replacement	○ Yes	● No	○ Unk

Describe:

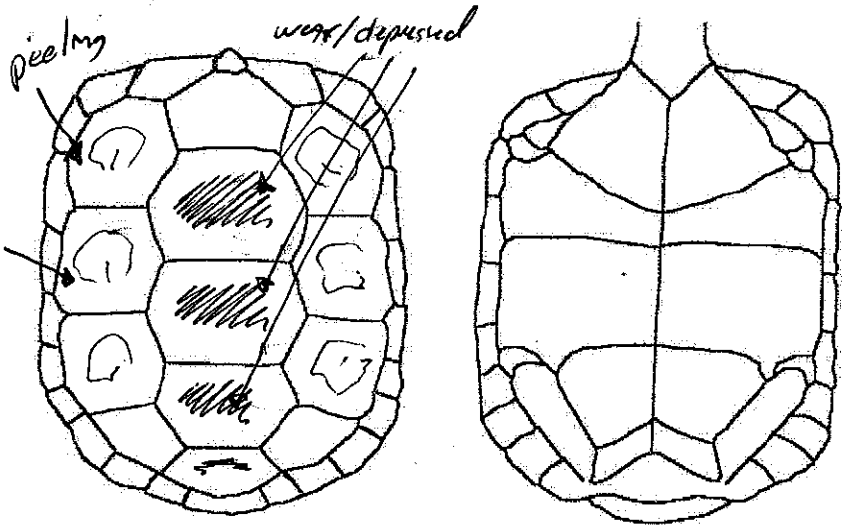
Soil dryness: ○ wet ☒ damp ○ dry

Last precipitation (dd/mm/yy)

Urine (vol)
Color
Viscosity
Particulates
Color
Nasal wash collected
Amt. blood/lymph taken (cc)
# of needle sticks
Time (min) of needle sticks
Location
PCV%
Other samples taken
Describe/draw parasites

n/a

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes

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C8	SJ	432045	Y	SJ	432095	X	SJ	432145	X	432195	X
9	KD	055	Y	KD	105	Y	KD	155	X	205	X
10	RW	065	Y	RW	115	X	RW	165	X	215	X
11	MG	075	Y	MG	125	Y	MG	175	Y	225	X
12	JH	085	Y	JH	135	Y	JH	185	X	235	X

432245	X
432255	X
265	Y
275	X
285	X
295	X
305	X
315	X

GPS units
RW - #8 (recently waypoints)
SJ - 10
KD - 11
JH - 12
MG - 13

tails C8, 9 + 10 + 11 + 12

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridgecrest

Date: 3/25/09

Page 1 of 2

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	8			

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	8:00 AM	53.6°F	slight Range ~5mph	slightly hazy
Mid-day	11:10 AM	69.1°F	~20 mph	clear
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RNE KD 002	0432053/3934349		A J U	M F U	Y N	unknown bird nest on ground w/ 4 eggs			
RNERW001	0432067/3933507		A J U	M F U	Y N	unknown bird nest on ground w/ 5 eggs			
RKBJH003	0432084/3933192		A J U	M F U	Y N	2 entrances; pit for scat			
RMAJH003	0432135/3933125		A J U	M F U	Y N	large hole under creosote shrub			
RDBMG006	0432124/3933287	DETO	A J U	M F U	Y N	under shrub; old scat	3	3	
RDLRW001	0432109/3933604	DETO	A J U	M F U	Y N	see health form			
RDBKD003	0432098/3933976	DETO	A J U	M F U	Y N	~220 mm male; under creosote bush	2		
RNEMG001	0432126/3935155		A J U	M F U	Y N	small nest on ground under shrub; 5 eggs			
RKBJH004	0432140/3935259		A J U	M F U	Y N	old scat + BUOW pellets (1 entrance)			
RDBMG007	0432073/3935266		A J U	M F U	Y N	under Senna shrub	4		
~~RDBMG007~~	0432073/3935262		A J U	M F U	Y N	under creosote shrub; ~240mm × 150mm	2	2,3,4,5	
RDBMG008			A J U	M F U	Y N				
RMARW007	0432170/3933118		A J U	M F U	Y N	1 opening under creosote			
RKBMG004	0432182/3932995		A J U	M F U	Y N	1 opening under creosote			
RMAJJ004	0432199/3933155		A J U	M F U	Y N	1 opening under creosote shrub			
RMAJH004	0432241/3933159		A J U	M F U	Y N	1 opening under creosote near dirt road			
RMAJH005	0432237/3934917		A J U	M F U	Y N	1 opening			
RMARW008	0432217/3935119		A J U	M F U	Y N	1 opening under shrub			
RMARW009	0432254/3934062		A J U	M F U	Y N	mammal burrow			
RNESJ001	0432242/3933322		A J U	M F U	Y N	Possible HOLA nest 4 eggs (cup shaped ground)			
RDCMG001	0432326/3932972		A J U	M F U	Y N	Class 2 ~60% (plastron + marginal scutes top is missing) (scutes have signs of shotgun wounds) MCL ~170-190			

*See Reverse

RMARW010 0432286/3933777 mammal burrow
RMARW011 0432296/3934728 mammal burrow (owl pellet at entrance)
RMARW012 0432295/3935203 mammal burrow
R

Site: Ridgecrest

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 25 MARCH 09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End	1630	74°F	8-10 Mph/west	20% high thin

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDBMG009	0432315/3935243		A J U	M F U	Y N	shallow burrow ~200mm wide / 150mm tall	(Class 2)		
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

Data Sheet for Live Desert Tortoise

Located by Ron W Tortoise GPS ID # RDLRW001

Project site name Ridgecrest Date 03/25/09
Time 9:50 AM

Map ID C11 Sex F

GPS Unit SM 8 UTM 0432109 n 3933604 e

Elevation _____m Accuracy +/-_____m
County_____State CA

Tortoise Location Burrow Data Survey Type

Cover site type
☐ burrow ☐GPS ID# _____ ☐ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
☐ burrow	GPS ID #_____	☐ Tortoise Habitat Assessment
	Orientation	☒ Tortoise Focused Survey
	Length (depth)	☐ Burrowing Owl Focused Survey
	Width	☐ Botanical Survey
	Height	☐ Mojave Ground Squirrel Survey
	Location	☐ Other_____
	Soil Cover	☐ Focused tortoise survey

Soil temp 62.6°F

size: 210-220 mm

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by: Rob W.
Processed by:
Study site name: Ridgecrest SM
Township: Range:
Section: Quadrat:
Coordinates (Reference SW corner)
meters North: meters East:
UTM's: 0432109 n 3933604 e
County: State: CA
☒ On Plot ○ Off Plot (on-site)

Show location of tortoise in quadrat

Tortoise ID #: RDLRW001
Year first marked:
Verification of ID: ☐
Capture type: Sex: F?
Date (dd/mm/yy): 03/25/09
Time (PST): Start 9:50 End 10:00 AM
Shell wear class:
Process time: 10 min ~~hours~~
Frequency:
Transmitter #:

BEAK & NARES

Beak/nares wet	○ Yes	☒ No	○ Unk
Beak/nose damp	○ Yes	☒ No	○ Unk
Nasal exudate present	○ Yes	☒ No	○ Unk

Exudate color: ☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green

Bubble(s) from nares	○ Yes	☒ No	○ Unk
One nare occluded	○ Yes	☒ No	○ Unk
Both nares occluded	○ Yes	☒ No	○ Unk
Dirt on nose/beak	○ Yes	☒ No	○ Unk
Dirt in nares	○ Yes	☒ No	○ Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	○ Yes	☒ No	○ Unk
Moisture on forelegs	○ Yes	☒ No	○ Unk
Dried exud. on scales	○ Yes	☒ No	○ Unk
Scales cracking	○ Yes	☒ No	○ Unk

BREATHING

Smooth	☒ Yes	○ No	○ Unk
Wheezing	○ Yes	☒ No	○ Unk
Rasping, clicking	○ Yes	☒ No	○ Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	☒ Yes	○ No	○ Unk
Eyelids swollen	○ Yes	☒ No	○ Unk
Eyes/lids wet	○ Yes	☒ No	○ Unk
Discharge from eyes	○ Yes	☒ No	○ Unk
Eyes sunken	○ Yes	☒ No	○ Unk
Eyes clear, bright	○ Yes	☒ No	○ Unk
Eyes dull, cloudy	○ Yes	☒ No	○ Unk
Chin glands draining	☒ Yes	☒ No	○ Unk

INTEGUMENT

Integument dull	○ Yes	○ No	○ Unk
Integument glossy	○ Yes	○ No	○ Unk
Normal elasticity	○ Yes	○ No	○ Unk
Abnormal skin peeling	☒ Yes	○ No	○ Unk

POSTURE/BEHAVIOR

Alert, responsive	☒ Yes	○ No	○ Unk
Lethargic	○ Yes	☒ No	○ Unk
Can withdraw tightly into shell	○ Yes	☒ No	○ Unk
Limbs, head hanging loose	○ Yes	☒ No	○ Unk

ORAL CAVITY

Observed	☒ Yes	○ No	○ Unk
Discharge present	○ Yes	○ No	○ Unk
Membranes pink	○ Yes	○ No	○ Unk
Membranes pale, white	○ Yes	○ No	○ Unk
Smells/mouth rot	○ Yes	○ No	○ Unk

EVIDENCE OF SHELL DISEASE

Lesions present	○ Yes	○ No	○ Unk
Lesions active	○ Yes	○ No	○ Unk
Lesions healed	○ Yes	○ No	○ Unk
Scute laminae peeling	○ Yes	○ No	○ Unk
Scutes missing/peeling	☒ Yes	○ No	○ Unk
Pitting	○ Yes	○ No	○ Unk
Scutes depressed/concave	☒ Yes	○ No	○ Unk
Fungal areas	○ Yes	☒ No	○ Unk

EVIDENCE OF TRAUMA

Head	○ Yes	☒ No	○ Unk
Gular	○ Yes	☒ No	○ Unk
Forelimbs	○ Yes	☒ No	○ Unk
Hindlimbs	○ Yes	☒ No	○ Unk
Shell	○ Yes	☒ No	○ Unk
Scute/bone replacement	○ Yes	☒ No	○ Unk

Describe:

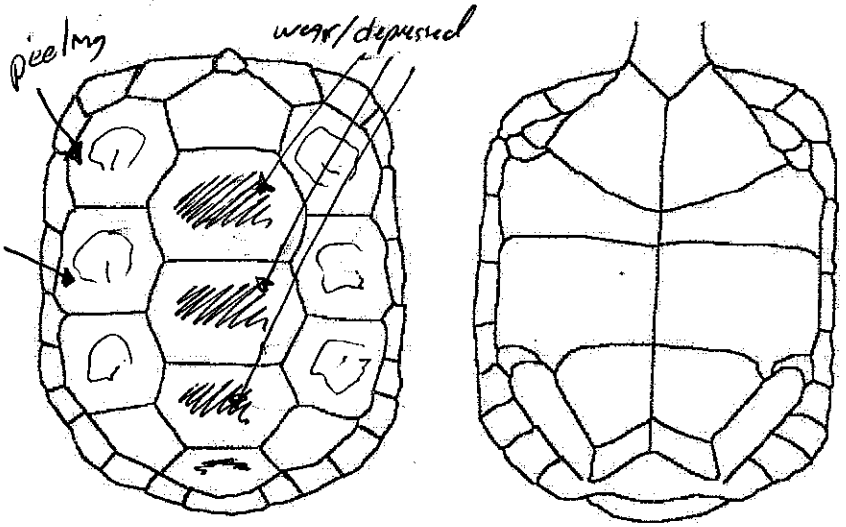
Soil dryness: ○ wet ☒ damp ○ dry

Last precipitation (dd/mm/yy):

Urine (vol)
Color
Viscosity
Particulates
Odor
Nasal wash collected
Amt. blood/lymph taken (cc)
# of needle sticks
Time (min) of needle sticks
Location
PCV%
Other samples taken
Describe/draw parasites

n/a

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes:

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tlbs

C8	432335	X	432 365	X	432 405	X	432 445	X	432 485	X	432 525	X
9	335	X	375	X	415	X	455	X	495	X	535	X
10	345	X	385	X	425	X	465	X	505	X	545	X
11	355	X	395	X	435	X	475	X	515	X	555	X
12												

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridgecrest Date: 3/26/09 Page 1 of 2

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO			ROB WOLFSON - WAYPOINTS - SM 8 MIKE E. - SM 13 JIM J. - SM 10 JAMES H. - SM 12	

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RMARW013	0432334/3934627		A J U	M F U	Y N	Mammal burrow w/ ~~owl~~ owl pellet + whitewash			
ROBRW006	432374/3934441		A J U	M F U	Y N	old burrow filled in & no sign in area			
RMARW014	432371/3934606		A J U	M F U	Y N	mammal burrow			
RMARW015	432373/3934771		A J U	M F U	Y N	mammal burrow			
ROBRW007	432365/3935288		A J U	M F U	Y N	Possable Tort. burrow caved in			
RMARW016	432365/3935233		A J U	M F U	Y N	Mammal burrow: No owl sign but could be used by one			
RMAMG005	432359/3935200		A J U	M F U	Y N	mammal burrow (shallow not good for owl)			
RMAMG006	432438/3934706		A J U	M F U	Y N	Mammal burrow (shallow not good for owl)			
ROOMG001	~~432397~~ 0432439/3934631		A J U	M F U	Y N	large mine shaft straight down ~30 feet (no fence) (Danger!)			
RKBJH005	0432425/3933000		A J U	M F U	Y N	kit fox complex (No owl sign but possible owl burrow)			
RMARW017	0432448/3934174		A J U	M F U	Y N	Mammal burrow (No owl sign) Not likely for owl			
RMAJS005	0432447/3934220		A J U	M F U	Y N	Mammal burrow (No owl sign) Not likely for owl			
RMAMG007	0432471/3934826		A J U	M F U	Y N	Mammal burrow (No owl sign)			
RMAJH006	0432469/3935152		A J U	M F U	Y N	Mammal burrow (No owl sign) Not likely for owl			
RKBMG005	0432479/3935196		A J U	M F U	Y N	Burrow complex with owl sign one of the burrows has been dug out			
~~[illegible]~~	~~[illegible]~~		A J U	M F U	Y N	large enough for Coyote.			
ROBJJ001	0432452/3935225		A J U	M F U	Y N	Possable Tort. burrow owl sign pellets + whitewash at entrance			
RMARW018	0432413/3935190		A J U	M F U	Y N	Mammal burrow badly degladed			
RMAMG008	0432450/3935118		A J U	M F U	Y N	Mammal burrow (no sign associated with it)			
RMARW019	0432412/3934996		A J U	M F U	Y N	Mammal burrow (no sign)			
R~~MAJH~~	0432512 3433934		A J U	M F U	Y N	Mammal burrow (shallow) possible Tort. pellet			

*See Reverse

RMAMG009

do no further east than 432740.

James Huelsman GPS SM12
Jim Jennings GPS SM10
} KEPT GPS UNITS FOR BLYTHE SURVEYS

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridgecrest

Date: 26 MARCH 09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End		75°F	8-10 mph / NE	70% high thin Clouds

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RKBAD002	Alread recorded		A J U	M F U	Y N	Kit fox burrow complex (with white wash)			
RMAMG010	0432554, 3934526		A J U	M F U	Y N	Large Mammal burrow			
RMARW020	0432537, 3934697		A J U	M F U	Y N	Mammal burrow with white wash			
RKBRW021	0432529 3935079		A J U	M F U	Y N	Burrow complex possible tort. use No owl sign			
RMAJH007	0432545, 3935133		A J U	M F U	Y N	Mammal burrow possible tort. use			
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

Tiles
C 8
9
10
11
12

432565	X	585	X	432605	X	625	X	645			675		
575	X	595	X	615	X	635	X	655			685		

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Richmond

Date: 3/27/09

Page 1 of _____

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	8 + 13	C 8 9 10,11,12	K. Duncan & M. Halloran	UXO

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	8:00AM	56.3°F	–	clear
Mid-day	12:00 PM	67.3°F	slight breeze (5mph)	clear
End	2:30 PM	75.4°F	–	clear

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RMAMG003	0432579/3934487		A J U	M F U	Y N	under creosote			
RMAMG[redacted]	0432567/3933591		A J U	M F U	Y N	under creosote shrub			
[redacted]			A J U	M F U	Y N				
RUXOMG001	0432586/3933315		A J U	M F U	Y N	UXO team - nose cone? of bomb			
			A J U	M F U	Y N	tile C12 on line 0432585; 9:45AM			
RMAMG012	0432602/3934647		A J U	M F U	Y N	under creosote shrub			
RMAMG013	0432571/3935027		A J U	M F U	Y N	detained, under creosote shrub			
RMAMG014	0432616/3933177		A J U	M F U	Y N	goes under creosote shrub			
RDCMG00[redacted]	0432645/3933263	DET	A J U	M F U	Y N	desert tortoise carcass; scattered on cliff of			(circled)
[redacted]			A J U	M F U	Y N	bone; 250mm length x 200 width			
			A J U	M F U	Y N	75%-80% there			
RMAMG015	0432634/3934799		A J U	M F U	Y N	under shrub, goes back towards dry wash			
RMAMG016	0432622/3935225		A J U	M F U	Y N	under creosote shrub; hole goes back			
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

Tiles								
C8	0432645	✓	0432675	MG	0432695	MG	0432715	MG
9	655	✓	685	RW	705	RW	725	RW
10								
11	665	RW					735	MG
12								

* Do no further east than 432740!

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridgecrest

Date: 3/30/09

Page 1 of 1

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	13		Gallagher	Earl Dennis
	8		Wolfson	Leroy Bishop

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	0800	64°	N/20 mph	hazy
Mid-day	~~163~~	~~84~~°		
End	1635	84°	N/0-5	clear

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RMARW021	0432658/3934591		A J U	M F U	Y N	shallow hole, no sign			
RKBMG006	0432688/3933053		A J U	M F U	Y N	KF scat, tiny bit of white wash (80)			
RUKOMG002	0432693/3933500		A J U	M F U	Y N	spotted & checked by LB. Possible base plate			
RKBMG007	0432674/3935273		A J U	M F U	Y N	old, degraded			
RMAMG017	0432692/3934566		A J U	M F U	Y N	<1 meter, fresh			
RMAMG018	0432693/3934560		A J U	M F U	Y N	old & small			
RMAMG019	0432721/3934780		A J U	M F U	Y N	deteriorated, no sign			
RDSMG001	0432721/3935211		A J U	M F U	Y N	not near burrow		2	
RMAMG020	0432725/3934362		A J U	M F U	Y N	deteriorated mammal digging			
RDBRW008	0432729/3934332		A J U	M F U	Y N	possible tortoise use - under bush	4		
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

Data Sheet for Live Desert Tortoise

Located by Rob Wolfson + Michael Gallagher Tortoise GPS ID # RDLRW 002

Project site name Ridge crest Date 03/31/09

Time 0915

Map ID D7 Sex M

GPS Unit # 8 UTM 0432227 n 3935486 e

Elevation 819 m Accuracy +/- ____ m

County Kern State CA

Tortoise Location at burrow

Burrow Data app 300 m

Survey Type absence/presence

Cover site type

☒ burrow ☐ GPS ID# RDBRW009 ☒ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
☒ burrow	GPS ID # RDBRW 009	☐ Tortoise Habitat Assessment
in front of burrow	Orientation facing West	☒ Tortoise Focused Survey
	Length (depth) unknown	☐ Burrowing Owl Focused Survey
	Width app 300 + cm	☐ Botanical Survey
	Height app 90 cm	☐ Mojave Ground Squirrel Survey
	Location open ground	☐ Other ____
	Soil Cover sparse creosote	☐ Focused tortoise survey

Do not abbreviate

Data Sheet for Live Desert Tortoises

Write on this side only

Located by ROB WOLFSON
Processed by
Study site name RMGECAEST

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
..... meters North ..... meters East

UTM's 0432227 n 3935486 e
Elevation 819 m Accuracy ± ..... m
County KERN State CA

O On Plot O Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLRW002
Year first marked
Verification of ID ☐
Capture type ..... Sex ♂ M
Date (dd/mm/yy) 3/31/09
Time (PST): Start 0915 End .....
Frequency ..... Transmitter # .....
Transmitter type .....
Transmitter attached .....
Transmitter to be replaced on .....
PIT # .....

Tortoise Location

Cover site type:
- ☒ burrow
- ☐ pallet
- ☐ shrub
- ☐ caliche cave
- ☐ rock shelter

At cover site:
- ☒ entering
- ☐ exiting
- ☒ on mound
- ☐ inside

Not at cover site:
- ☐ in open
- ☐ other

Burrow Data

ID # RDBRW009
Orientation WEST
Length ? Height 90 mm
Width 300 mm Soil cover .....
Location .....

Survey Type

- O Radio track
- O Burrow search
- O Coverage 1
- O Coverage 2
- O Incidental
- ☒ Other

PRESENSE/ ABSENSE SURVEY

Tortoise Activity

- ☐ resting
- ☐ basking
- ☐ walking
- ☐ feeding
- ☒ Interacting with other tortoise
- ☐ Interacting with other animals

ID & sex of other tortoise RDLRW003 ♀
Species .....
Describe interaction:

Plants/items eaten (specific):

Color (shell & skin)

	HV	Hue	Value	Chroma	Color
V1 (center)					
V4 (center)					
LC1,2&V2 (seam)					
LM5,6 & LC2 (seam)					
Foreleg					
Hindleg					

Are you color blind? O Yes O No
Type of blindness .....

Body Measurements

MCL (mm) .....
PLN (mm) .....
Weight (g) .....
Void (g) .....
Total wt (g) .....

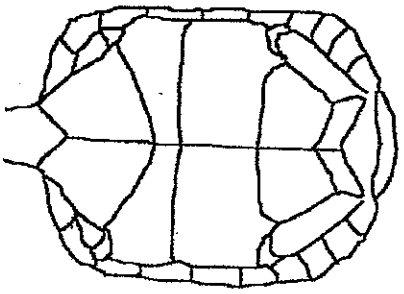
New growth
☐ present ☐ absent

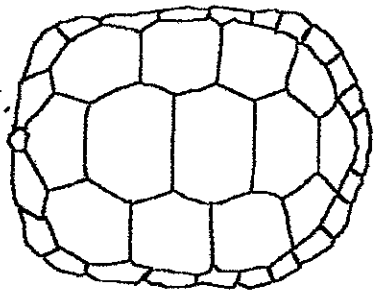
Epoxy #
☐ present ☐ legible

Behavior

Other notes

BURROW ID: RDBRW009
(SAME UTM)





LARGE ♂ TORTOISE. WENT INTO BURROW BEFORE WE COULD ID SHELL

Photos: roll ..... frames .....

Draw locations of notches (old and new), chips, and anomalies, etc.
Describe anomalies in numbering of marginals and any identification problems.

Entered by ☐ date ☐ ☐ on computer ☐
Modified by ☐ on ☐

© Berry 1997

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by: ROB WOLFSON
Processed by:
Study site name: RIDGECREST

Township: Range:
Section: Quadrat:

Coordinates (Reference SW corner)
meters North: meters East:

UTM's: 0432227 n 3935486 e

County: KERN State: CA

O On Plot O Off Plot

Show location of tortoise in quadrat

Tortoise ID #: RDLRW002
Year first marked:
Verification of ID: ☐
Capture type: Sex: ♂ M
Date (dd/mm/yy): 3/31/09
Time (PST): Start: End:
Shell wear class:
Process time: hours
Frequency:
Transmitter #:

BEAK & NARES

Beak/nares wet	O Yes	O No	⊕ Unk
Beak/nose damp	O Yes	O No	⊕ Unk
Nasal exudate present	O Yes	O No	⊕ Unk
Exudate color	☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green		
Bubble(s) from nares	O Yes	O No	⊕ Unk
One nare occluded	O Yes	O No	⊕ Unk
Both nares occluded	O Yes	O No	⊕ Unk
Dirt on nose/beak	O Yes	O No	⊕ Unk
Dirt in nares	O Yes	O No	⊕ Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	O Yes	O No	⊕ Unk
Moisture on forelegs	O Yes	O No	⊕ Unk
Dried exud. on scales	O Yes	O No	⊕ Unk
Scales cracking	O Yes	O No	⊕ Unk

BREATHING

Smooth	O Yes	O No	⊕ Unk
Wheezing	O Yes	O No	⊕ Unk
Rasping, clicking	O Yes	O No	⊕ Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	O Yes	O No	⊕ Unk
Eyelids swollen	O Yes	O No	⊕ Unk
Eyes/lids wet	O Yes	O No	⊕ Unk
Discharge from eyes	O Yes	O No	⊕ Unk
Eyes sunken	O Yes	O No	⊕ Unk
Eyes clear, bright	O Yes	O No	⊕ Unk
Eyes dull, cloudy	O Yes	O No	⊕ Unk
Chin glands draining	O Yes	O No	⊕ Unk

INTEGUMENT

Integument dull	O Yes	O No	⊕ Unk
Integument glossy	O Yes	O No	⊕ Unk
Normal elasticity	O Yes	O No	⊕ Unk
Abnormal skin peeling	O Yes	O No	⊕ Unk

POSTURE/BEHAVIOR

Alert, responsive	☒ Yes	O No	O Unk
Lethargic	O Yes	☒ No	O Unk
Can withdraw tightly into shell	☒ Yes	O No	O Unk
Limbs, head hanging loose	O Yes	☒ No	O Unk

ORAL CAVITY

Observed	O Yes	O No	⊕ Unk
Discharge present	O Yes	O No	⊕ Unk
Membranes pink	O Yes	O No	⊕ Unk
Membranes pale, white	O Yes	O No	⊕ Unk
Smells/mouth rot	O Yes	O No	⊕ Unk

EVIDENCE OF SHELL DISEASE

Lesions present	O Yes	⊕ No	O Unk
Lesions active	O Yes	⊕ No	O Unk
Lesions healed	O Yes	⊕ No	O Unk
Scute laminae peeling	O Yes	⊕ No	O Unk
Scutes missing/peeling	O Yes	⊕ No	O Unk
Pitting	O Yes	⊕ No	O Unk
Scutes depressed/concave	O Yes	⊕ No	O Unk
Fungal areas	O Yes	⊕ No	O Unk

EVIDENCE OF TRAUMA

Head	O Yes	⊕ No	O Unk
Gular	O Yes	⊕ No	O Unk
Forelimbs	O Yes	⊕ No	O Unk
Hindlimbs	O Yes	⊕ No	O Unk
Shell	O Yes	⊕ No	O Unk
Scute/bone replacement	O Yes	⊕ No	O Unk

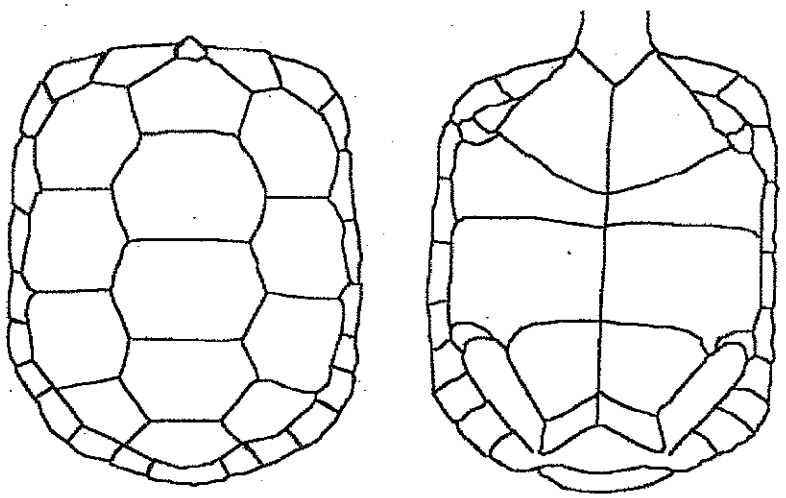
Describe:

Soil dryness: O wet O damp O dry

Last precipitation (dd/mm/yy):

Urine (vol):
Color:
Viscosity:
Particulates:
Color:
Nasal wash collected:
Amt. blood/lymph taken (cc):
# of needle sticks:
Time (min) of needle sticks:
Location:
PCV%:
Other samples taken:
Describe/draw parasites:

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell diseases; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes: LARGE MALE. LOOKED HEALTHY. WENT INTO BURROW FOLLOWED BY FEMALE (RDLRW003)

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Data Sheet for Live Desert Tortoise

Located by Rob Wolfson + Michael Gallagher Tortoise GPS ID # RDLRW003

Project site name Ridgecrest Date 03/31/09
Time 0915

Map ID D7 Sex F

GPS Unit #8 UTM 0432227 n 3935486 e

Elevation 819 m Accuracy +/- ____ m
County Kern State CA

Tortoise Location
at burrow

Burrow Data
app 300 m

Survey Type
absence/presence

Cover site type
☒ burrow ☐ GPS ID# RDBRW 009 ☒ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
☒ burrow	GPS ID # RDBRW009	☐ Tortoise Habitat Assessment
in front of burrow	Orientation facing West	☒ Tortoise Focused Survey
	Length (depth) unknown	☐ Burrowing Owl Focused Survey
	Width app 300cm +	☐ Botanical Survey
	Height app 90cm	☐ Mojave Ground Squirrel Survey
	Location open ground	☐ Other ____
	Soil Cover sparse creosote	☐ Focused tortoise survey

RDLRW002 : ♂ 300mm+ x 90mm - WHITE RESIDUE ON REAR MARGINALS
RDLRW003 : ♀ 250mm+ x 70mm
- BOTH HAVE SOME DIRT ON BACKS

Do not abbreviate

Data Sheet for Live Desert Tortoises

Write on this side only

Located by ROB WOLFSON
Processed by
Study site name RIDGECREST

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
..... meters North ..... meters East

UTM's 0432227 n 3935486 e
Elevation 819 m Accuracy ± ..... m
County KERN State CA

O On Plot O Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLRW003
Year first marked
Verification of ID ☐
Capture type ..... Sex ♀F
Date (dd/mm/yy) 3/31/09
Time (PST): Start 0915 End .....
Frequency ..... Transmitter # .....
Transmitter type .....
Transmitter attached .....
Transmitter to be replaced on .....
PIT # .....

Tortoise Location

Cover site type:
- ☒ burrow
- ☐ pallet
- ☐ shrub
- ☐ caliche cave
- ☐ rock shelter

At cover site:
- ☒ entering
- ☐ exiting
- ☒ on mound
- ☐ inside

Not at cover site:
- ☐ in open
- ☐ other

Burrow Data

ID # RDBRW009
Orientation WEST
Length ? Height 90 mm
Width 300 mm Soil cover .....
Location .....

Survey Type

- O Radio track
- O Burrow search
- O Coverage 1
- O Coverage 2
- O Incidental
- O Other

PRESENSE
ABSENSE
SURVEY

Tortoise Activity

- ☐ resting
- ☐ basking
- ☐ walking
- ☐ feeding
- ☒ Interacting with other tortoise
- ☐ Interacting with other animals

ID & sex of other tortoise RDLRW009
Species ♂ MALE TORTOISE

Describe interaction:

Plants/items eaten (specific):

Color (shell & skin)

	HV	Hue	Value	Chroma	Color
V1 (center)					
V4 (center)					
LC1,2&V2 (seam)					
LM5,6 & LC2 (seam)					
Foreleg					
Hindleg					

Are you color blind? O Yes ✓ No
Type of blindness .....

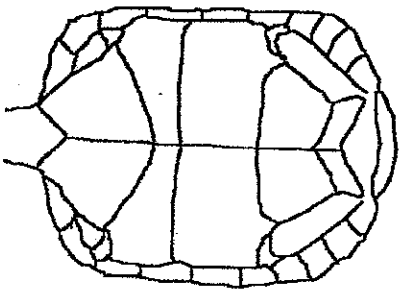
Body Measurements

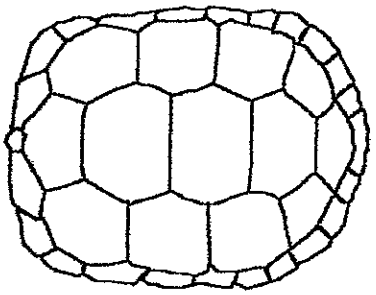
MCL (mm) _____
PLN (mm) _____
Weight (g) _____
Void (g) _____
Total wt (g) _____

New growth
☐ present ☐ absent

Epoxy #
☐ present ☐ legible

Behavior





Other notes

Photos; roll ..... frames .....

Draw locations of notches (old and new), chips, and anomalies, etc.
Describe anomalies in numbering of marginals and any identification problems.

Entered by ☐ date ☐ on computer ☐
Modified by ☐ on ☐

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Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by ROB WOLFSON
Processed by
Study site name RIDGECREST

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
..... meters North ..... meters East

UTM's 0432227 n 3935486 e

County KERN State CA

O On Plot O Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLRW003
Year first marked
Verification of ID ☐
Capture type ..... Sex FEMALE
Date (dd/mm/yy) 3/31/09
Time (PST): Start 0915 End
Shell wear class
Process time ..... hours
Frequency
Transmitter #

BEAK & NARES

Beak/nares wet	O Yes	✓ No	O Unk
Beak/nose damp	O Yes	✓ No	O Unk
Nasal exudate present	O Yes	✓ No	O Unk
Exudate color	☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green		
Bubble(s) from nares	O Yes	✓ No	O Unk
One nare occluded	O Yes	✓ No	O Unk
Both nares occluded	O Yes	✓ No	O Unk
Dirt on nose/beak	O Yes	✓ No	O Unk
Dirt in nares	O Yes	✓ No	O Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	O Yes	✓ No	O Unk
Moisture on forelegs	O Yes	✓ No	O Unk
Dried exud. on scales	O Yes	✓ No	O Unk
Scales cracking	O Yes	✓ No	O Unk

BREATHING

Smooth	O Yes	✓ No	O Unk
Wheezing	O Yes	✓ No	O Unk
Rasping, clicking	O Yes	✓ No	O Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	O Yes	✓ No	O Unk
Eyelids swollen	O Yes	✓ No	O Unk
Eyes/lids wet	O Yes	✓ No	O Unk
Discharge from eyes	O Yes	✓ No	O Unk
Eyes sunken	O Yes	✓ No	O Unk
Eyes clear, bright	✓ Yes	O No	O Unk
Eyes dull, cloudy	O Yes	✓ No	O Unk
Chin glands draining	O Yes	✓ No	O Unk

INTEGUMENT

Integument dull	O Yes	✓ No	O Unk
Integument glossy	O Yes	✓ No	O Unk
Normal elasticity	✓ Yes	O No	O Unk
Abnormal skin peeling	O Yes	✓ No	O Unk

POSTURE/BEHAVIOR

Alert, responsive	✓ Yes	O No	O Unk
Lethargic	O Yes	✓ No	O Unk
Can withdraw tightly into shell	✓ Yes	O No	O Unk
Limbs, head hanging loose	O Yes	✓ No	O Unk

ORAL CAVITY

Observed	O Yes	✓ No	O Unk
Discharge present	O Yes	O No	O Unk
Membranes pink	O Yes	O No	O Unk
Membranes pale, white	O Yes	O No	O Unk
Smells/mouth rot	O Yes	O No	O Unk

EVIDENCE OF SHELL DISEASE

Lesions present	O Yes	✓ No	O Unk
Lesions active	O Yes	✓ No	O Unk
Lesions healed	O Yes	✓ No	O Unk
Scute laminae peeling	O Yes	✓ No	O Unk
Scutes missing/peeling	O Yes	✓ No	O Unk
Pitting	O Yes	✓ No	O Unk
Scutes depressed/concave	O Yes	✓ No	O Unk
Fungal areas	O Yes	✓ No	O Unk

EVIDENCE OF TRAUMA

Head	O Yes	✓ No	O Unk
Gular	O Yes	✓ No	O Unk
Forelimbs	O Yes	✓ No	O Unk
Hindlimbs	O Yes	✓ No	O Unk
Shell	O Yes	✓ No	O Unk
Scute/bone replacement	O Yes	✓ No	O Unk

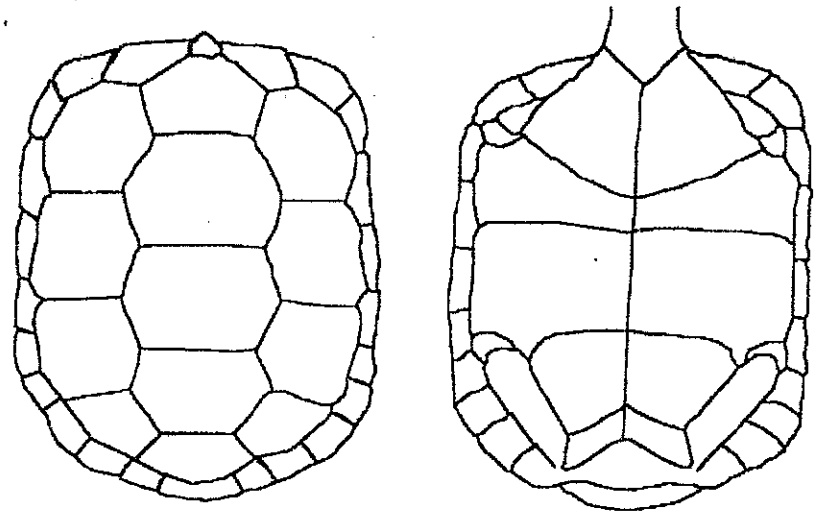
Describe:

Soil dryness: O wet O damp O dry

Last precipitation (dd/mm/yy)

Urine (vol)
Color
Viscosity
Particulates
Color
Nasal wash collected
Amt. blood/lymph taken (cc)
# of needle sticks
Time (min) of needle sticks
Location
PCV%
Other samples taken
Describe/draw parasites

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell diseases; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes HEALTHY FEMALE TORTOISE. INTERACTING W/ MALE AT BURROW ENTRANCE.

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Data Sheet for Live Desert Tortoise

Located by Michael Gallagher Tortoise GPS ID # RDLMG004

Project site name Ridgecrest Date 03/31/09
Time 1210

Map ID P7 Sex M

GPS Unit # 8 UTM 0432249 n 3935659 e

Elevation _____m Accuracy +/-_____m
County Kern State CA

Tortoise Location
under bush
Cover site type
☐ burrow ☐GPS ID# _____

Burrow Data
—

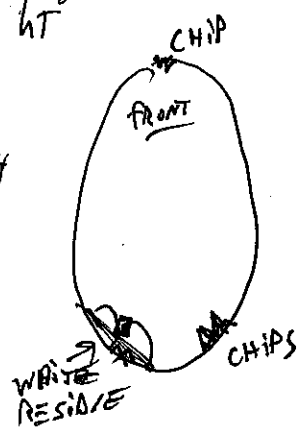
Survey Type
absence/presence

☐ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
☐ burrow	GPS ID #_____	☐ Tortoise Habitat Assessment
under creosote bush	Orientation	☒ Tortoise Focused Survey
	Length (depth)	☐ Burrowing Owl Focused Survey
	Width	☐ Botanical Survey
	Height	☐ Mojave Ground Squirrel Survey
	Location	☐ Other_____
	Soil Cover	☐ Focused tortoise survey

App 250 cm length
80 cm ht

some chipping
one irregularity
left rear



Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by Michael Gallagher
Processed by no handling permit
Study site name Ridgecrest
Township ..... Range .....
Section ..... Quadrat .....
Coordinates (Reference SW corner)
..... meters North ..... meters East
UTM's 0432249 n 3935659 e
County KERN State CA
O On Plot O Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLMG004
~~Year first marked~~ .....
Verification of ID ☐
Capture type ..... Sex MALE
Date (dd/mm/yy) 3/31/09
Time (PST): Start 1210 End .....
Shell wear class .....
Process time ..... hours
Frequency .....
Transmitter # .....

BEAK & NARES

Beak/nares wet	O Yes	● No	O Unk
Beak/nose damp	O Yes	● No	O Unk
Nasal exudate present	O Yes	● No	O Unk
Exudate color	☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green		
Bubble(s) from nares	O Yes	● No	O Unk
One nare occluded	O Yes	● No	O Unk
Both nares occluded	O Yes	● No	O Unk
Dirt on nose/beak	O Yes	● No	O Unk
Dirt in nares	O Yes	● No	O Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	O Yes	● No	O Unk
Moisture on forelegs	O Yes	● No	O Unk
Dried exud. on scales	O Yes	● No	O Unk
Scales cracking	O Yes	● No	O Unk

BREATHING

Smooth	O Yes	● No	O Unk
Wheezing	O Yes	● No	O Unk
Rasping, clicking	O Yes	● No	O Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	O Yes	● No	O Unk
Eyelids swollen	O Yes	● No	O Unk
Eyes/lids wet	O Yes	● No	O Unk
Discharge from eyes	O Yes	● No	O Unk
Eyes sunken	O Yes	● No	O Unk
Eyes clear, bright	O Yes	● No	O Unk
Eyes dull, cloudy	O Yes	● No	O Unk
Chin glands draining	O Yes	● No	O Unk

INTEGUMENT

Integument dull	O Yes	● No	O Unk
Integument glossy	O Yes	● No	O Unk
Normal elasticity	O Yes	● No	O Unk
Abnormal skin peeling	O Yes	● No	O Unk

POSTURE/BEHAVIOR

Alert, responsive	● Yes	O No	O Unk
Lethargic	O Yes	● No	O Unk
Can withdraw tightly into shell	O Yes	O No	● Unk
Limbs, head hanging loose	O Yes	● No	O Unk

ORAL CAVITY

Observed	O Yes	● No	O Unk
Discharge present	O Yes	● No	O Unk
Membranes pink	O Yes	O No	● Unk
Membranes pale, white	O Yes	O No	● Unk
Smells/mouth rot	O Yes	O No	● Unk

EVIDENCE OF SHELL DISEASE

Lesions present	O Yes	● No	O Unk
Lesions active	O Yes	● No	O Unk
Lesions healed	O Yes	● No	O Unk
Scute laminae peeling	O Yes	● No	O Unk
Scutes missing/peeling	O Yes	● No	O Unk
Pitting	O Yes	● No	O Unk
Scutes depressed/concave	O Yes	● No	O Unk
Fungal areas	O Yes	O No	● Unk

EVIDENCE OF TRAUMA

Head	O Yes	● No	O Unk
Gular	O Yes	● No	O Unk
Forelimbs	O Yes	● No	O Unk
Hindlimbs	O Yes	● No	O Unk
Shell	● Yes	O No	O Unk
Scute/bone replacement	O Yes	O No	● Unk

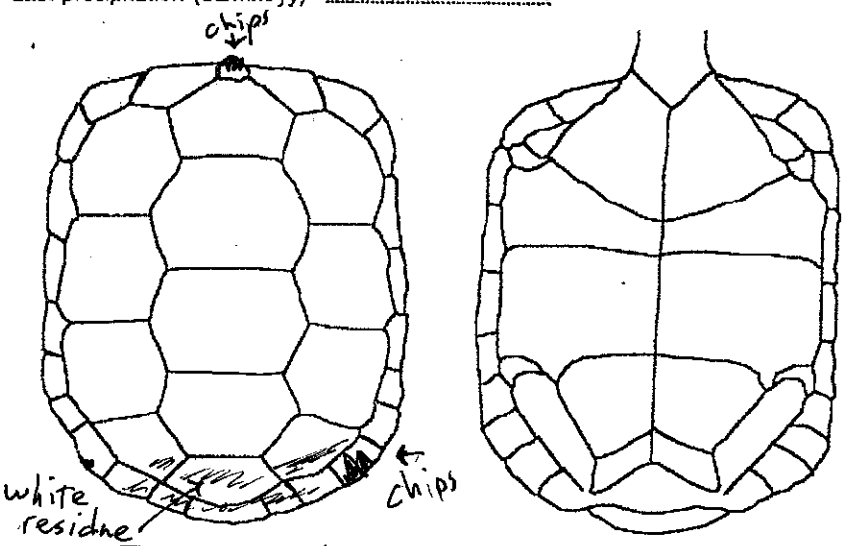
Describe: white residue on anterior marginal scutes and edge of vert/costal

Soil dryness: O wet O damp ● dry

Last precipitation (dd/mm/yy) mid-March '09

Urine (vol) .....
Color .....
Viscosity .....
Particulates .....
Color .....
Nasal wash collected .....
Amt. blood/lymph taken (cc) .....
# of needle sticks .....
Time (min) of needle sticks .....
Location .....
PCV% .....
Other samples taken .....
Describe/draw parasites

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes LOOKS Different from (first tortoise) but we could not get near enough to first male (with female) to determine exact irregularities, other than residue

RDLRW002.

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Do not abbreviate

Data Sheet for Live Desert Tortoises

Write on this side only

Located by MICHAEL GALLAGHER
Processed by N/A
Study site name RIDGECREST

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
0432249 meters North 3935659 meters East

UTM's ..... n ..... e
Elevation ..... m Accuracy ± ..... m
County KERN State CA

O On Plot O Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLMG004
Year first marked .....
Verification of ID ☐
Capture type ..... Sex MALE
Date (dd/mm/yy) 3/31/09
Time (PST): Start 1210 End .....
Frequency ..... Transmitter # .....
Transmitter type .....
Transmitter attached .....
Transmitter to be replaced on .....
PIT # .....

Tortoise Location

Cover site type:
- ☐ burrow
- ☐ pallet
- ☒ shrub
- ☐ caliche cave
- ☐ rock shelter

At cover site:
- ☐ entering
- ☐ exiting
- ☐ on mound
- ☐ inside

Not at cover site:
- ☐ in open
- ☐ other

Burrow Data

ID # N/A
Orientation .....
Length ..... Height .....
Width ..... Soil cover .....
Location .....

Survey Type

- O Radio track
- O Burrow search
- O Coverage 1
- O Coverage 2
- O Incidental
- ☒ Other

PRESENCE / ABSENCE SURVEY

Tortoise Activity

- ☒ resting
- ☐ basking
- ☐ walking
- ☐ feeding
- ☐ Interacting with other tortoise
- ☐ Interacting with other animals

ID & sex of other tortoise .....
Species .....
Describe interaction:

Plants/items eaten (specific):

Color (shell & skin)

	HV	Hue	Value	Chroma	Color
V1 (center)					
V4 (center)					
LC1,2&V2 (seam)					
LM5,6 & LC2 (seam)					
Foreleg					
Hindleg					

Are you color blind? O Yes ☒ No
Type of blindness .....

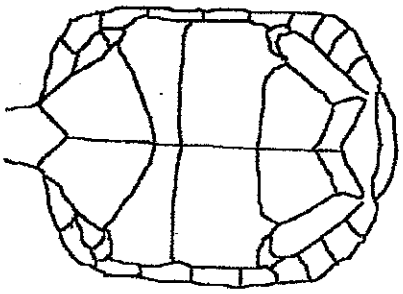
Body Measurements

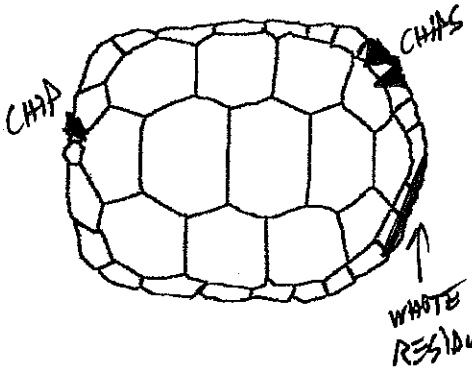
MCL (mm) 260 mm.
PLN (mm) .....
Weight (g) .....
Void (g) .....
Total wt (g) .....

New growth
☐ present ☐ absent

Epoxy #
☐ present ☐ legible

Behavior





Other notes

Photos; roll ..... frames .....

Draw locations of notches (old and new), chips, and anomalies, etc.
Describe anomalies in numbering of marginals and any identification problems.

Entered by ☐ date ☐ on computer ☐
Modified by ☐ on ☐

© Berry 1997

Tiles D-4,5,6,7

0432200	✓	220	✓	240	✓	260	✓
0432210	✓	230	✓	250	✓	270	✓

Site: RIDGECREST

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 3/31/09

Page 1 of 1

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	13-mg 8-RW		ROB W. MIKE G.	LEROY A. EARL D. UXO

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	0830	74°	0-2 MPH (W)	0% CLOUDS/CLEAR
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDLRW002	0432227/3935486	Tortoise	(A) J U	(M) F U	(Y) N	both animals on apron of burr.	1	1	
RDLRW003	0432227/3935486	Tortoise	(A) J U	M (F) U	(Y) N	most likely about to mate	1	1	
RDBRW004	0432227/3935486		A J U	M F U	Y N	Good shape - 2 animals present	1	1	
RMAMG021	0432218/3935718		A J U	M F U	Y N	collapsed, but good pallet	4		
RDBRW010	0432202/3936005		A J U	M F U	Y N	deteriorated, under creosote	4		
RKBRW001	0432200/3936072		A J U	M F U	Y N	multiple entrance, recent use			
RMARW022	0432200/3936181		A J U	M F U	Y N	near KB, but good shape, angle	5		
RDBRW011	0432198/3936291		A J U	M F U	Y N				
RKBRW002	0432199/3936283		A J U	M F U	Y N	large complex w/scat. possible Tort.			
RMAMG022	0432208/3936341		A J U	M F U	Y N				
RDBMG010	0432234/3936193		A J U	M F U	Y N	next to KB complex - scat in burr.	2		
RUXORW001	0432203/3936124		A J U	M F U	Y N	pyrotechnic device (flare)			
RDLMG004	0432249/3935659	Tortoise	(A) J U	(M) F U	(Y) N	under creosote. some chipped scute.			
RDBRW012	0432220/3935641		A J U	M F U	Y N				
RMAMG023	0432232/3935323		A J U	M F U	Y N				
RDBRW013	0432219/3935312		A J U	M F U	Y N		1		
RDBMG011	0432248/3935543		A J U	M F U	Y N	deteriorated, but reusable	4		
RMARW023	0432238/3935588		A J U	M F U	Y N				
RMARW024	0432235/3935629		A J U	M F U	Y N				
RUXOMG003	0432253/3935786		A J U	M F U	Y N	expended flare. Not dangerous			
RDBMG012	0432252/3936136		A J U	M F U	Y N		1		
*See Reverse									
RDSMG002	0432246/3936141							2	
RDBMG013	0432272/3935795					next to collapsed KB complex	2		
RUXOMG004	0432273/3935492					Mark 13 Day/night flare expended - no hazard			

*

Saw again heading N/NE

Data Sheet for Live Desert Tortoise

Located by Rob Wolfson Earl Dennis Tortoise GPS ID # RDLRW005

Project site name Ridge crest Date April 01/09
Time 1535

Map ID D-7 Sex possibly female

GPS Unit # 8 UTM 0432410 n 3935386 e

Elevation 819 m Accuracy +/- ____ m
County Kern State CA

Tortoise Location
under bush

Burrow Data
—

Survey Type
presence/Absence

Cover site type
☐ burrow ☐ GPS ID# _____ ☐ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
☐ burrow	GPS ID #	☐ Tortoise Habitat Assessment
	Orientation	☒ Tortoise Focused Survey
	Length (depth)	☐ Burrowing Owl Focused Survey
	Width	☐ Botanical Survey
	Height	☐ Mojave Ground Squirrel Survey
	Location	☐ Other
	Soil Cover	☐ Focused tortoise survey

app 180 mm, probably female.

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by Rob Wolfson / Earl Dennis
Processed by No handle permit
Study site name Ridgecrest
Township ..... Range .....
Section ..... Quadrat .....
Coordinates (Reference SW corner)
..... meters North ..... meters East
UTM's 0432410 n 3935386 e
County Kern State CA
O On Plot O Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLRW005
Year first marked .....
Verification of ID ☐
Capture type ..... Sex .....
Date (dd/mm/yy) .....
Time (PST): Start ..... End .....
Shell wear class .....
Process time ..... hours
Frequency .....
Transmitter # .....

BEAK & NARES

Beak/nares wet	O Yes	● No	O Unk
Beak/nose damp	O Yes	● No	O Unk
Nasal exudate present	O Yes	● No	O Unk
Exudate color	☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green		
Bubble(s) from nares	O Yes	● No	O Unk
One nare occluded	O Yes	● No	O Unk
Both nares occluded	O Yes	● No	O Unk
Dirt on nose/beak	O Yes	● No	O Unk
Dirt in nares	O Yes	● No	O Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	O Yes	● No	O Unk
Moisture on forelegs	O Yes	● No	O Unk
Dried exud. on scales	O Yes	● No	O Unk
Scales cracking	O Yes	● No	O Unk

BREATHING

Smooth	● Yes	O No	O Unk
Wheezing	O Yes	● No	O Unk
Rasping, clicking	O Yes	● No	O Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	O Yes	● No	O Unk
Eyelids swollen	O Yes	● No	O Unk
Eyes/lids wet	O Yes	● No	O Unk
Discharge from eyes	O Yes	● No	O Unk
Eyes sunken	O Yes	● No	O Unk
Eyes clear, bright	O Yes	● No	O Unk
Eyes dull, cloudy	O Yes	● No	O Unk
Chin glands draining	O Yes	● No	O Unk

INTEGUMENT

Integument dull	O Yes	● No	O Unk
Integument glossy	O Yes	● No	O Unk
Normal elasticity	● Yes	O No	O Unk
Abnormal skin peeling	O Yes	● No	O Unk

POSTURE/BEHAVIOR

Alert, responsive	● Yes	O No	O Unk
Lethargic	O Yes	● No	O Unk
Can withdraw tightly into shell	● Yes	O No	O Unk
Limbs, head hanging loose	O Yes	● No	O Unk

ORAL CAVITY

Observed	O Yes	● No	O Unk
Discharge present	O Yes	O No	● Unk
Membranes pink	O Yes	O No	● Unk
Membranes pale, white	O Yes	O No	● Unk
Smells/mouth rot	O Yes	O No	● Unk

EVIDENCE OF SHELL DISEASE

Lesions present	O Yes	● No	O Unk
Lesions active	O Yes	● No	O Unk
Lesions healed	O Yes	● No	O Unk
Scute laminae peeling	O Yes	● No	O Unk
Scutes missing/peeling	O Yes	● No	O Unk
Pitting	O Yes	● No	O Unk
Scutes depressed/concave	O Yes	● No	O Unk
Fungal areas	O Yes	● No	O Unk

EVIDENCE OF TRAUMA

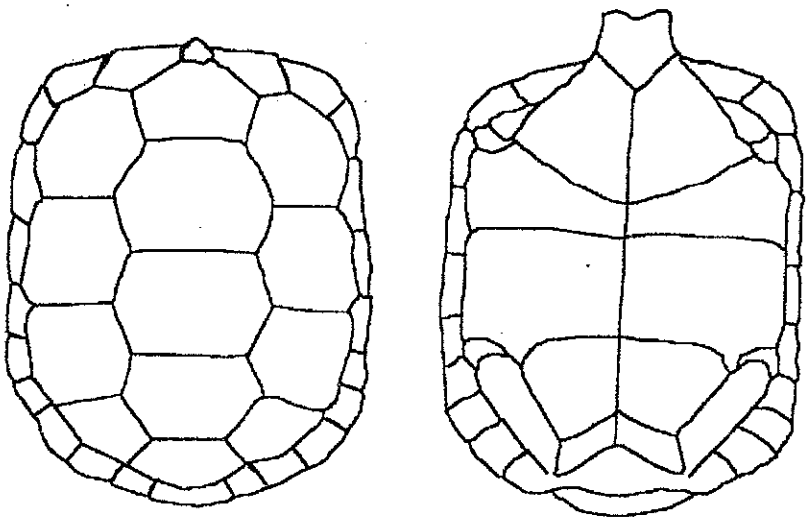
Head	O Yes	● No	O Unk
Gular	O Yes	● No	O Unk
Forelimbs	O Yes	● No	O Unk
Hindlimbs	O Yes	● No	O Unk
Shell	O Yes	● No	O Unk
Scute/bone replacement	O Yes	● No	O Unk

Describe: .....

Soil dryness: O wet O damp ● dry
Last precipitation (dd/mm/yy) mid-March

Urine (vol) .....
Color .....
Viscosity .....
Particulates .....
Color .....
Nasal wash collected .....
Amt. blood/lymph taken (cc) .....
# of needle sticks .....
Time (min) of needle sticks .....
Location .....
PCV% .....
Other samples taken .....
Describe/draw parasites .....

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell diseases; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes no abnormalities observed

© Berry 1997

Do not abbreviate

Data Sheet for Live Desert Tortoises

Write on this side only

Located by Rob Wolfson / Earl Dennis
Processed by
Study site name Ridgecrest

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
0432410 meters North 3935386 meters East

UTM's ..... n ..... e

Elevation 819 m Accuracy ± ..... m

County Kern State CA

☒ On Plot ○ Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLRW 005
Year first marked
Verification of ID ☐
Capture type ..... Sex .....
Date (dd/mm/yy)
Time (PST): Start ..... End .....
Frequency ..... Transmitter # .....
Transmitter type
Transmitter attached
Transmitter to be replaced on
PIT #

Tortoise Location

Cover site type:
- ☐ burrow
- ☐ pallet
- ☒ shrub
- ☐ caliche cave
- ☐ rock shelter

At cover site:
- ☐ entering
- ☐ exiting
- ☐ on mound
- ☐ inside

Not at cover site:
- ☐ in open
- ☐ other

Burrow Data

ID #
Orientation
Length ..... Height .....
Width ..... Soil cover .....
Location

Survey Type

- ○ Radio track
- ○ Burrow search
- ○ Coverage 1
- ○ Coverage 2
- ○ Incidental
- ☒ Other

absence/presence transect
No handling.

Tortoise Activity

- ☒ resting
- ☐ basking
- ☐ walking
- ☐ feeding
- ☐ Interacting with other tortoise
- ☐ Interacting with other animals

ID & sex of other tortoise
Species
Describe interaction:

Plants/items eaten (specific):

Color (shell & skin)

	HV	Hue	Value	Chroma	Color
V1 (center)					
V4 (center)					
LC1,2&V2 (seam)					
LM5,6 & LC2 (seam)					
Foreleg					
Hindleg					

Are you color blind? ○ Yes ☒ No
Type of blindness

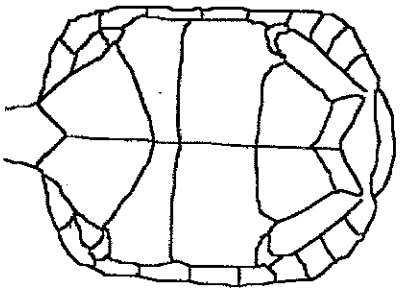
Body Measurements

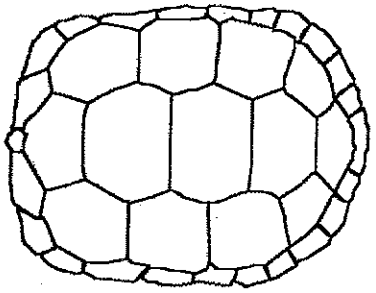
MCL (mm) 180
PLN (mm)
Weight (g)
Void (g)
Total wt (g)

New growth
☐ present ☐ absent

Epoxy #
☐ present ☐ legible

Behavior





Other notes

Photos; roll MG frames

Draw locations of notches (old and new), chips, and anomalies, etc.
Describe anomalies in numbering of marginals and any identification problems.

Entered by date on computer
Modified by on

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D-4

0432280	✓	300	✓	320	✓	340	✓	360	✓	380	✓
290	✓	310	✓	330	✓	350	✓	370	✓	390	✓

Site: Ridgecrest

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 04/01/09

Page 1 of ____

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
	#13 8,	D4 ↓ D7	Gallagher Wolfson	Leroy Bishop Earl Dennis

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	0830	72°	0-5	5%
Mid-day				
End	1700	79°	15-20	light haze

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDBMG015	0432292/3935951		A J U	M F U	Y N	overgrown	4		
RDBMG016	0432290/3935454		A J U	M F U	Y N		2		
RDBRW014	0432302/3935391		A J U	M F U	Y N		2		
RDBMG017	0432314/3935425		A J U	M F U	Y N	deep, w/possible tort tracks, no scat	2		
RDSRW001	0432302/3936036		A J U	M F U	Y N			5	
RDBRW015	0432321/3935584		A J U	M F U	Y N	collapsed	4		
RMAMG024	0432335/3935466		A J U	M F U	Y N				
RDBMG018	0432351/3935291		A J U	M F U	Y N	no scat - cobwebs.	2		
RDBMG019	0432358/3936078		A J U	M F U	Y N	recently cleaned, but shallow	5		
RDBMG014	0432361/3936100		A J U	M F U	Y N	clean, inhabited this AM, shallow	1		
RUXDMG005	0432380/3936157		A J U	M F U	Y N	expended Mark 13 Day/Night flare			
RDBRW016	0432359/3935904		A J U	M F U	Y N	deteriorated, grown over	4		
RDBMG020	0432377/3935734		A J U	M F U	Y N	app 350mm wide!	1		
RMARW025	0432370/3935711		A J U	M F U	Y N				
RMARW026	0432360/3935695		A J U	M F U	Y N				
RMARW027	0432364/3935643		A J U	M F U	Y N				
RDLRW005	0432410/3935386	DETO	(A) J U	M F (U)	(Y) N	app 180mm poss. ♀ under creosote			
RDBRW017	0432382/3935407		A J U	M F U	Y N	next to old KB	5		
RUXDMG006	0432391/3935449		A J U	M F U	Y N	expended Mark 13			
RDBRW018	0432379/3935567		A J U	M F U	Y N	recent tracks + scat inside	1		
			A J U	M F U	Y N				

*See Reverse

*

RDLMG004 "CHIA"

0810 - encountered same male at burrow,
1030 - 50m East, then 180m N. @ 1440
1645 - 800m N. of first sighting on 03/31/09

4/2/09

① RDLRW006 0432378/3935570 210 mcl

Time: 11:05AM Adult / female healthy

walking towards burrow GPS soil temp 95.0°F

② RDLKD001 0432767 / 3935326 (1st ID by Earl Dennis) 200 mcl

Adult / female

Time: seen in burrow @ 12:00 AM and seen again 200 m from burrow @ 3:50PM

soil temp 100.0°F

peeling scutes at front right and back left

③ RDLKD003 0432654 / 3935253 150 mm MCL × 50-60 length

Time: 12:15PM subadult / female

damaged shell from front right side to back side

④ RDLMG005 0432480 / 3936857 MCL ~ 210mm

Time: 2:50PM Adult / unknown

- seen in entrance of burrow + turned our way
- some signs of crust around eyes + nares

soil temp

- gland appeared to be swollen
- front left leg had crusty wipes on it.
- front of shell appeared slightly damaged + looked as if it had grown over
- dull shell

→

Data Sheet for Live Desert Tortoise

Located by Rob Wilson Tortoise GPS ID # RDLRW006

Project site name Ridgecrest Date 4/2/09
Time 11:05 AM

Map ID Sex F

GPS Unit UTM 0432378 n 3935570 e

Elevation _____m Accuracy +/-_____m
County_____State_____

Tortoise Location Burrow Data Survey Type

Cover site type
☐ burrow ☐GPS ID# RDBRW018 ☒ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
☒ burrow	GPS ID # 0432379/3935567	☐ Tortoise Habitat Assessment
	Orientation facing NE under creosote	☒ Tortoise Focused Survey
	Length (depth)	☐ Burrowing Owl Focused Survey
	Width	☐ Botanical Survey
	Height	☐ Mojave Ground Squirrel Survey
	Location under creosote	☐ Other_____
	Soil Cover	☐ Focused tortoise survey

MCL 210 mm
Soil temp 95.0°F

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by: Rob Wolfson
Processed by:
Study site name:
Township: Range:
Section: Quadrat:
Coordinates (Reference SW corner)
meters North: meters East:
UTM's: 0432378 n 3935570 e
County: State:
☒ On Plot ○ Off Plot (on site)

Show location of tortoise in quadrat

Tortoise ID #: RDLRW006
Year first marked:
Verification of ID: ☐
Capture type: Sex: F
Date (dd/mm/yy): 4/2/09
Time (PST): Start: 11:05AM End:
Shell wear class:
Process time: hours
Frequency:
Transmitter #:

BEAK & NARES

Beak/nares wet	○ Yes	○ No	○ Unk
Beak/nose damp	○ Yes	○ No	○ Unk
Nasal exudate present	○ Yes	☒ No	○ Unk

Exudate color: ☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green

Bubble(s) from nares	○ Yes	☒ No	○ Unk
One nare occluded	○ Yes	☒ No	○ Unk
Both nares occluded	○ Yes	☒ No	○ Unk
Dirt on nose/beak	○ Yes	☒ No	○ Unk
Dirt in nares	○ Yes	☒ No	○ Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	☒ Yes	○ No	○ Unk
Moisture on forelegs	○ Yes	☒ No	○ Unk
Dried exud. on scales	○ Yes	☒ No	○ Unk
Scales cracking	○ Yes	☒ No	○ Unk

BREATHING

Smooth	☒ Yes	○ No	○ Unk
Wheezing	○ Yes	☒ No	○ Unk
Rasping, clicking	○ Yes	☒ No	○ Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	○ Yes	☒ No	○ Unk
Eyelids swollen	○ Yes	☒ No	○ Unk
Eyes/lids wet	○ Yes	☒ No	○ Unk
Discharge from eyes	○ Yes	☒ No	○ Unk
Eyes sunken	○ Yes	☒ No	○ Unk
Eyes clear, bright	☒ Yes	○ No	○ Unk
Eyes dull, cloudy	○ Yes	☒ No	○ Unk
Chin glands draining	○ Yes	☒ No	○ Unk

INTEGUMENT

Integument dull	○ Yes	☒ No	○ Unk
Integument glossy	○ Yes	☒ No	○ Unk
Normal elasticity	☒ Yes	○ No	○ Unk
Abnormal skin peeling	○ Yes	☒ No	○ Unk

POSTURE/BEHAVIOR

Alert, responsive	☒ Yes	○ No	○ Unk
Lethargic	○ Yes	☒ No	○ Unk
Can withdraw tightly into shell	○ Yes	○ No	☒ Unk
Limbs, head hanging loose	○ Yes	☒ No	○ Unk

ORAL CAVITY

Observed	○ Yes	○ No	☒ Unk
Discherge present	○ Yes	○ No	☒ Unk
Membranes pink	○ Yes	○ No	☒ Unk
Membranes pale, white	○ Yes	○ No	☒ Unk
Smells/mouth rot	○ Yes	○ No	☒ Unk

EVIDENCE OF SHELL DISEASE

Lesions present	○ Yes	☒ No	○ Unk
Lesions active	○ Yes	☒ No	○ Unk
Lesions healed	○ Yes	☒ No	○ Unk
Scute laminae peeling	○ Yes	☒ No	○ Unk
Scutes missing/peeling	○ Yes	☒ No	○ Unk
Pitting	○ Yes	☒ No	○ Unk
Scutes depressed/concave	○ Yes	☒ No	○ Unk
Fungal areas	○ Yes	☒ No	○ Unk

EVIDENCE OF TRAUMA

Head	○ Yes	☒ No	○ Unk
Gular	○ Yes	☒ No	○ Unk
Forelimbs	○ Yes	☒ No	○ Unk
Hindlimbs	○ Yes	☒ No	○ Unk
Shell	○ Yes	☒ No	○ Unk
Scute/bone replacement	○ Yes	☒ No	○ Unk

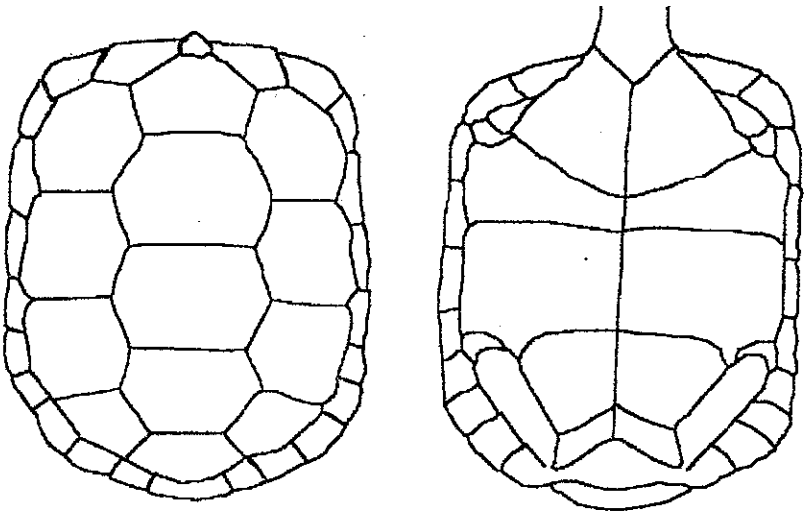
Describe:

Soil dryness: ○ wet ○ damp ☒ dry

Last precipitation (dd/mm/yy):

Urine (vol):
Color:
Viscosity:
Particulates:
Color:
Nasal wash collected:
Amt. blood/lymph taken (cc):
# of needle sticks:
Time (min) of needle sticks:
Location:
PCV%:
Other samples taken:
Describe/draw parasites:

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes: Appears to be a healthy adult female, walking towards burrow under creosote.

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Do not abbreviate

Data Sheet for Live Desert Tortoises

Write on this side only

Located by Ron Wolfson
Processed by
Study site name

Township Range
Section Quadrat

Coordinates (Reference SW corner)
meters North meters East

UTM's 0432378 n 3935570 e

Elevation m Accuracy ± m

County State

☒ On Plot ○ Off Plot on site

Show location of tortoise in quadrat

Tortoise ID # RDLRW006
Year first marked
Verification of ID ☐
Capture type Sex
Date (dd/mm/yy) 7/2/09
Time (PST): Start 11:05AM End 11:15AM
Frequency Transmitter #
Transmitter type
Transmitter attached
Transmitter to be replaced on
PIT #

Tortoise Location

Cover site type:
- ☐ burrow
- ☐ pallet
- ☐ shrub
- ☐ caliche cave
- ☐ rock shelter

At cover site:
- ☐ entering
- ☐ exiting
- ☐ on mound
- ☐ inside

Not at cover site:
- ☒ in open
- ☒ other

adjacent to burrow

Burrow Data

ID #
Orientation
Length Height
Width Soil cover
Location

Survey Type

- ○ Radio track
- ○ Burrow search
- ○ Coverage 1
- ○ Coverage 2
- ○ Incidental
- ○ Other

Tortoise Activity

- ☐ resting
- ☐ basking
- ☒ walking
- ☒ feeding
- ☐ Interacting with other tortoise
- ☐ Interacting with other animals

ID & sex of other tortoise
Species
Describe interaction:

Plants/items eaten (specific):

Color (shell & skin)

	HV	Hue	Value	Chroma	Color
V1 (center)					
V4 (center)					
LC1,2&V2 (seam)					
LM5,6 & LC2 (seam)					
Foreleg					
Hindleg					

Are you color blind? ○ Yes ☒ No
Type of blindness

Body Measurements

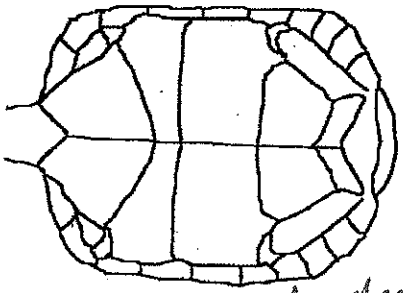
MCL (mm) 210
PLN (mm)
Weight (g)
Void (g)
Total wt (g)

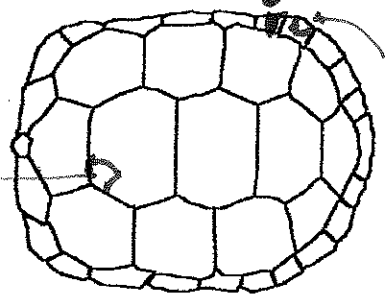
New growth
☐ present ☐ absent

Epoxy #
☐ present ☐ legible

Behavior

Other notes





Photos; roll frames

Draw locations of notches (old and new), chips, and anomalies, etc.
Describe anomalies in numbering of marginals and any identification problems.

Entered by date on computer
Modified by on

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Data Sheet for Live Desert Tortoise

Located by Kimberly Duncan Tortoise GPS ID # RDLKD001

Project site name Ridgecrest Date 4/2/09
Time seen @ 12:00 AM + 3:50PM

Map ID _____ Sex F

GPS Unit _____ UTM 0432767 n 3935326 e

Elevation _____ m Accuracy +/- _____ m
County Kern State CA

Tortoise Location Burrow Data Survey Type

Cover site type
☐ burrow ☐ GPS ID# RDBKD004 ☐ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
☒ burrow	GPS ID # 0432767/3935326	☐ Tortoise Habitat Assessment
	Orientation facing E	☒ Tortoise Focused Survey
	Length (depth)	☐ Burrowing Owl Focused Survey
	Width 240mm	☐ Botanical Survey
	Height	☐ Mojave Ground Squirrel Survey
	Location ~50' west of dirt rd.	☐ Other _____
	Soil Cover	☐ Focused tortoise survey

@ 3:50PM, seen outside burrow ~200m from burrow; soil temp ~100.0 °F

200 MCL

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by Kimberly Duncan
Processed by
Study site name

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
..... meters North ..... meters East

UTM's 04327667 n 3935326 e

County ..... State .....

☒ On Plot ○ Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLKD001
Year first marked
Verification of ID ☐
Capture type ..... Sex .....
Date (dd/mm/yy) 4/2/09
Time (PST): Start 12:00 End 12:10 pm
Shell wear class
Process time ..... hours
Frequency
Transmitter #

BEAK & NARES

Beak/nares wet	○ Yes	○ No	○ Unk
Beak/nose damp	○ Yes	○ No	○ Unk
Nasal exudate present	○ Yes	○ No	○ Unk
Exudate color	☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green		
Bubble(s) from nares	○ Yes	○ No	○ Unk
One nare occluded	○ Yes	○ No	○ Unk
Both nares occluded	○ Yes	○ No	○ Unk
Dirt on nose/beak	○ Yes	○ No	○ Unk
Dirt in nares	○ Yes	○ No	○ Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	○ Yes	○ No	○ Unk
Moisture on forelegs	○ Yes	○ No	○ Unk
Dried exud. on scales	○ Yes	○ No	○ Unk
Scales cracking	○ Yes	○ No	○ Unk

BREATHING

Smooth	○ Yes	○ No	○ Unk
Wheezing	○ Yes	○ No	○ Unk
Rasping, clicking	○ Yes	○ No	○ Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	○ Yes	○ No	○ Unk
Eyelids swollen	○ Yes	○ No	○ Unk
Eyes/lids wet	○ Yes	○ No	○ Unk
Discharge from eyes	○ Yes	○ No	○ Unk
Eyes sunken	○ Yes	○ No	○ Unk
Eyes clear, bright	○ Yes	○ No	○ Unk
Eyes dull, cloudy	○ Yes	○ No	○ Unk
Chin glands draining	○ Yes	○ No	○ Unk

INTEGUMENT

Integument dull	○ Yes	○ No	○ Unk
Integument glossy	○ Yes	○ No	○ Unk
Normal elasticity	○ Yes	○ No	○ Unk
Abnormal skin peeling	○ Yes	○ No	○ Unk

POSTURE/BEHAVIOR

Alert, responsive	○ Yes	○ No	○ Unk
Lethargic	○ Yes	○ No	○ Unk
Can withdraw tightly into shell	○ Yes	○ No	○ Unk
Limbs, head hanging loose	○ Yes	○ No	○ Unk

ORAL CAVITY

Observed	○ Yes	○ No	○ Unk
Discharge present	○ Yes	○ No	○ Unk
Membranes pink	○ Yes	○ No	○ Unk
Membranes pale, white	○ Yes	○ No	○ Unk
Smells/mouth rot	○ Yes	○ No	○ Unk

EVIDENCE OF SHELL DISEASE

Lesions present	○ Yes	○ No	○ Unk
Lesions active	○ Yes	○ No	○ Unk
Lesions healed	○ Yes	○ No	○ Unk
Scute laminae peeling	○ Yes	○ No	○ Unk
Scutes missing/peeling	○ Yes	○ No	○ Unk
Pitting	○ Yes	○ No	○ Unk
Scutes depressed/concave	○ Yes	○ No	○ Unk
Fungal areas	○ Yes	○ No	○ Unk

EVIDENCE OF TRAUMA

Head	○ Yes	○ No	○ Unk
Gular	○ Yes	○ No	○ Unk
Forelimbs	○ Yes	○ No	○ Unk
Hindlimbs	○ Yes	○ No	○ Unk
Shell	○ Yes	○ No	○ Unk
Scute/bone replacement	○ Yes	○ No	○ Unk

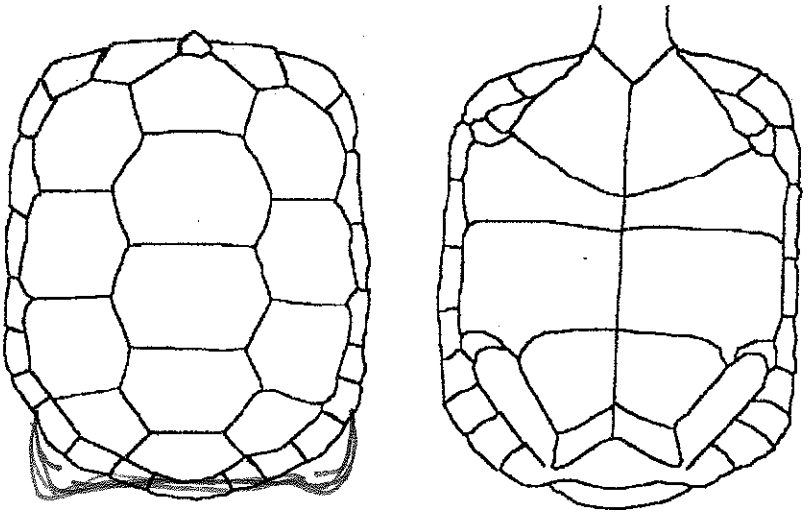
Describe:

Soil dryness: ○ wet ○ damp ○ dry

Last precipitation (dd/mm/yy)

Urine (vol)
Color
Viscosity
Particulates
Color
Nasal wash collected
Amt. blood/lymph taken (cc)
# of needle sticks
Time (min) of needle sticks
Location
PCV%
Other samples taken
Describe/draw parasites

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes Tortoise was in the burrow when biologists approached. Earl Dennis recalled that the head of the tortoise was separated off as shown above.

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Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by Kim Duncan / Earl Dennis
Processed by
Study site name Ridge crest
Township Range
Section Quadrat
Coordinates (Reference SW corner)
meters North meters East
UTM's 0432767 n 3935526 e
County State
☒ On Plot ○ Off Plot (on site)

Show location of tortoise in quadrat

Tortoise ID # RDLKD001
Year first marked
Verification of ID ☐
Capture type Sex F
Date (dd/mm/yy) 4/2/09
Time (PST): Start 12:00 End 12:15
Shell wear class
Process time hours
Frequency
Transmitter #

BEAK & NARES

Beak/nares wet ○ Yes ○ No ○ Unk
Beak/nose damp ○ Yes ○ No ○ Unk
Nasal exudate present ☒ Yes ○ No ○ Unk
Exudate color ☐ clear ☒ crusty ☐ cloudy ☒ white ☐ yellow ☐ green
Bubble(s) from nares ○ Yes ○ No ○ Unk
One nare occluded ○ Yes ○ No ○ Unk
Both nares occluded ○ Yes ○ No ○ Unk
Dirt on nose/beak ○ Yes ○ No ○ Unk
Dirt in nares ○ Yes ○ No ○ Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs ○ Yes ○ No ○ Unk
Moisture on forelegs ○ Yes ○ No ○ Unk
Dried exud. on scales ☒ Yes ○ No ○ Unk + forelegs
Scales cracking ○ Yes ○ No ○ Unk

BREATHING

Smooth ○ Yes ○ No ○ Unk
Wheezing ○ Yes ○ No ○ Unk
Rasping, clicking ○ Yes ○ No ○ Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored ☒ Yes ○ No ○ Unk
Eyelids swollen ☒ Yes ○ No ○ Unk
Eyes/lids wet ○ Yes ☒ No ○ Unk
Discharge from eyes ○ Yes ☒ No ○ Unk
Eyes sunken ☒ Yes ☒ No ○ Unk
Eyes clear, bright ○ Yes ☒ No ○ Unk
Eyes dull, cloudy ☒ Yes ○ No ○ Unk
Chin glands draining swollen ☒ Yes ○ No ○ Unk

INTEGUMENT

Integument dull ☒ Yes ○ No ○ Unk
Integument glossy ○ Yes ○ No ○ Unk
Normal elasticity ○ Yes ○ No ○ Unk
Abnormal skin peeling ○ Yes ○ No ○ Unk

POSTURE/BEHAVIOR

Alert, responsive ☒ Yes ○ No ○ Unk
Lethargic ○ Yes ○ No ○ Unk
Can withdraw tightly into shell ○ Yes ○ No ○ Unk
Limbs, head hanging loose ○ Yes ○ No ○ Unk

ORAL CAVITY

Observed ○ Yes ○ No ○ Unk
Discharge present ○ Yes ○ No ○ Unk
Membranes pink ○ Yes ○ No ○ Unk
Membranes pale, white ○ Yes ○ No ○ Unk
Smells/mouth rot ○ Yes ○ No ○ Unk

EVIDENCE OF SHELL DISEASE

Lesions present ○ Yes ○ No ○ Unk
Lesions active ○ Yes ○ No ○ Unk
Lesions healed ○ Yes ○ No ○ Unk
Scute laminae peeling ○ Yes ○ No ○ Unk
Scutes missing/peeling ○ Yes ○ No ○ Unk
Pitting ○ Yes ○ No ○ Unk
Scutes depressed/concave ○ Yes ○ No ○ Unk
Fungal areas ○ Yes ○ No ○ Unk could be cause

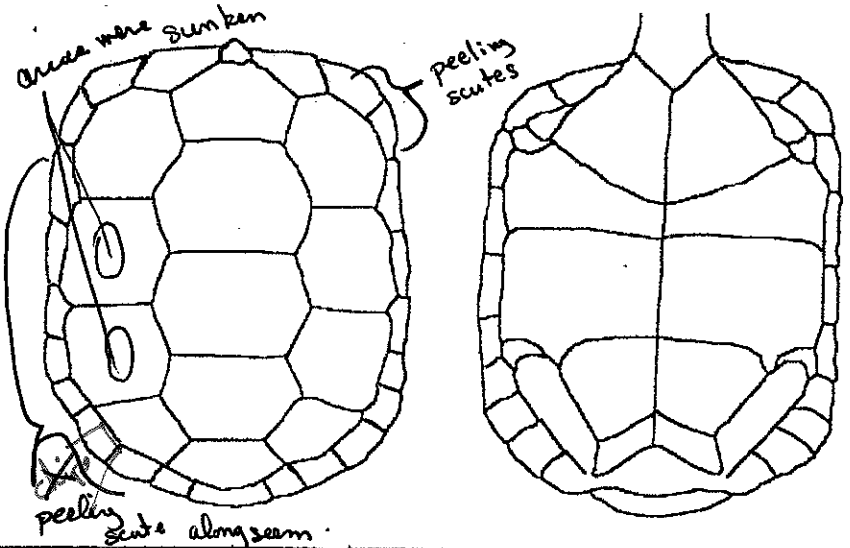
EVIDENCE OF TRAUMA

Head ○ Yes ○ No ○ Unk
Gular ○ Yes ○ No ○ Unk
Forelimbs ○ Yes ○ No ○ Unk
Hindlimbs ○ Yes ○ No ○ Unk
Shell ○ Yes ○ No ○ Unk
Scute/bone replacement ○ Yes ○ No ○ Unk
Describe:

Soil dryness: ○ wet ○ damp ○ dry
Last precipitation (dd/mm/yy)

Urine (vol)
Color
Viscosity
Particulates n/a
Color
Nasal wash collected
Amt. blood/lymph taken (cc)
# of needle sticks
Time (min) of needle sticks
Location
PCV%
Other samples taken
Describe/draw parasites

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell diseases; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes DETR in in burrow partially. Hard to fully assess its health.
~~Seen again @ 3:30PM out of burrow 200 yd away~~

© Berry 1997

Soil 95.0°F

Data Sheet for Live Desert Tortoise

Located by Kimberly Duncan Tortoise GPS ID # RDLKD003

Project site name Ridgecrest Date 4/2/09
Time

Map ID Sex F

GPS Unit UTM 0432654 n 3935253 e

Elevation m Accuracy +/- m
County State

Tortoise Location Burrow Data Survey Type

Cover site type
☐ burrow GPS ID# ☐ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
☐ burrow	GPS ID #	☐ Tortoise Habitat Assessment
	Orientation	☐ Tortoise Focused Survey
	Length (depth)	☐ Burrowing Owl Focused Survey
	Width	☐ Botanical Survey
	Height	☐ Mojave Ground Squirrel Survey
	Location	☐ Other
	Soil Cover	☐ Focused tortoise survey

MCL 150 mm (sub-adult)

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by Kimberly Duncan
Processed by
Study site name Ridgecrest (SM)
Township ____ Range ____
Section ____ Quadrat ____
Coordinates (Reference SW corner)
____ meters North ____ meters East
UTM's 0432654 n 3935253 e
County ____ State ____
☒ On Plot ○ Off Plot (on site)

Show location of tortoise in quadrat

Tortoise ID # RDLKD003
Year first marked
Verification of ID ☐
Capture type ____ Sex F
Date (dd/mm/yy) 4/2/09
Time (PST): Start 12:15 End
Shell wear class
Process time ____ hours
Frequency
Transmitter #

BEAK & NARES

Beak/nares wet	☒ Yes	○ No	○ Unk
Beak/nose damp	○ Yes	○ No	○ Unk
Nasal exudate present	○ Yes	☒ No	○ Unk
Exudate color	☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green		
Bubble(s) from nares	○ Yes	☒ No	○ Unk
One nare occluded	○ Yes	☒ No	○ Unk
Both nares occluded	○ Yes	☒ No	○ Unk
Dirt on nose/beak	○ Yes	☒ No	○ Unk
Dirt in nares	○ Yes	☒ No	○ Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	☒ Yes	○ No	○ Unk
Moisture on forelegs	○ Yes	☒ No	○ Unk
Dried exud. on scales	○ Yes	☒ No	○ Unk
Scales cracking	○ Yes	☒ No	○ Unk

BREATHING

Smooth	☒ Yes	○ No	○ Unk
Wheezing	○ Yes	☒ No	○ Unk
Rasping, clicking	○ Yes	☒ No	○ Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	○ Yes	☒ No	○ Unk
Eyelids swollen	○ Yes	☒ No	○ Unk
Eyes/lids wet	○ Yes	☒ No	○ Unk
Discharge from eyes	○ Yes	☒ No	○ Unk
Eyes sunken	○ Yes	☒ No	○ Unk
Eyes clear, bright	☒ Yes	○ No	○ Unk
Eyes dull, cloudy	○ Yes	☒ No	○ Unk
Chin glands draining	○ Yes	☒ No	○ Unk

INTEGUMENT

Integument dull	○ Yes	○ No	○ Unk
Integument glossy	○ Yes	○ No	○ Unk
Normal elasticity	○ Yes	○ No	○ Unk
Abnormal skin peeling	○ Yes	○ No	○ Unk

POSTURE/BEHAVIOR

Alert, responsive	☒ Yes	○ No	○ Unk
Lethargic	○ Yes	☒ No	○ Unk
Can withdraw tightly into shell	○ Yes	☒ No	☒ Unk
Limbs, head hanging loose	○ Yes	☒ No	○ Unk

ORAL CAVITY

Observed	☒ Yes	○ No	○ Unk
Discharge present	○ Yes	○ No	☒ Unk
Membranes pink	○ Yes	○ No	☒ Unk
Membranes pale, white	○ Yes	○ No	☒ Unk
Smells/mouth rot	○ Yes	○ No	☒ Unk

EVIDENCE OF SHELL DISEASE

Lesions present	○ Yes	○ No	○ Unk
Lesions active	○ Yes	○ No	○ Unk
Lesions healed	○ Yes	○ No	○ Unk
Scute laminae peeling	○ Yes	○ No	○ Unk
Scutes missing/peeling	○ Yes	○ No	○ Unk
Pitting	○ Yes	○ No	○ Unk
Scutes depressed/concave	○ Yes	○ No	○ Unk
Fungal areas	○ Yes	○ No	○ Unk

EVIDENCE OF TRAUMA

Head	○ Yes	☒ No	○ Unk
Gular	○ Yes	☒ No	○ Unk
Forelimbs	○ Yes	☒ No	○ Unk
Hindlimbs	○ Yes	☒ No	○ Unk
Shell	☒ Yes	○ No	○ Unk
Scute/bone replacement	○ Yes	○ No	○ Unk

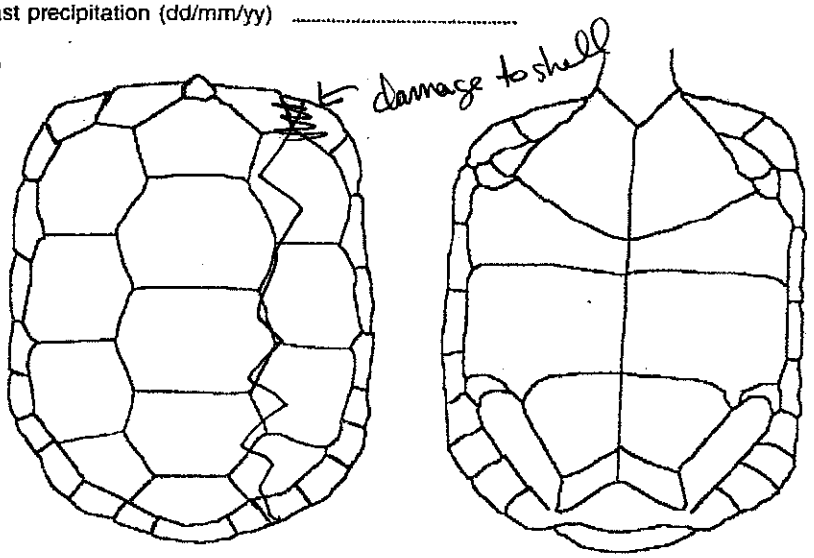
Describe:

Soil dryness: ○ wet ○ damp ○ dry

Last precipitation (dd/mm/yy)

Urine (vol)
Color
Viscosity
Particulates
Color
Nasal wash collected
Amt. blood/lymph taken (cc)
# of needle sticks
Time (min) of needle sticks
Location
PCV%
Other samples taken
Describe/draw parasites

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes appears healthy

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Do not abbreviate

Data Sheet for Live Desert Tortoises

Write on this side only

Located by Kimberly Duncan
Processed by
Study site name Ridgecrest (SM)

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
..... meters North ..... meters East

UTM's 0432654 n 3935253 e

Elevation ..... m Accuracy ± ..... m

County ..... State .....

☒ On Plot ○ Off Plot (on site)

Show location of tortoise in quadrat

Tortoise ID # RDLKD003
Year first marked .....
Verification of ID ☐
Capture type ..... Sex F
Date (dd/mm/yy) 4/2/09
Time (PST): Start 12:15 End .....

Frequency ..... Transmitter # .....
Transmitter type .....
Transmitter attached .....
Transmitter to be replaced on .....
PIT # .....

Tortoise Location

Cover site type: ☐ burrow ☐ pallet ☐ shrub ☐ caliche cave ☐ rock shelter

At cover site: ☐ entering ☐ exiting ☐ on mound ☐ inside

Not at cover site: ☒ in open ☐ other

Burrow Data

ID # .....
Orientation .....
Length ..... Height .....
Width ..... Soil cover .....
Location .....

Survey Type

○ Radio track
○ Burrow search
○ Coverage 1
○ Coverage 2
○ Incidental
○ Other

Tortoise Activity

☐ resting ☐ basking ☒ walking ☐ feeding

☐ Interacting with other tortoise
☐ Interacting with other animals

ID & sex of other tortoise .....
Species .....
Describe interaction:

Plants/items eaten (specific):

Color (shell & skin)

	HV	Hue	Value	Chroma	Color
V1 (center)					
V4 (center)					
LC1,2&V2 (seam)					
LM5,6 & LC2 (seam)					
Foreleg					
Hindleg					

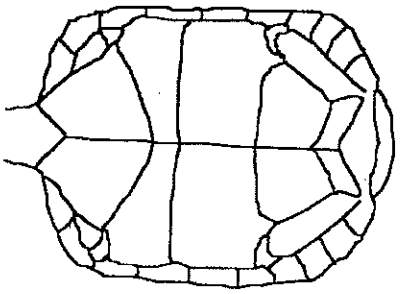
Are you color blind? ○ Yes ○ No
Type of blindness .....

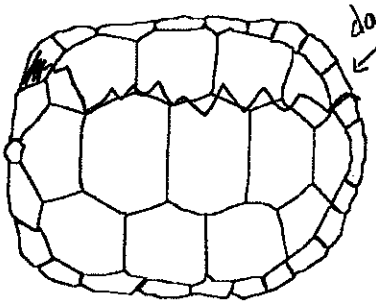
Body Measurements

MCL (mm) 150
PLN (mm) _____
Weight (g) _____
Void (g) _____
Total wt (g) _____

New growth ☐ present ☐ absent
Epoxy # ☐ present ☐ legible

Behavior





Other notes

Photos; roll ..... frames .....

Draw locations of notches (old and new), chips, and anomalies, etc.
Describe anomalies in numbering of marginals and any identification problems.

Entered by ☐ date ☐ on computer ☐
Modified by ☐ on ☐

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Data Sheet for Live Desert Tortoise

Located by Mikeal Dallghan Tortoise GPS ID # RDLMG005

Project site name Ridgecrest Date 4/2/09
Time 2:50PM

Map ID _____ Sex unknown

GPS Unit _____ UTM 0432480 n 3936857 e

Elevation _____m Accuracy +/-_____m
County_____State_____

Tortoise Location Burrow Data Survey Type

Cover site type
☐ burrow ☐ GPS ID# RDBMG025 ☐ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
X burrow	GPS ID # 0432479 / 3936858	☐ Tortoise Habitat Assessment
tortoise found in burrow, but	Orientation NE	☒ Tortoise Focused Survey
then turned to face out	~~Length (depth)~~	☐ Burrowing Owl Focused Survey
	Width 250 mm	☐ Botanical Survey
	Height	☐ Mojave Ground Squirrel Survey
	Location near creosote	☐ Other_____
	Soil Cover	☐ Focused tortoise survey

MCL ~ 210mm

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by: Michael Dallaghan
Processed by:
Study site name:
Township: Range:
Section: Quadrat:
Coordinates (Reference SW corner)
meters North: meters East:
UTM's: 0432480 n 3936857 e
County: State:
O On Plot O Off Plot

Show location of tortoise in quadrat

Tortoise ID #: RDLM 6005
Year first marked:
Verification of ID: ☐
Capture type: Sex: unknown
Date (dd/mm/yy): 7/2/09
Time (PST): Start: 2:50pm End:
Shell wear class:
Process time: hours
Frequency:
Transmitter #:

BEAK & NARES

Beak/nares wet	O Yes	O No	O Unk
Beak/nose damp	O Yes	O No	O Unk
Nasal exudate present	☒ Yes	O No	O Unk

Exudate color: ☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green — crusty

Bubble(s) from nares	O Yes	O No	O Unk
One nare occluded	O Yes	O No	O Unk
Both nares occluded	O Yes	O No	O Unk
Dirt on nose/beak	O Yes	O No	O Unk
Dirt in nares	O Yes	O No	O Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	O Yes	O No	O Unk
Moisture on forelegs	O Yes	O No	O Unk
Dried exud. on scales	☒ Yes	O No	O Unk crusty
Scales cracking	O Yes	O No	O Unk

BREATHING

Smooth	O Yes	O No	O Unk
Wheezing	O Yes	O No	O Unk
Rasping, clicking	O Yes	O No	O Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	O Yes	O No	O Unk
Eyelids swollen	O Yes	O No	O Unk
Eyes/lids wet	O Yes	O No	O Unk
Discharge from eyes	☒ Yes	O No	O Unk
Eyes sunken	O Yes	O No	O Unk
Eyes clear, bright	O Yes	O No	O Unk
Eyes dull, cloudy	O Yes	O No	O Unk
Chin glands draining	O Yes	O No	O Unk

INTEGUMENT

Integument dull	☒ Yes	O No	O Unk
Integument glossy	O Yes	O No	O Unk
Normal elasticity	O Yes	O No	O Unk
Abnormal skin peeling	O Yes	O No	O Unk

POSTURE/BEHAVIOR

Alert, responsive	☒ Yes	O No	O Unk
Lethargic	O Yes	O No	O Unk
Can withdraw tightly into shell	O Yes	O No	O Unk
Limbs, head hanging loose	O Yes	O No	O Unk

ORAL CAVITY

Observed	☒ Yes	O No	O Unk
Discharge present	O Yes	O No	O Unk
Membranes pink	O Yes	O No	O Unk
Membranes pale, white	O Yes	O No	O Unk
Smells/mouth rot	O Yes	O No	O Unk

EVIDENCE OF SHELL DISEASE

Lesions present	O Yes	O No	O Unk
Lesions active	O Yes	O No	O Unk
Lesions healed	O Yes	O No	O Unk
Scute laminae peeling	O Yes	O No	O Unk
Scutes missing/peeling	O Yes	O No	O Unk
Pitting	O Yes	O No	O Unk
Scutes depressed/concave	O Yes	O No	O Unk
Fungal areas	O Yes	O No	O Unk

EVIDENCE OF TRAUMA

Head	O Yes	O No	O Unk
Gular	O Yes	O No	O Unk
Forelimbs	O Yes	O No	O Unk
Hindlimbs	O Yes	O No	O Unk
Shell	O Yes	O No	O Unk
Scute/bone replacement	O Yes	O No	O Unk

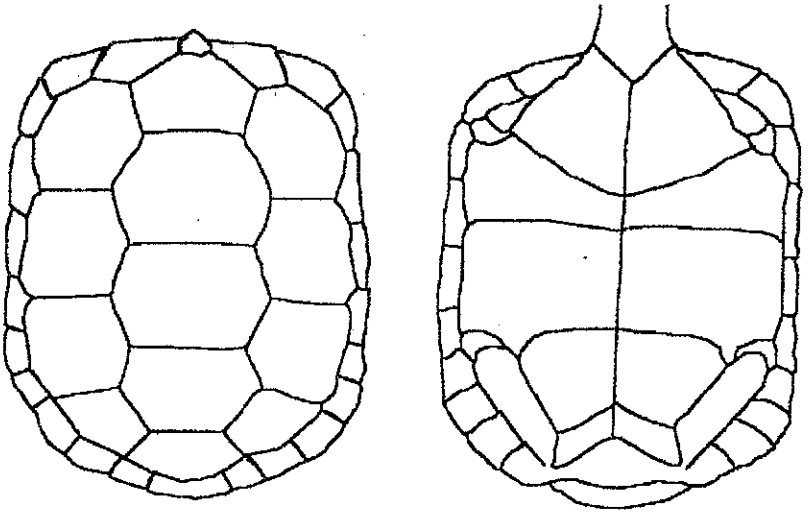
Describe:

Soil dryness: O wet ☒ damp O dry

Last precipitation (dd/mm/yy):

Urine (vol):
Color:
Viscosity:
Particulates:
Color:
Nasal wash collected:
Amt. blood/lymph taken (cc):
# of needle sticks:
Time (min) of needle sticks:
Location:
PCV%:
Other samples taken:
Describe/draw parasites

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes: Shell appeared to be slightly damaged in the front and looked as if it had grown over.

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Do not abbreviate

Data Sheet for Live Desert Tortoises

Write on this side only

Located by Michael Dallaghan
Processed by
Study site name

Township Range
Section Quadrat

Coordinates (Reference SW corner)
meters North meters East

UTM's 0432480 n 3936857 e

Elevation m Accuracy ± m

County Kern State CA

☒ On Plot ○ Off Plot (onsite)

Show location of tortoise in quadrat

Tortoise ID # RDLMG005
Year first marked
Verification of ID ☐
Capture type Sex unknown
Date (dd/mm/yy) 7/2/09
Time (PST): Start 2:50PM End
Frequency Transmitter #
Transmitter type
Transmitter attached
Transmitter to be replaced on
PIT #

Tortoise Location

Cover site type:
☒ burrow
☐ pallet
☐ shrub
☐ caliche cave
☐ rock shelter

At cover site:
☐ entering
☐ exiting
☐ on mound
☒ inside

Not at cover site:
☐ in open
☐ other

Burrow Data

ID # RDBMG025
Orientation NE
~~Length~~ Height
Width 250 mm Soil cover
Location [illegible]

Survey Type

○ Radio track
○ Burrow search
○ Coverage 1
○ Coverage 2
○ Incidental
○ Other

Tortoise Activity

☒ resting
☐ basking
☐ walking
☐ feeding

☐ Interacting with other tortoise
☐ Interacting with other animals

ID & sex of other tortoise
Species
Describe interaction:

Plants/items eaten (specific):

Color (shell & skin)

	HV	Hue	Value	Chroma	Color
V1 (center)					
V4 (center)					
LC1,2&V2 (seam)					
LM5,6 & LC2 (seam)					
Foreleg					
Hindleg					

Are you color blind? ○ Yes ○ No
Type of blindness

Body Measurements

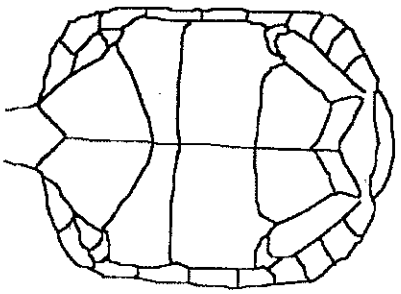
MCL (mm) 210mm
PLN (mm)
Weight (g)
Void (g)
Total wt (g)

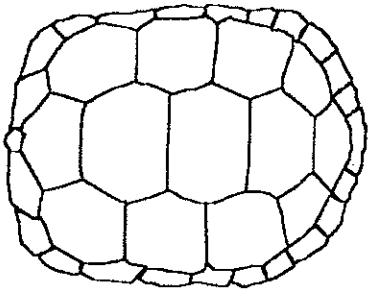
New growth
☐ present ☐ absent

Epoxy #
☐ present ☐ legible

Behavior

in burrow when observed, but then turned to look and face out





Other notes

Photos; roll frames

Draw locations of notches (old and new), chips, and anomalies, etc.
Describe anomalies in numbering of marginals and any identification problems.

Entered by date on computer
Modified by on

© Berry 1997

Data Sheet for Live Desert Tortoise

Located by Rob Wolfson Tortoise GPS ID # RDLRW007

Project site name Ridgecrest Date 7/2/07
Time 3:45PM

Map ID _____ Sex M ? (subadult)

GPS Unit _____ UTM 0432748 n 3935260 e

Elevation _____ m Accuracy +/- _____ m
County Kern State CA

Tortoise Location Burrow Data Survey Type

Cover site type
☐ burrow GPS ID# _____ ☐ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
☐ burrow	GPS ID #	☐ Tortoise Habitat Assessment
	Orientation	☒ Tortoise Focused Survey
	Length (depth)	☐ Burrowing Owl Focused Survey
	Width	☐ Botanical Survey
	Height	☐ Mojave Ground Squirrel Survey
	Location	☐ Other
	Soil Cover	☐ Focused tortoise survey

MCL ~160mm

soil temp. 100.0 °F

looked healthy

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by: Rob Wolfson
Processed by:
Study site name:

Township: Range:
Section: Quadrat:

Coordinates (Reference SW corner)
meters North: meters East:

UTM's: 0432748 n 3935260 e

County: State:

☒ On Plot ○ Off Plot (on site)

Show location of tortoise in quadrat

Tortoise ID #: RDL RW007
Year first marked:
Verification of ID: ☐
Capture type: Sex: M?
Date (dd/mm/yy): 4/2/09
Time (PST): Start: 3:45 PM End:
Shell wear class:
Process time: hours
Frequency:
Transmitter #:

BEAK & NARES

Beak/nares wet	☒ Yes	○ No	○ Unk
Beak/nose damp	○ Yes	☒ No	○ Unk
Nasal exudate present	○ Yes	☒ No	○ Unk
Exudate color	☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green		
Bubble(s) from nares	○ Yes	☒ No	○ Unk
One nare occluded	○ Yes	☒ No	○ Unk
Both nares occluded	○ Yes	☒ No	○ Unk
Dirt on nose/beak	○ Yes	☒ No	○ Unk
Dirt in nares	○ Yes	☒ No	○ Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	○ Yes	○ No	○ Unk
Moisture on forelegs	○ Yes	☒ No	○ Unk
Dried exud. on scales	○ Yes	☒ No	○ Unk
Scales cracking	○ Yes	☒ No	○ Unk

BREATHING

Smooth	○ Yes	○ No	☒ Unk
Wheezing	○ Yes	○ No	☒ Unk
Rasping, clicking	○ Yes	○ No	☒ Unk

EYES, CHIN GLANDS

Circle eyes or lids:

Eyes/lids whitened or discolored	○ Yes	☒ No	○ Unk
Eyelids swollen	○ Yes	☒ No	○ Unk
Eyes/lids wet	○ Yes	☒ No	○ Unk
Discharge from eyes	○ Yes	☒ No	○ Unk
Eyes sunken	○ Yes	☒ No	○ Unk
Eyes clear, bright	☒ Yes	○ No	○ Unk
Eyes dull, cloudy	○ Yes	☒ No	○ Unk
Chin glands draining	○ Yes	☒ No	○ Unk

INTEGUMENT

Integument dull	○ Yes	☒ No	○ Unk
Integument glossy	○ Yes	☒ No	○ Unk
Normal elasticity	☒ Yes	○ No	○ Unk
Abnormal skin peeling	○ Yes	☒ No	○ Unk

POSTURE/BEHAVIOR

Alert, responsive	☒ Yes	○ No	○ Unk
Lethargic	○ Yes	☒ No	○ Unk
Can withdraw tightly into shell	○ Yes	☒ No	○ Unk
Limbs, head hanging loose	○ Yes	☒ No	○ Unk

ORAL CAVITY

Observed	☒ Yes	○ No	○ Unk
Discharge present	○ Yes	○ No	☒ Unk
Membranes pink	○ Yes	○ No	☒ Unk
Membranes pale, white	○ Yes	○ No	☒ Unk
Smells/mouth rot	○ Yes	○ No	☒ Unk

EVIDENCE OF SHELL DISEASE

Lesions present	○ Yes	☒ No	○ Unk
Lesions active	○ Yes	☒ No	○ Unk
Lesions healed	○ Yes	☒ No	○ Unk
Scute laminae peeling	○ Yes	☒ No	○ Unk
Scutes missing/peeling	○ Yes	☒ No	○ Unk
Pitting	○ Yes	☒ No	○ Unk
Scutes depressed/concave	○ Yes	☒ No	○ Unk
Fungal areas	○ Yes	☒ No	○ Unk

EVIDENCE OF TRAUMA

Head	○ Yes	☒ No	○ Unk
Gular	○ Yes	☒ No	○ Unk
Forelimbs	○ Yes	☒ No	○ Unk
Hindlimbs	○ Yes	☒ No	○ Unk
Shell	○ Yes	☒ No	○ Unk
Scute/bone replacement	○ Yes	☒ No	○ Unk

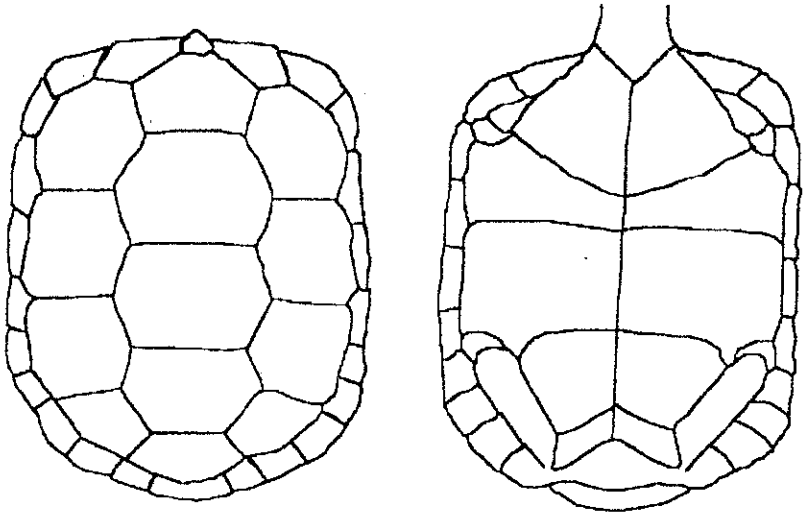
Describe:

Soil dryness: ○ wet ○ damp ○ dry

Last precipitation (dd/mm/yy):

Urine (vol):
Color:
Viscosity:
Particulates:
Color:
Nasal wash collected:
Amt. blood/lymph taken (cc):
# of needle sticks:
Time (min) of needle sticks:
Location:
PCV%:
Other samples taken:
Describe/draw parasites:

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes:

© Berry 1997

Do not abbreviate

Data Sheet for Live Desert Tortoises

Write on this side only

Located by Rob Wolfson
Processed by
Study site name

Township Range
Section Quadrat

Coordinates (Reference SW corner)
meters North meters East

UTM's 0432748 n 3935260 e

Elevation m Accuracy ± m

County State

☒ On Plot ○ Off Plot (on site)

Show location of tortoise in quadrat

Tortoise ID # RDLRW007
Year first marked
Verification of ID ☐
Capture type Sex M?
Date (dd/mm/yy) 4/2/09
Time (PST): Start 3:45PM End
Frequency Transmitter #
Transmitter type
Transmitter attached
Transmitter to be replaced on
PIT #

Tortoise Location

Cover site type:
- ☐ burrow
- ☐ pallet
- ☐ shrub
- ☐ caliche cave
- ☐ rock shelter

At cover site:
- ☐ entering
- ☐ exiting
- ☐ on mound
- ☐ inside

Not at cover site:
- ☒ in open
- ☐ other

Burrow Data

ID #
Orientation
Length Height
Width Soil cover
Location

Survey Type

- ○ Radio track
- ○ Burrow search
- ○ Coverage 1
- ○ Coverage 2
- ○ Incidental
- ○ Other

Tortoise Activity

- ☐ resting
- ☐ basking
- ☒ walking
- ☐ feeding
- ☐ Interacting with other tortoise
- ☐ Interacting with other animals

ID & sex of other tortoise
Species
Describe interaction:

Plants/items eaten (specific):

Color (shell & skin)

	HV	Hue	Value	Chroma	Color
V1 (center)					
V4 (center)					
LC1,2&V2 (seam)					
LM5,6 & LC2 (seam)					
Foreleg					
Hindleg					

Are you color blind? ○ Yes ○ No
Type of blindness

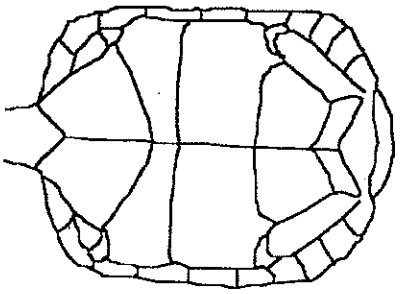
Body Measurements

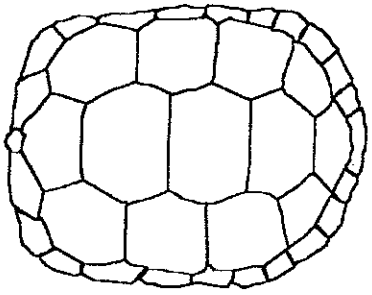
MCL (mm) 160
PLN (mm)
Weight (g)
Void (g)
Total wt (g)

New growth
☐ present ☐ absent

Epoxy #
☐ present ☐ legible

Behavior





Other notes

Photos: roll frames

Draw locations of notches (old and new), chips, and anomalies, etc.
Describe anomalies in numbering of marginals and any identification problems.

Entered by date on computer
Modified by on

© Berry 1997

04/01/09
Zinshalle
0432340
D4-D7

0432400	X	432430	X	432460		432490		432520		432550	
410	X	440	X	470		500		530		560	
420	X	450	X	480		510		540		570	

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridgecrest Date: 4/2/09 Page 1 of ____

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	8, 11 + 13	D4 – D7	R. Duncan, R. Wolfson, M. Gallagher	LD Bishop, Earl Dennis } UXO team

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	9:00 AM	58°F	5-10 mph	clear
Mid-day	2:00 PM	78°F	gust up to 50 mph	clear
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDBMG021	0432422/3936839	DETO	A J U	M F U	Y N	W side of creosote; scat @ entrance + black scat inside	1	3	
RNEMG007	0432423/3936013		A J U	M F U	Y N	2 nests in chalda			
RDLRW006	0432378/3935570 *	DETO	A J U	M F U	Y N	walking towards creosote and burrow			
RUXORW007	0432403/3935452		A J U	M F U	Y N	identified 4/1/09 @ RDBRW018 (sand 85.5°F)			
~~RDEKD00~~			A J U	M F U	Y N	flares found w/ no charge			
RNEKD003	0432404/3935377		A J U	M F U	Y N	nest in chalda			
RDLKD00[illegible]	0432367/3935326 *	DETO	A J U	M F U	Y N	live tortoise seen earlier by Earl Dennis,			out of burrow @ 3:50 PM
			A J U	M F U	Y N	now in burrow S of creosote 2 pedi in sequence			30m S of burrow MCL ~ 200 mm
RDBKD004	0432367/3935326	DETO	A J U	M F U	Y N	burrow facing E ~50' W of dirt road (240mm)	1		
RDLKD005	0432684/3935253 *	DETO site	A J U	M F U	Y N	see health sheet; 150 cm MCL x 50-60 cm length			
RUXOK001	0432436/3935362		A J U	M F U	Y N	fleece; used up			
RUXOMG007	0432453/3935586		A J U	M F U	Y N	flare; used up			
RDBMG022	0432450/3935671	DETO	A J U	M F U	Y N	burrow facing SW; w/ scat @ entrance; 770mm	1	3	
RDBMG023	0432448/3935740		A J U	M F U	Y N	scat; at small creosote shrub	3	3	
RDBMG024	0432463/3935808	DETO	A J U	M F U	Y N	scat + good burrow looks recently used	1	2	
RMARW027	0432405/3936769		A J U	M F U	Y N	collapsed; 2 depressions			
RDSMG003	0432447/3936818		A J U	M F U	Y N	1 piece of scat in open area		3	
RDLMG005	0432480/3936857 *	DETO	A J U	M F U	Y N	DETO in burrow; chip out of back left side flare			2:50 PM
			A J U	M F U	Y N	(210mm) see health sheet (custom nares + eyes)			
RDBMG025	0432479/3936858	DETO	A J U	M F U	Y N	facing NE near creosote (250mm x	1		
RDLRW007	0432748/3935260 *	DETO site	A J U	M F U	Y N	MCL ~ 160 cm			3:45 PM
						see health sheet; walking in the open			soil temp 100.0°F

species list
horned lizard
whiptail

*See Reverse

bug juice so may be a male

Call 911 if UXO found
~~[illegible]~~ police
(EOD team)
(760) 382-9101

UXO team (Earl Dennis) observed tortoise @ 0432778/3935315

432460	X	480	X	500		520	
470	X	490	X	510		530	

KD = SW11
RW = SM8

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridgecrest

Date: 4/3/09

Page 1 of 1

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	8 + 11	D-4 to D-7	K. Duncan R. Wolfson	Earl Demers LeRoy Bishop

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	8:45 AM	51°F	very windy (gusting to 30 mph)	clear
Mid-day	11:30 am	51°F	windy (up to 20 mph)	clear
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RUXORD002	0432484/3936067		A J U	M F U	Y N	uxo - flare ; not live			
RuXO KD003	0432492/3935735		A J U	M F U	Y N	uxo - flare ; not live			
RDB KD005	0432498/3935847		A J U	M F U	Y N	partially filled in; between waste bank & shed.	4		
~~RDB.RW00~~			A J U	M F U	Y N	uxo flare ; not live			
RuXORW002	0432481/3936146		A J U	M F U	Y N	"			
RUXORW003	0432529/3936174		A J U	M F U	Y N	uxo-flare ; not live			
RUXOKD004	0432500/3936277		A J U	M F U	Y N	uxo-flare ; not live			
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

0432500	X	0432520	X	540	X	560	X
510	X	530	X	550	X	570	X

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridgecrest

Date: 4/4/09

Page 1 of _____

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	8 +11	D4 to D7	K. Duncan R. Wolfson	

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	9:00 AM	45°F	5-10 mph	clear
Mid-day	12:00 PM	62°F	5-10 mph	
End	4:00 PM	64°F	5 mph	

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
9:30AM	0432479/3936858 burrow	DETO	A J U	M F U	Y N	checked burrow + live DETO was observed in			
			A J U	M F U	Y N	burrow RDBMG025 + RDLMG005?			
RDBRW019	0432545/3935951		A J U	M F U	Y N	facing SE under shrub	5		
RUXORD05	0432515/3936024		A J U	M F U	Y N	shell casing? empty (artillery)			
~~[illegible]~~			A J U	M F U	Y N	~~[illegible]~~	4		
RMAXD007	0432541/3936904		A J U	M F U	Y N	under creosote; ends ~2' back			
12:50PM		DETO	A J U	M F U	Y N	DETO observed 60m E of RDBMG025			
			A J U	M F U	Y N	in wash foraging; soil 99.0°F			
RMARW029	0432558/3936342		A J U	M F U	Y N	under creosote in wash			
RMARW030	0432549/3936129		A J U	M F U	Y N	under creosote near wash			
RDBKD006	0432539/3935598		A J U	M F U	Y N	someone in, no sign of excavation, good size + shape	3		
RDCKD002	0432544/3935604	DETO	A J U	M F U	Y N	6 pieces found around ↑ burrow			5
* RDCCG001	0432577/3935417	DETO	A J U	M F U	Y N	shell intact, scutes peeling off carter, flesh			3
			A J U	M F U	Y N	present on bones inside shell some			
RMARW031	0432568/3935503		A J U	M F U	Y N	under shrub			
+ RDCKD002	(see note)		A J U	M F U	Y N	piece, possible fem remains found 20m E			
RKBKD004	0432570/3935791		A J U	M F U	Y N	3 entrances, bit fresh scat present			
RUXOKD006	0432561/3936188		A J U	M F U	Y N	UXO - flare, not live / non-explosive			
RUXORW004	0432579/3936193		A J U	M F U	Y N	UXO - flare, not live / non-explosive			
3:15PM		DETO	A J U	M F U	Y N	live DETO in burrow / 101.3°F			
RDBKD007	0432560/3936843		A J U	M F U	Y N	burrow w/ tortoise, facing E near sm. shrub	1		

*See Reverse

* observed + GPS point taken Feb. 14, 2009

Site: Ridgecrest

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 7/4/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	8 + 11		R. Bauer & R. Wolfson	

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDBRW020	0432572 ~~0472092~~/3936960		A J U	M F U	Y N	facing E under waste	2		
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

0432580	X	600	X	620	X	640	X
590	X	610	X	630	X	650	X

R. Wolfson · SM 8
K. Duncan · SM 11

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Rodgers

Date: 4/5/09

Page 1 of _____

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	8 & 11	D4 to D7	K. Duncan R. Wolfson	

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	9:00AM	63.5°F	0-5mph	clear
Mid-day	12:20 PM	65.8°F	5-10mph	clear
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RBBKD001	0432600/3935480	BUOW	A J U	M F U	Y N	some whitewash & old owl pellets, near creosote (N side)			
RMARW032	0432607/3935478		A J U	M F U	Y N	smallish hole on N side of creosote			
RMARW033	0432600/3936341		A J U	M F U	Y N	collapsed hole between sm. creosote shrubs			
RNERW002	0432605/3936908		A J U	M F U	Y N	creosote stick nest in shrubs (determined)			
RDBKD008	0432616/3937105		A J U	M F U	Y N	tortoise shape, open on both ends near creosote	4		
RDBKD009	0432604/3937146		A J U	M F U	Y N	tortoise shape, under creosote shrub, facing W	5		
RDCKD003	0432593/3936872	DETO	(A) J U	(M) F U	Y N	carcass; MCL = 270mm Plastron = 210mm			2
RMARW034	0432579/3936366		A J U	M F U	Y N	facing SW under creosote shrub			
RMARW035	0432623/3935749		A J U	M F U	Y N	hole face NW under creosote shrub			
RKBKD005	0432628/3935418		A J U	M F U	Y N	3 open entrances in the open, old scat			
RUXOKD005	0432644/3936038		A J U	M F U	Y N	UXO - flare; not here/unexploded (exhausted)			
RUXOKD007	0432661/3936066		A J U	M F U	Y N	UXO-flare; exhausted			
RNERW003	0432625/3936943		A J U	M F U	Y N	determined nest in shrubs			
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

Data Sheet for Live Desert Tortoise

Located by Kimberly Duncan Tortoise GPS ID # RDL KD004

Project site name Ridgecrest Date 4/6/09
Time 2:20 PM

Map ID tile D6 Sex F

GPS Unit 3M 8 UTM 0432757 n 3935841 e

Elevation _____ m Accuracy +/- _____ m
County Kern State CA

Tortoise Location Burrow Data Survey Type

Cover site type
☒ burrow ☐ GPS ID# _____ ☒ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
☐ burrow	GPS ID #	☐ Tortoise Habitat Assessment
tortoise observed 25 m SE of burrow	Orientation	☒ Tortoise Focused Survey
RDBMG 027	Length (depth)	☐ Burrowing Owl Focused Survey
	Width	☐ Botanical Survey
	Height	☐ Mojave Ground Squirrel Survey
	Location	☐ Other
	Soil Cover	☐ Focused tortoise survey

MCL 200-210

soil temp = 108.2°F

Do not abbreviate

Data Sheet for Live Desert Tortoises

Write on this side only

Located by Kimberly Duncan
Processed by
Study site name Ridgecrest

Township Range
Section Quadrat

Coordinates (Reference SW corner)
meters North meters East

UTM's 0432757 n 3935841 e

Elevation m Accuracy ± m

County State CA

☒ On Plot ○ Off Plot tile D6

Show location of tortoise in quadrat

Tortoise ID # RDLKD004
Year first marked
Verification of ID ☐
Capture type Sex F
Date (dd/mm/yy) 4/6/09
Time (PST): Start 2:20 End
Frequency Transmitter #
Transmitter type
Transmitter attached
Transmitter to be replaced on
PIT #

Tortoise Location

Cover site type:
- ☐ burrow
- ☐ pallet
- ☒ shrub
- ☐ caliche cave
- ☐ rock shelter

At cover site:
- ☐ entering
- ☐ exiting
- ☐ on mound
- ☐ inside

Not at cover site:
- ☐ in open
- ☐ other

Burrow Data

ID # RDBMG027
Orientation facing N
Length 300 Height 120 mm
Width 300 mm Soil cover
Location under creosote

Survey Type

- ○ Radio track
- ○ Burrow search
- ○ Coverage 1
- ○ Coverage 2
- ○ Incidental
- ○ Other

Tortoise Activity

- ☒ resting
- ☐ basking
- ☐ walking
- ☐ feeding
- ☐ Interacting with other tortoise
- ☐ Interacting with other animals

ID & sex of other tortoise
Species
Describe interaction:

Plants/items eaten (specific):

Color (shell & skin)

	HV	Hue	Value	Chroma	Color
V1 (center)					
V4 (center)					
LC1,2&V2 (seam)					
LM5,6 & LC2 (seam)					
Foreleg					
Hindleg					

Are you color blind? ○ Yes ☒ No
Type of blindness

Body Measurements

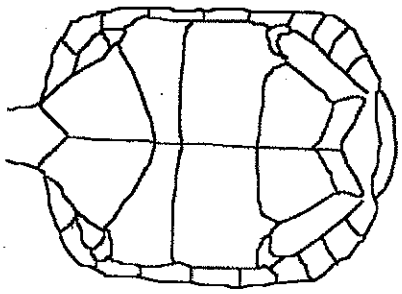
MCL (mm) 200-210 mm
PLN (mm)
Weight (g)
Void (g)
Total wt (g)

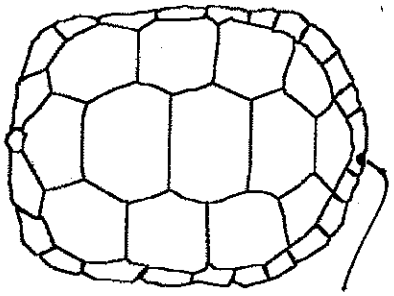
New growth
☐ present ☐ absent

Epoxy #
☐ present ☐ legible

Behavior

Other notes





white mark just above + left of tail

Photos; roll frames

Draw locations of notches (old and new), chips, and anomalies, etc.
Describe anomalies in numbering of marginals and any identification problems.

Entered by date on computer
Modified by on

© Berry 1997

0432660	X	690	X	720	X	750	X
670	X	700	X	730	X	760	X
680	X	710	X	740	X	770	X

SM 8 = [redacted] RW
SM 11 = [redacted] KD
SM 13 = [redacted] MG

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridgecrest

Date: 4/16/09

Page 1 of 2

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	8, 11, 13	D4 to D7	K. Donnan, R. Wolfgang, M. Gallagher	

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	8:45 AM	65.8 °F	0-5 mph	clear
Mid-day	11:45 AM	73.4 °F	5-10 mph	clear
End	3:45 PM	75. °F	5-10 mph	clear

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell	
RMAKD008	0432673/3935474		A J U	M F U	Y N	hole out in open				
RMARW036	0432693/3935308		A J U	M F U	Y N	hole out in the open; stopo spirillo				
RMARW037	0432686/3935416		A J U	M F U	Y N	hole near creosote shrub				
RMAKD009	0432701/3935578		A J U	M F U	Y N	2 entrances under W side of creosote				
RMARW038	0432689/3935682		A J U	M F U	Y N	hole under E side of creosote				
RUXOKD008	0432705/3936436		A J U	M F U	Y N	UXO-flare; flare exh unexhausted *				9:30AM
RUXOMG008	0432720/3936434		A J U	M F U	Y N	UXO-flare; flare and cor exhausted *				
RKBMG008	0432720/3936669		A J U	M F U	Y N	4 entrances; some hit for scat + winterwash + burrow pellet				
RDBMG026	0432745/3935512	DETO?	A J U	M F U	Y N	hole under creosote (NE side); tortoise shape/300x110mm	5			
RKBKD006	0432757/3935477		A J U	M F U	Y N	4 entrances spread out				
RDB[redacted]021 (RW)	0432747/3935495	DETO?	A J U	M F U	Y N	W side of creosote facing W/270x140mm	5			
R[redacted]MG004 (DS)	0432767/3935948	DETO	A J U	M F U	Y N	scat in the open		5		
RMARW039	0432752/3935991		A J U	M F U	Y N	sm. hole under sm. shrub				
RDBRW022	0432745/3936611	DETO	A J U	M F U	Y N	collapsed on S side of creosote shrub	4			
RDBRW023	0432751/3936639	DETO?	A J U	M F U	Y N	directly under creosote on N side; possible scat inside	5			
RDBRW024	0432750/3936644	DETO?	A J U	M F U	Y N	deteriorated/collapsed	4			
RDBKD010	0432765/3937163	DETO?	A J U	M F U	Y N	in the open facing N/150mm x 90mm	5			
RNERW004	0432724/3936281		A J U	M F U	Y N	old stick nest in cholla				
RDBMG027	0432743/3935853	DETO	A J U	M F U	Y N	burrow on N side of creosote/ 300 x 120 mm	1			
			A J U	M F U	Y N	no DETO, but looks like fresh tracks				
RDLKD004	0432757/3935841	DETO	(A) J U	M (F) U	(Y) N	resting in shade of creosote/200-210mm MCL See health sheet				2:20PM

*See Reverse

make note of:
gopher snake
gyr snake
Kent

Site: Ridgecrest

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 4/6/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	8+11	D4 to D7		

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments)		
							Burr	Scat	Shell
RDSMG005	0432740/3935820		A J U	M F U	Y N	2 pieces of scat		2	
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

Data Sheet for Live Desert Tortoise

Located by Kimberly Duncan Tortoise GPS ID # RDLKD005

Project site name Ridgecrest Date 4/7/09
Time 11:30 AM

Map ID _____ Sex _____

GPS Unit _____ UTM 0432851 n 3936129 e

Elevation _____ m Accuracy +/- _____ m
County Kern State CA

Tortoise Location Burrow Data Survey Type

Cover site type
☐ burrow ☐ GPS ID# _____ ☐ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
☐ burrow	GPS ID # _____	☐ Tortoise Habitat Assessment
	Orientation	☒ Tortoise Focused Survey
	Length (depth)	☐ Burrowing Owl Focused Survey
	Width	☐ Botanical Survey
	Height	☐ Mojave Ground Squirrel Survey
	Location	☐ Other _____
	Soil Cover	☐ Focused tortoise survey

MC ~230-240mm
Soil temp 92.5°F

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by Kim Duncan
Processed by no handling
Study site name Ridgecrest
Township ..... Range .....
Section ..... Quadrat .....
Coordinates (Reference SW corner)
..... meters North ..... meters East
UTM's ..... n ..... e
County Kern State CA
● On Plot ○ Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLKD005
Year first marked .....
Verification of ID ☐
Capture type ..... Sex M
Date (dd/mm/yy) 4/7/09
Time (PST): Start ..... End .....
Shell wear class .....
Process time ..... hours
Frequency .....
Transmitter # .....

BEAK & NARES

Beak/nares wet	○ Yes	● No	○ Unk
Beak/nose damp	○ Yes	● No	○ Unk
Nasal exudate present	○ Yes	● No	○ Unk
Exudate color	☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green		
Bubble(s) from nares	○ Yes	● No	○ Unk
One nare occluded	○ Yes	● No	○ Unk
Both nares occluded	○ Yes	● No	○ Unk
Dirt on nose/beak	○ Yes	● No	○ Unk
Dirt in nares	○ Yes	● No	○ Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	○ Yes	● No	○ Unk
Moisture on forelegs	○ Yes	● No	○ Unk
Dried exud. on scales	○ Yes	● No	○ Unk
Scales cracking	○ Yes	● No	○ Unk

BREATHING

Smooth	● Yes	○ No	○ Unk
Wheezing	○ Yes	● No	○ Unk
Rasping, clicking	○ Yes	● No	○ Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	○ Yes	● No	○ Unk
Eyelids swollen	○ Yes	● No	○ Unk
Eyes/lids wet	○ Yes	● No	○ Unk
Discharge from eyes	○ Yes	● No	○ Unk
Eyes sunken	○ Yes	● No	○ Unk
Eyes clear, bright	● Yes	○ No	○ Unk
Eyes dull, cloudy	○ Yes	● No	○ Unk
Chin glands draining	○ Yes	● No	○ Unk

INTEGUMENT

Integument dull	● Yes	○ No	○ Unk
Integument glossy	○ Yes	● No	○ Unk
Normal elasticity	● Yes	○ No	○ Unk
Abnormal skin peeling	○ Yes	● No	○ Unk

POSTURE/BEHAVIOR

Alert, responsive	● Yes	○ No	○ Unk
Lethargic	○ Yes	● No	○ Unk
Can withdraw tightly into shell	○ Yes	○ No	● Unk
Limbs, head hanging loose	○ Yes	● No	○ Unk

ORAL CAVITY

Observed	○ Yes	● No	○ Unk
Discharge present	○ Yes	○ No	● Unk
Membranes pink	○ Yes	○ No	● Unk
Membranes pale, white	○ Yes	○ No	● Unk
Smells/mouth rot	○ Yes	○ No	● Unk

EVIDENCE OF SHELL DISEASE

Lesions present	○ Yes	● No	○ Unk
Lesions active	○ Yes	● No	○ Unk
Lesions healed	○ Yes	● No	○ Unk
Scute laminae peeling	○ Yes	● No	○ Unk
Scutes missing/peeling	○ Yes	● No	○ Unk
Pitting	○ Yes	● No	○ Unk
Scutes depressed/concave	○ Yes	● No	○ Unk
Fungal areas	○ Yes	● No	○ Unk

EVIDENCE OF TRAUMA

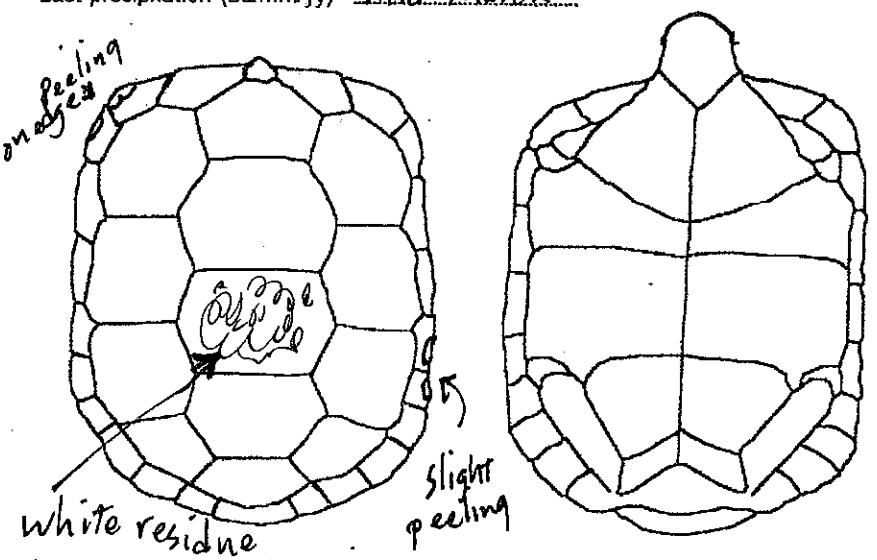
Head	○ Yes	● No	○ Unk
Gular	○ Yes	● No	○ Unk
Forelimbs	○ Yes	● No	○ Unk
Hindlimbs	○ Yes	● No	○ Unk
Shell	○ Yes	● No	○ Unk
Scute/bone replacement	○ Yes	● No	○ Unk

Describe: .....

Soil dryness: ○ wet ○ damp ● dry
Last precipitation (dd/mm/yy) mid-March

Urine (vol) .....
Color .....
Viscosity .....
Particulates .....
Color .....
Nasal wash collected .....
Amt. blood/lymph taken (cc) .....
# of needle sticks .....
Time (min) of needle sticks .....
Location .....
PCV% .....
Other samples taken .....
Describe/draw parasites

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes Some flaking skin on left of neck

© Berry 1997

Do not abbreviate

Data Sheet for Live Desert Tortoises

Write on this side only

Located by Kimberly Duncan
Processed by
Study site name Pahgrest

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
..... meters North ..... meters East

UTM's ..... n ..... e

Elevation ..... m Accuracy ± ..... m

County ..... State .....

☒ On Plot ○ Off Plot (on site) tb DL

Show location of tortoise in quadrat

Tortoise ID # RDLKD005
Year first marked
Verification of ID ☐
Capture type ..... Sex M
Date (dd/mm/yy) 4/7/09
Time (PST): Start 11:30AM End .....
Frequency ..... Transmitter # .....
Transmitter type .....
Transmitter attached .....
Transmitter to be replaced on .....
PIT # .....

Tortoise Location

Cover site type:
☐ burrow
☐ pallet
☐ shrub
☐ caliche cave
☐ rock shelter

At cover site:
☐ entering
☐ exiting
☐ on mound
☐ inside

Not at cover site:
☒ in open
☐ other

Burrow Data

ID # .....
Orientation .....
Length ..... Height .....
Width ..... Soil cover .....
Location .....

Survey Type

○ Radio track
○ Burrow search
○ Coverage 1
○ Coverage 2
○ Incidental
○ Other

Tortoise Activity

☐ resting
☒ basking
☐ walking
☐ feeding

☐ Interacting with other tortoise
☐ Interacting with other animals

ID & sex of other tortoise .....
Species .....
Describe interaction:

Plants/items eaten (specific):

Color (shell & skin)

	HV	Hue	Value	Chroma	Color
V1 (center)					
V4 (center)					
LC1,2&V2 (seam)					
LM5,6 & LC2 (seam)					
Foreleg					
Hindleg					

Are you color blind? ○ Yes ○ No
Type of blindness .....

Body Measurements

MCL (mm) ~230-240mm
PLN (mm) _____
Weight (g) _____
Void (g) _____
Total wt (g) _____

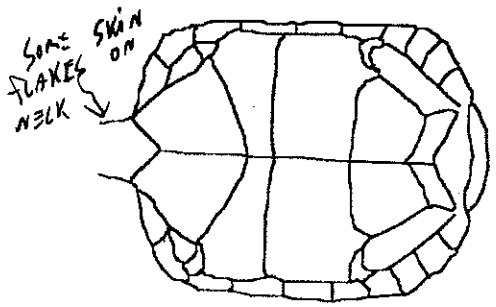
New growth
☐ present ☐ absent

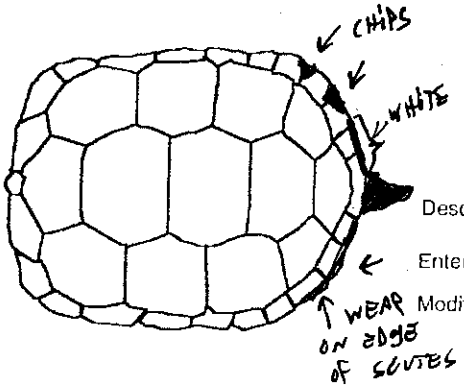
Epoxy #
☐ present ☐ legible

Behavior

Other notes

Some of the rear claws were light tan rather than black.





Photos; roll ..... frames .....

Draw locations of notches (old and new), chips, and anomalies, etc.
Describe anomalies in numbering of marginals and any identification problems.

Entered by ☐ date ☐ on computer ☐
Modified by ☐ on ☐

© Berry 1997

Soil temp 92.5°F

0432780	X	810	X	840	X	870	X
790	X	820	X	850	X	880	X
800	X	830	X	860	X	890	X

SM8 = RW
SM11 = KD
SM13 = MG

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridgecrest Date: 4/7/09 Page 1 of _____

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	8, 11, 13	D4 to D7	K. Duncan R. Walton M. Gallagher	

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	8:30 AM	68.5°F	5-10mph	clear
Mid-day	2:00 PM	77.0°F	10-20mph	partly cloudy
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDBMG028	0432806/3935687		A J U	M F U	Y N	burrow under creosote shrub (N side) facing E/200mm wide	5		
RMAKD010	0432786/3935892		A J U	M F U	Y N	hole under creosote; end is visible			
9:00 AM	RDLKD004	DETO	A J U	M F U	Y N	observed DETO @ burrow RDBMG027			
RMAMG025	0432835/3936724		A J U	M F U	Y N	hole under creosote shrub; facing N			
RMAKD011	0432820/3936612		A J U	M F U	Y N	2 openings under creosote shrub			
RMAKD012	0432815/3936230		A J U	M F U	Y N	1 hole under creosote, facing N			
RMAMG026	0432829/3935929		A J U	M F U	Y N	N side of creosote, facing E			
RDSMG006	0432829/3935816	DETO	A J U	M F U	Y N	1 piece		3	
RMAKD013	0432822/3935633		A J U	M F U	Y N	hole on N side of creosote			
RUXORW008	0432809/3935629		A J U	M F U	Y N	UXO-flare; exhausted			
RDPMG001	0432831/3935568	DETO	A J U	M F U	Y N	several scats, N side of creosote facing NW		3	
DDSMG007	0432829/3935526	DETO	A J U	M F U	Y N			5	
RKBMG009	0432866/3935717		A J U	M F U	Y N	4 entrances; 2 very large/absorbent KF scat			
RMAKD014	0432857/3935913		A J U	M F U	Y N	narrows out as it goes in; adjacent to creosote			
RDBMG029	0432870/3935944		A J U	M F U	Y N	N side of creosote, facing W (~250 mm wide)	4		
RDSMG008	0432855/3936024		A J U	M F U	Y N	1 piece of scat spread out		3	
RDLKD005	0432851/3936129	DETO	(A) J U	(M) F U	(Y) N	DETO observed in the open, MCL ~ 230-240 mm			11:30AM
RMAKD015	0432855/3936674		A J U	M F U	Y N	under creosote adjacent to narrow wash			
RMAKD016	0432848/3936747		A J U	M F U	Y N	under creosote			
RMAKD017	0432886/3937023		A J U	M F U	Y N	at edge of wash			
RKBKD008	0432875/3936878		A J U	M F U	Y N	3 openings; lots of KF scat			

*See Reverse

observed
Hank Lindquist

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Kilgore

Date: 4/7/09

Page 2 of _____

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments)		
							Burr	Scat	Shell
RMA RW040	0432871/3936812		A J U	M F U	Y N	collapsed; tortoise shape; in wash			
RMYO RW009	0432869/3936625		A J U	M F U	Y N	WRO - flare / exhausted			
RMA MG027	0432895/3936565		A J U	M F U	Y N				
RDP MG002	0432900/3935994		A J U	M F U	Y N	DETO pellet, freshly used w/ trailer			
RDS KD001	0432881/3935759		A J U	M F U	Y N	DETO scat; 2 pieces ~ 20 M apart (N)		5	
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

0432900	X	930	X	960		990	
910	X	940	X	970		0433000	
920	X	950	X	980		010	

SM 8 - RW
SM 11 - KD
SM 13 - MG

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridgecrest

Date: 4/8/09

Page 1 of 1

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	8, 11, 13	D4 to D7	K. Duncan R. Wilson M. Gallagher	

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	8:30 AM	52°F	10-20 mph / SSW	clear
Mid-day	1:00 PM	64°F	20-30 mph	partly cloudy
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDBKD011	0432907/3935852		A J U	M F U	Y N	burrow adjacent to creosote (~250mm)	3		
RMARW041	0432905/3935909		A J U	M F U	Y N	under N side of creosote			
RDSMG 009	0432920/3936030		A J U	M F U	Y N	1 scat		2	
RMARW042	0432903/3936305		A J U	M F U	Y N	in creosote shrub @ base			
RDBMG030	0432914/3936402		A J U	M F U	Y N	NE side of creosote facing NE	4		
RDBKD012	0432909/3936074		A J U	M F U	Y N	in the open / collapsed	4		
RMAKD018	0432913/3936737		A J U	M F U	Y N	collapsed partially / in the open			
RMARW043	0432905/3936890		A J U	M F U	Y N	depression			
RMAKD019	0432916/3937177		A J U	M F U	Y N	hole on E side of creosote			
RDBRW025	0432931/3937038		A J U	M F U	Y N	facing NW; partially collapsed	3		
RMARW044	0432932/3936757		A J U	M F U	Y N	hole near cassia bush, open bush a ways			
RMAKD020	0432935/3936669		A J U	M F U	Y N	under cassia shrub, goes off to the east			
RDCMG003	0432952/3936365		A J U	M F U	Y N	[illegible] scutes, no shell or bones			
RMAMG030	0432948/3936359		A J U	M F U	Y N	old burrow, particularly collapsed.			
RDBMG031	0432949/3935766		A J U	M F U	Y N	burrow, possible tortoise / [illegible]	4		
RMAMG031	0432950/3935705		A J U	M F U	Y N	hole			
RMAKD021	0432940/3935681		A J U	M F U	Y N	under center of creosote			
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

SM8 - R. Wolfson
SM11 - K. Duncan
SM13 - M. Gallagher

0432960	X	0432990	X	0433020	X	0433050	X	0433080	X	0433110	
970	X	0433000	X	030	X	060	X	090	X	120	
980	X	010	X	040	X	070	X	100	X	130	

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridgecrest

Date: 4/13/09

Page 1 of ____

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO		D4 to D7	K. Duncan R. Wolfson M. Gallagher	

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	8:20AM	59°F	0-5mph	hazy
Mid-day	1:45PM	79°F	5-10mph	hazy
End	4:00PM	85°F	avg. 8 mph w/ 15mph gust	partly cloudy

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RKBMG010	0432992/3935547		A J U	M F U	Y N	complex of burrows; ~15 opening; old KF scat present			
RMAMG032	0432981/3935587		A J U	M F U	Y N	opening on E side of creosote			
RDBKD013	0432968/3935747		A J U	M F U	Y N	possible DETO burrow; collapsed	4		
RDBMG032	0432992/3935805		A J U	M F U	Y N	old KF complex; 1 opening; old DETO scat found	2	2	
RMARW045	0432964/3936480		A J U	M F U	Y N	under small shrub			
RDBKD014	0432973/3936828		A J U	M F U	Y N	possibly DETO; collapsed	4		
RKBRW004	0432964/3936981		A J U	M F U	Y N	7 opening; old BNOW scat + KF scat			
RMAKD022	0432997/3937117		A J U	M F U	Y N	under creosote shrub			
RMAMG033	0433014/3936922		A J U	M F U	Y N	hole; partially collapsed			
RMARW046	0432995/3936584		A J U	M F U	Y N	under cassia shrub			
RMAKD023	0433001/3936457		A J U	M F U	Y N	under cassia shrub			
RDCRW003	0432995/3936370		A J U	M F U	Y N	3 pieces DETO shell			5
RMAMG034	0433016/3936356		A J U	M F U	Y N	on N side of creosote			
RMAMG035	0433015/3936347		A J U	M F U	Y N	can't see the end			
RMAKD024	0433006/3936325		A J U	M F U	Y N	in the open			
RKBMG011	0433011/3935802		A J U	M F U	Y N	4 opening, 1 tortoise shaped (Eggs?), KF scat around			
RMAMG036	0433006/3935281		A J U	M F U	Y N	opening under creosote, E side			
RDBMG033	0433038/3935767		A J U	M F U	Y N	mostly filled hole	4		
RDBMG034	0433035/3936401		A J U	M F U	Y N	under cassia shrub	5		
RNEMG003	0433043/3936486		A J U	M F U	Y N	ground nest under shrub; no eggs			
RMAKD025	0433035/3936818		A J U	M F U	Y N	collapsed hole			

*See Reverse

Site: Rubgust

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 4/13/09

Page 2 of ____

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO				

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RMAMG037	0433050/3936832		A J U	M F U	Y N	under creosote shrub; W side			
RKBMG012	0433062/3936715		A J U	M F U	Y N	4 openings around creosote shrub	[redacted]		
RDBMG035	0433069/3936619		A J U	M F U	Y N	hole in the open; grass pressed down @ entrance	5		
RMAKD026	0433057/3936600		A J U	M F U	Y N	under sm. shrub; partially collapsed			
RMAMG038	0433069/3936547		A J U	M F U	Y N	under Cassia shrub			
RMAMG039	0433105/3935732		A J U	M F U	Y N	under N side of creosote shrub			
RDSMG010	0433096/3935774		A J U	M F U	Y N	DETO scat (freshly dried w/ odor)		1	
RMAMG040	0433097/3936031		A J U	M F U	Y N	under sm. shrub			
RDBKD015	0433093/3936337		A J U	M F U	Y N	partially filled in	4		
RMAKD027	0433117/3936926		A J U	M F U	Y N	hole under N side of creosote			
RMAKD028	0433123/3936875		A J U	M F U	Y N	hole under W side of creosote			
RMAKD029	0433115/3936624		A J U	M F U	Y N	N side of creosote, sanguisorba spinosa		[redacted]	
RDSMG011	0433127/3936252		A J U	M F U	Y N	5 scat (DETO)		5	
RMAMG041	0433135/3935839		A J U	M F U	Y N	under S side of creosote shrub			
RMAKD030	0433117/3935806		A J U	M F U	Y N	under NW side of creosote shrub			
RMAKD031	0433117/3935722		A J U	M F U	Y N	2 openings around creosote; both have visible burrows			
RMARW047	0433104/3935626		A J U	M F U	Y N	under shrub			
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

SM 8 (R. Wolfson)
SM 11 (K. Duncan)
SM 13 (M. Gallagher)

0433140	X	170	X	200	X	230	X	260	X	290	X
150	X	180	X	210	X	240	X	270	X	300	X
160	X	190	X	220	X	250	X	280	X	310	X

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridgecrest

Date: 4/14/09

Page 1 of _____

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	8, 11, 13	E4 to E7	R. Wolfson K. Duncan M. Gallagher	

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	8:00 AM	63.2°F	Avg 7.6 / max 15.2 mph	overcast / cloudy 90%
Mid-day	10:45 AM	62.0°F	max 27.2 mph	overcast / cloudy
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RMARW048	0433138 / 3935839		A J U	M F U	Y N	S side of creosote			
RDPRW001	0433146 / 3936100		A J U	M F U	Y N	tortoise pellet under creosote; looks recently eaten			
RDPRW002	0433142 / 3936105		A J U	M F U	Y N	tortoise pellet under small shrub			
RDSMG012	0433143 / 3936107		A J U	M F U	Y N	DETO scat; freshly dried		1	
RMARW049	0433146 / 3936274		A J U	M F U	Y N	under creosote; partially collapsed		4	
RDSMG013	0433157 / 3936305		A J U	M F U	Y N	DETO scat; old + white		5	
RKBRW005	0433144 / 3936573		A J U	M F U	Y N	2 openings; 1 large / lots of KF scat			
RMARW050	0433146 / 3936921		A J U	M F U	Y N	dig and under Senna shrub			
RMARW051	0433141 / 3936939		A J U	M F U	Y N	hole under creosote			
RMAKD032	0433151 / 3937006		A J U	M F U	Y N	hole under sm. creosote			
RMAMG042	0433168 / 3937055		A J U	M F U	Y N	under S side of creosote			
RMAMG043	0433192 / 3936961		A J U	M F U	Y N	carcass in hole in N side of creosote			
RMAMG044	0433192 / 3936876		A J U	M F U	Y N	in the open; mostly collapsed			
RKBRW006	0433175 / 3936568		A J U	M F U	Y N	5 openings around sm. creosote, (tall openings)			
RMAKD033	0433185 / 3936538		A J U	M F U	Y N	on NW side of creosote			
RMARW052	0433169 / 3936468		A J U	M F U	Y N	—			
RMAKD034	0433177 / 3936459		A J U	M F U	Y N	—			
RMAKD035	0433179 / 3936295		A J U	M F U	Y N	—			
RMAMG045	0433194 / 3936123		A J U	M F U	Y N	on N side of creosote			
RMAKD036	0433175 / 3935548		A J U	M F U	Y N	in creosote shrub			
RMAKD037	0433150 / 3935386		A J U	M F U	Y N	under N side of creosote shrub			

*See Reverse

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridgecrest

Date: 4/14/07

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO				

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RMAKD038	043 3147/3935453		A J U	M F U	Y N	under N side of shrub			
RMAKD039	0433211/3936057		A J U	M F U	Y N	2 opening about 10' apart			
~~RMAKD065~~	~~0433205/3936086~~		A J U	M F U	Y N	~~N side of creosote~~			
RKB RW007	0433204/3936086		A J U	M F U	Y N	~3 openings within a 30' radius; KF scat			
RMAKD040	0433204/3936171		A J U	M F U	Y N	under S side of creosote			
RMAMG046	0433228/3936181		A J U	M F U	Y N	under N side of sm. shrub			
RDCKD006	0433211/3936282		A J U	M F U	Y N	piece of plastron (DETO); more pieces 30' N			5
RDBMG036	0433225/3936557		A J U	M F U	Y N	under shrub facing SE; partially collapsed	4		
RKBMG013	0433223/3936780		A J U	M F U	Y N	9 openings; lots of KF scat + fresh digging			
RMAMG047	0433221/3937168		A J U	M F U	Y N	N side of creosote shrub, narrows			
RMARW053	0433235/3937097		A J U	M F U	Y N	NW side of creosote			
RMAMG048	0433254/3936390		A J U	M F U	Y N	in the open facing N; ends @ ~1'			
RMAKD041	0433241/3935945		A J U	M F U	Y N	on W side of creosote			
RMARW054	0433232/3935325		A J U	M F U	Y N	hole on NE side of creosote, narrows down			
RMARW055	0433196/3935335		A J U	M F U	Y N	2 openings around creosote			
RMAMG049	0433215/3935483		A J U	M F U	Y N	under sm. creosote			
RDBMG034	0433252/3936180		A J U	M F U	Y N	DETO scat		3	
RDBMG037	0433281/3936187		A J U	M F U	Y N	large burrow facing E; also scat present; ~300mm	2	3	
RDBMG038	0433285/3936207		A J U	M F U	Y N	burrow in the open facing SW; ~250mm, collapsed	4		
RMARW056	0433258/3936817		A J U	M F U	Y N	under sm. shrub			
RMARW057	0433264/3936920		A J U	M F U	Y N				

*See Reverse

spice Roseville

turkey vulture

Site: Ridgecrest

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 4/14/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End	4:30PM	67.0°F	AV 7.0mph/ max 23.0mph	

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RMARW058	0433292/3936971		A J U	M F U	Y N	under creosote			
RDBMG039	0433311/3936128		A J U	M F U	Y N	under NW side of creosote; ~250 mm wide	4		
RDSMG015	0433309/3935948		A J U	M F U	Y N	1 scat		3	
RDSMG016	0433308/3935811		A J U	M F U	Y N	2 scat; fresh/old		1	
RDBMG040	0433334/3935803		A J U	M F U	Y N	DETO burrow under creosote W side; ~350 mm wide	1	1	
—			A J U	M F U	Y N	scat observed @ entrance			
RDPKD002	0433302/3935645		A J U	M F U	Y N	DETO pellets in wash; 3 pieces of scat		1 - 3	
RDBMG041	0433318/3935508		A J U	M F U	Y N	fresh tracks; ~300 mm wide, ends @ ~1/2 m	1		
RDBKD016	0433307/3935495		A J U	M F U	Y N	good condition; possibly tortoise; ~125 mm wide	5		
—			A J U	M F U	Y N	under creosote facing W			
RMARW059	0433297/3935474		A J U	M F U	Y N	under N side of creosote			
RKBRW008	0433298/3935397		A J U	M F U	Y N	2 openings, 1 large			
RMAMG050	0433305/3935372		A J U	M F U	Y N	—			
RDBRW0260	0433253/3935391		A J U	M F U	Y N	facing S under creosote; ~200 mm wide	5		
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

Data Sheet for Live Desert Tortoise

Located by R. WOLFSON Tortoise GPS ID # RDLRW008

Project site name RIDGECREST Date 4/15/09
Time 1540

Map ID _____ Sex UNK.

GPS Unit #SM8 UTM 0433383 n 3935714 e

Elevation 820 m Accuracy +/- ____ m
County KERN State CA

Tortoise Location Burrow Data Survey Type

Cover site type
☐ burrow ☐ GPS ID# _____ ☒ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
☒ burrow	GPS ID # RDBRW032	☐ Tortoise Habitat Assessment
SHORT BURROW W/	Orientation SOUTH	☒ Tortoise Focused Survey
TORTOISE ~ 1 FT	Length (depth) UNK.	☐ Burrowing Owl Focused Survey
INSIDE BURROW	Width 150 MM	☐ Botanical Survey
	Height 80 MM	☐ Mojave Ground Squirrel Survey
	Location UNDER CREOSOTE	☐ Other ____
	Soil Cover	☐ Focused tortoise survey

Do not abbreviate

Data Sheet for Live Desert Tortoises

Write on this side only

Located by ROB WOLFSON
Processed by
Study site name RIDGECREST

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
..... meters North ..... meters East

UTM's 0433303 n 3935714 e

Elevation ..... m Accuracy ± ..... m

County KERN State CA

O On Plot O Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLRW0000
Year first marked
Verification of ID ☐
Capture type ✓ Sex UNK.
Date (dd/mm/yy) 4/15/09
Time (PST): Start 1540 End
Frequency ..... Transmitter # .....
Transmitter type .....
Transmitter attached .....
Transmitter to be replaced on .....
PIT # .....

Tortoise Location

Cover site type:
- ☒ burrow
- ☐ pallet
- ☐ shrub
- ☐ caliche cave
- ☐ rock shelter

At cover site:
- ☐ entering
- ☐ exiting
- ☐ on mound
- ☒ inside

Not at cover site:
- ☐ in open
- ☐ other

Burrow Data

ID # RDBRW032
Orientation SOUTH
Length UNK Height 80 mm
Width 150 MM Soil cover
Location UNDER CREOSOTE
TORTOISE ~ 1 FT INSIDE BURROW.

Survey Type

- O Radio track
- O Burrow search
- O Coverage 1
- O Coverage 2
- O Incidental
- ☒ Other

PRESENCE / ABSENCE SURVEY

Tortoise Activity

- ☒ resting
- ☐ basking
- ☐ walking
- ☐ feeding
- ☐ Interacting with other tortoise
- ☐ Interacting with other animals

ID & sex of other tortoise
Species
Describe interaction:

Plants/items eaten (specific):

Color (shell & skin)

	HV	Hue	Value	Chroma	Color
V1 (center)					
V4 (center)					
LC1,2&V2 (seam)					
LM5,6 & LC2 (seam)					
Foreleg					
Hindleg					

Are you color blind? O Yes ☒ No
Type of blindness

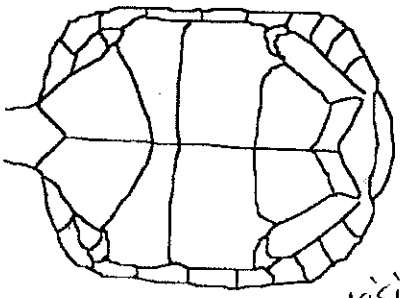
Body Measurements

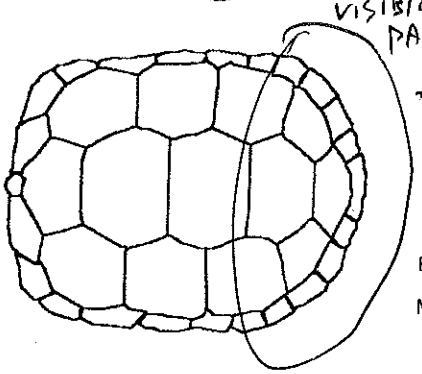
MCL (mm) UNK.
PLN (mm) UNK.
Weight (g)
Void (g)
Total wt (g)

New growth
☐ present ☐ absent

Epoxy #
☐ present ☐ legible

Behavior





Other notes

LARGE ADULT TORTOISE.
SHELL IN GOOD CONDITION.
REAR LEGS PARTIALLY VISIBLE.. GOOD CONDITION

Photos; roll ..... frames .....

Draw locations of notches (old and new), chips, and anomalies, etc.
Describe anomalies in numbering of marginals and any identification problems.

Entered by ☐ date ☐ on computer ☐
Modified by ☐ on ☐

© Berry 1997

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by ROB WOLFSON
Processed by "
Study site name RIDGECREST

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
..... meters North ..... meters East

UTM's 0433383 n 3935714 e

County KERN State CA

O On Plot O Off Plot

Show location of tortoise in quadrat

Tortoise ID # RALRW008
Year first marked ~~[illegible]~~
Verification of ID ☐
Capture type / Sex UNK.
Date (dd/mm/yy) 4/15/09
Time (PST): Start 1540 End .....
Shell wear class .....
Process time ..... hours
Frequency .....
Transmitter # .....

BEAK & NARES

Beak/nares wet	O Yes	O No	O Unk
Beak/nose damp	O Yes	O No	O Unk
Nasal exudate present	O Yes	O No	O Unk
Exudate color	☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green		
Bubble(s) from nares	O Yes	O No	O Unk
One nare occluded	O Yes	O No	O Unk
Both nares occluded	O Yes	O No	O Unk
Dirt on nose/beak	O Yes	O No	O Unk
Dirt in nares	O Yes	O No	O Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	O Yes	O No	O Unk
Moisture on forelegs	O Yes	O No	O Unk
Dried exud. on scales	O Yes	O No	O Unk
Scales cracking	O Yes	O No	O Unk

BREATHING

Smooth	O Yes	O No	O Unk
Wheezing	O Yes	O No	O Unk
Rasping, clicking	O Yes	O No	O Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	O Yes	O No	O Unk
Eyelids swollen	O Yes	O No	O Unk
Eyes/lids wet	O Yes	O No	O Unk
Discharge from eyes	O Yes	O No	O Unk
Eyes sunken	O Yes	O No	O Unk
Eyes clear, bright	O Yes	O No	O Unk
Eyes dull, cloudy	O Yes	O No	O Unk
Chin glands draining	O Yes	O No	O Unk

INTEGUMENT

Integument dull	O Yes	O No	O Unk
Integument glossy	O Yes	O No	O Unk
Normal elasticity	O Yes	O No	O Unk
Abnormal skin peeling	O Yes	O No	O Unk

POSTURE/BEHAVIOR

Alert, responsive	O Yes	O No	O Unk
Lethargic	O Yes	O No	O Unk
Can withdraw tightly into shell	O Yes	O No	O Unk
Limbs, head hanging loose	O Yes	O No	O Unk

ORAL CAVITY

Observed	O Yes	O No	O Unk
Discharge present	O Yes	O No	O Unk
Membranes pink	O Yes	O No	O Unk
Membranes pale, white	O Yes	O No	O Unk
Smells/mouth rot	O Yes	O No	O Unk

EVIDENCE OF SHELL DISEASE

Lesions present	O Yes	O No	O Unk
Lesions active	O Yes	O No	O Unk
Lesions healed	O Yes	O No	O Unk
Scute laminae peeling	O Yes	O No	O Unk
Scutes missing/peeling	O Yes	O No	O Unk
Pitting	O Yes	O No	O Unk
Scutes depressed/concave	O Yes	O No	O Unk
Fungal areas	O Yes	O No	O Unk

EVIDENCE OF TRAUMA

Head	O Yes	O No	O Unk
Gular	O Yes	O No	O Unk
Forelimbs	O Yes	O No	O Unk
Hindlimbs	O Yes	O No	O Unk
Shell	O Yes	O No	O Unk
Scute/bone replacement	O Yes	O No	O Unk

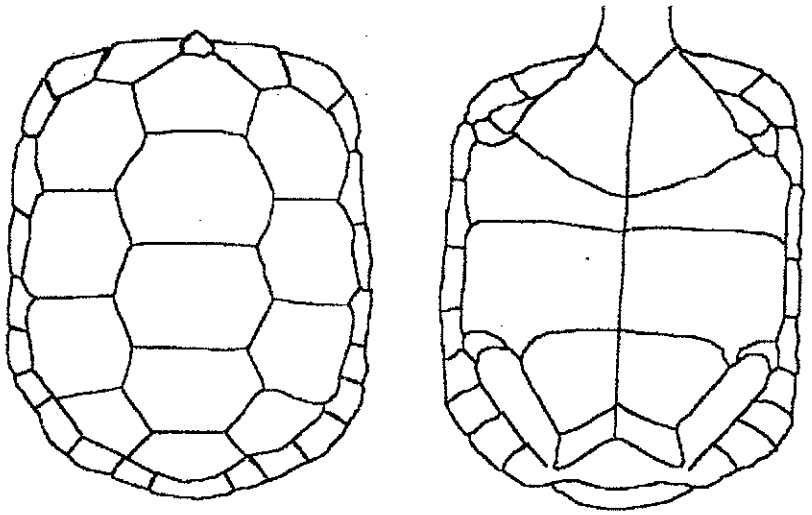
Describe: .....

Soil dryness: O wet O damp O dry

Last precipitation (dd/mm/yy) .....

Urine (vol) .....
Color .....
Viscosity .....
Particulates .....
Color .....
Nasal wash collected .....
Amt. blood/lymph taken (cc) .....
# of needle sticks .....
Time (min) of needle sticks .....
Location .....
PCV% .....
Other samples taken .....
Describe/draw parasites

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell diseases; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes
REAR OF THE SHELL HAS NO EVIDENCE OF TRAUMA OR DISEASE.
NO MARKS OR CHIPS ON REAR OF TORTOISE.

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SM8 (RW)
SM11 (KD)
SM13 (MG)

0433320	X	350	X	380	X	410	X	440		470	
330	X	360	X	390	X	420		450		480	
340	X	370	X	400	X	430		460		490	

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridgecrest

Date: 4/15/09

Page 1 of 3

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	8,11,13	E4 to E7	R. Wolfson E. Duncan M. Gallagher	

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	8:00AM	43.0°F	5-10mph	partly cloudy
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDS MG017	0433339/3935897		A J U	M F U	Y N	tortoise scat; 2 pieces		3	
RDS MG018	0433333/3935884		A J U	M F U	Y N	1 scat		8	
RDS RW002	0433323/3936109		A J U	M F U	Y N	[redacted] 1 scat		3	
RDS MG019	0433340/3936114		A J U	M F U	Y N	1 scat		3	
RKB MG014	0433344/3936140		A J U	M F U	Y N	1 opening on N side of creosote; fresh tortoise scat, but			
—			A J U	M F U	Y N	hole large enough for coyote			
RDS MG020	0433340/3936156		A J U	M F U	Y N	2 pieces of scat		3	
RMA MG051	0433339/3936300		A J U	M F U	Y N	hole in the open; mostly filled, would need			
—			A J U	M F U	Y N	to be modified to be usable by DETO			
RMA KD042	0433326/3936315		A J U	M F U	Y N	hole under Senna shrub, too tall for DETO			
RDS RW003	0433325/3936386		A J U	M F U	Y N	1 DETO scat		4	
RDS MG021	0433312/3936420		A J U	M F U	Y N	1 DETO scat		3	
RMA RW060	0433327/3936489		A J U	M F U	Y N	under Senna shrub, would need to be modified			
—			A J U	M F U	Y N	by DETO			
RKB KD006	0433334/3936507		A J U	M F U	Y N	3 openings around creosote shrub; KF scat, no sign			
—			A J U	M F U	Y N	of BUOW			
RMA RW061	0433324/3936657		A J U	M F U	Y N	in the open; would need to be modified; mostly collapsed			
RMA KD043	0433332/3936949		A J U	M F U	Y N	under [redacted] Senna shrub; goes back ~1'			
RKB RW009	0433350/3936827		A J U	M F U	Y N	4 openings; KF scat; no sign of BUOW			
RMA KD044	0433358/3936402		A J U	M F U	Y N	under Senna shrub; entrance 2½" back			
RDB MG042	0433378/3936321		A J U	M F U	Y N	under creosote facing S; mostly collapsed [redacted] ~160 mm wide; 7 pieces of scat	3	[redacted]3	

*See Reverse

Site: Rubgent

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 7/15/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start			27 mph	
Mid-day	12:15 PM	43° F	Avg 10 / Max 20 mph	partly cloudy
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDSMG022	0433370/3936300		A J U	M F U	Y N	1 DETO scat		3	
RDBMG043	0433376/3936098		A J U	M F U	Y N	in the open facing S; entrance @ ~1/2 mi in; 180mm wide	1	1	
—			A J U	M F U	Y N	2 scats, freshly dried			
RDSMG023	0433372/3936075		A J U	M F U	Y N	1 DETO scat		2	
RDSMG024	0433371/3935774		A J U	M F U	Y N	2 DETO scats		3	
RDSKD002	0433357/3935766		A J U	M F U	Y N	2 DETO scat		3	
~~RMARW062~~			A J U	M F U	Y N	in the open facing E; both DETO scat + KF scat	1	2	
RDBRW027	0433357/3935734		A J U	M F U	Y N	steep entrance, with △ shape; ~150mm wide			
RDBRW028	0433350/3935648		A J U	M F U	Y N	on S side of creek facing W; ~170mm	2		
RKBRW010	0433351/3935578		A J U	M F U	Y N	3 entrances in 30 radius; KF scat			
RMAKD045	0433358/3935454		A J U	M F U	Y N	would need to be modified DETO			
RDBRW029	0433347/3935365		A J U	M F U	Y N	under cliff facing NE; ~180mm wide	2		
RDSRW004	0433321/3935417		A J U	M F U	Y N	1 DETO scat		2	
RDBRW030	0433319/3935462		A J U	M F U	Y N	in the open facing E; ~100 mm wide	5		
RDBMG044	0433341/3935553		A J U	M F U	Y N	on N side of creek, facing W; ~100mm wide	5		
RDSMG025	0433339/3935805		A J U	M F U	Y N	1 DETO scat in road		?	
RDSMG026	0433381/3936170		A J U	M F U	Y N	1 DETO Scat	·	3	
RDSMG027	0433389/3936176		A J U	M F U	Y N	3 DETO Scat		4	
RDBMG045	0433399/3936216		A J U	M F U	Y N	under bush, tall entrance, NO BO	5		
RDSMG028	0433389/3936351		A J U	M F U	Y N	1 DETO Scat		3	
RMARW062	0433382/3936530		A J U	M F U	Y N	in the open - shallow - NO sign			

*See Reverse

Site: Ridgecrest

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 04/15/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End	1545	55°	20mph	5%

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RMARW063	0433393/3936898		A J U	M F U	Y N	in creosote bush, No OWL			
RKBMG015	0433412/3936589		A J U	M F U	Y N	necks down quick to small hole			
			A J U	M F U	Y N	one large hole, KF + Coyote Scat			
RDSMG029	0433408/3936240		A J U	M F U	Y N	1 large piece, in open		5	
RDSRW005	0433407/3936237		A J U	M F U	Y N	1 small piece, in open		1	
RDBMG046	0433413/3936133		A J U	M F U	Y N	recently cleaned, 4 scats #2/20mm	1		
RDSMG030	0433411/3936124		A J U	M F U	Y N	2 pieces, medium size, 10m from Bur		3	
RDSRW006	0433402/3935985		A J U	M F U	Y N	1 piece in open, medium size		5	
RDBRW031	0433406/3935633		A J U	M F U	Y N	under creosote, 180mm, no sign	5		
RMAMG052	0433417/3935304		A J U	M F U	Y N	under bush, tall hole			
RMAMG053	0433381/3935508		A J U	M F U	Y N	recently dug but older tort shape			
RDSMG031	043389/3935692		A J U	M F U	Y N	2 pieces in wash, med. size		5	
RDBRW032	0433383/3935714		A J U	M F U	Y N	140 mm, under bush, with animal	1		
ROLRW008	0433383/3935714	DETO	(A) J U	M F U	Y N	no marks or chips on rear, unknown sex		3	
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

Data Sheet for Live Desert Tortoise

Located by Rob Wolfson Tortoise GPS ID # 12DL RW009

Project site name Ridgecrest Date 4/16/09
Time 2:35PM

Map ID _____ Sex ?

GPS Unit _____ UTM 0433500 n 3936508 e

Elevation _____ m Accuracy +/- _____ m
County Kern State CA

Tortoise Location Burrow Data Survey Type

Cover site type
☐ burrow ☐ GPS ID# _____ ☐ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
☒ burrow	GPS ID # 0433499 / 3936507	☐ Tortoise Habitat Assessment
	Orientation	☒ Tortoise Focused Survey
	Length (depth)	☐ Burrowing Owl Focused Survey
	Width ~150 mm wide	☐ Botanical Survey
	Height	☐ Mojave Ground Squirrel Survey
	Location ~1500' S of Hwy. 395	☐ Other _____
	Soil Cover	☐ Focused tortoise survey

soil temp. 108.0°F

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by Rob Wolfson
Processed by
Study site name Rilbyeant
Township ____ Range ____
Section ____ Quadrat ____
Coordinates (Reference SW corner)
____ meters North ____ meters East
UTM's 0433500 n 3936508 e
County Kern State CA
☒ On Plot ○ Off Plot (on site)

Show location of tortoise in quadrat

Tortoise ID # RDLRW009
Year first marked
Verification of ID ☐
Capture type ____ Sex ?
Date (dd/mm/yy) 4/16/09
Time (PST): Start 2:35PM End 2:45PM
Shell wear class
Process time ____ hours
Frequency
Transmitter #

BEAK & NARES

Beak/nares wet	○ Yes	● No	○ Unk
Beak/nose damp	○ Yes	● No	○ Unk
Nasal exudate present	○ Yes	● No	○ Unk
Exudate color	☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green		
Bubble(s) from nares	○ Yes	● No	○ Unk
One nare occluded	○ Yes	● No	○ Unk
Both nares occluded	○ Yes	● No	○ Unk
Dirt on nose/beak	○ Yes	● No	○ Unk
Dirt in nares	○ Yes	● No	○ Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	○ Yes	● No	○ Unk
Moisture on forelegs	○ Yes	● No	○ Unk
Dried exud. on scales	○ Yes	● No	○ Unk
Scales cracking	○ Yes	● No	○ Unk

BREATHING

Smooth	☒ Yes	○ No	○ Unk
Wheezing	○ Yes	● No	○ Unk
Rasping, clicking	○ Yes	● No	○ Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	○ Yes	● No	○ Unk
Eyelids swollen	○ Yes	● No	○ Unk
Eyes/lids wet	○ Yes	● No	○ Unk
Discharge from eyes	○ Yes	● No	○ Unk
Eyes sunken	○ Yes	● No	○ Unk
Eyes clear, bright	☒ Yes	○ No	○ Unk
Eyes dull, cloudy	○ Yes	● No	○ Unk
Chin glands draining	○ Yes	● No	○ Unk

INTEGUMENT

Integument dull	○ Yes	○ No	● Unk
Integument glossy	○ Yes	○ No	● Unk
Normal elasticity	○ Yes	○ No	● Unk
Abnormal skin peeling	○ Yes	○ No	● Unk

POSTURE/BEHAVIOR

Alert, responsive	☒ Yes	○ No	○ Unk
Lethargic	○ Yes	☒ No	○ Unk
Can withdraw tightly into shell	☒ Yes	○ No	○ Unk
Limbs, head hanging loose	○ Yes	☒ No	○ Unk

ORAL CAVITY

Observed	○ Yes	○ No	● Unk
Discharge present	○ Yes	○ No	● Unk
Membranes pink	○ Yes	○ No	● Unk
Membranes pale, white	○ Yes	○ No	● Unk
Smells/mouth rot	○ Yes	○ No	● Unk

EVIDENCE OF SHELL DISEASE

Lesions present	○ Yes	○ No	● Unk
Lesions active	○ Yes	○ No	● Unk
Lesions healed	○ Yes	○ No	● Unk
Scute laminae peeling	○ Yes	○ No	● Unk
Scutes missing/peeling	○ Yes	○ No	● Unk
Pitting	○ Yes	○ No	● Unk
Scutes depressed/concave	○ Yes	○ No	● Unk
Fungal areas	○ Yes	○ No	● Unk

EVIDENCE OF TRAUMA

Head	○ Yes	○ No	● Unk
Gular	○ Yes	○ No	● Unk
Forelimbs	○ Yes	○ No	● Unk
Hindlimbs	○ Yes	○ No	● Unk
Shell	○ Yes	○ No	● Unk
Scute/bone replacement	○ Yes	○ No	● Unk

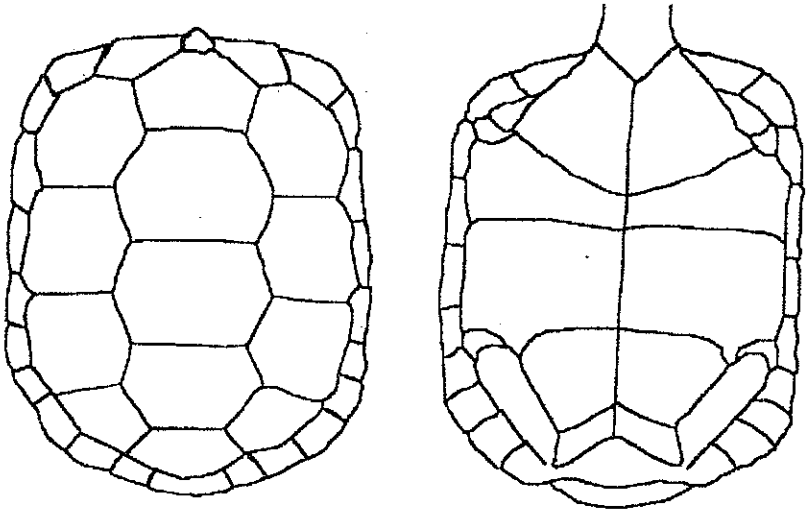
Describe:

Soil dryness: ○ wet ○ damp ○ dry

Last precipitation (dd/mm/yy)

Urine (vol)
Color
Viscosity
Particulates
Color n/a
Nasal wash collected
Amt. blood/lymph taken (cc)
# of needle sticks
Time (min) of needle sticks
Location
PCV%
Other samples taken
Describe/draw parasites

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes: tortoise was backed into burrow, could only see partial @ head / [redacted]
Soil temp 108.0°F

© Berry 1997

SM 8 (RW)	0433420	X	0433450	X	0433480	X	0433510	X	0433540		0433570	
SM 11 (RD)	430	X	460	X	490	X	520		550		580	
SM 13 (MG)	440	X	470	X	500	X	530		560		590	

Site: Ridgecrest

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 4/16/09

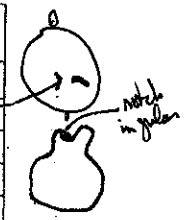
Page 1 of ____

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
DETO	E4 to E7	SM8 11 13	K. Duncan R. Wolfson M. Gallagher	

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	6:00 AM	56.8°F	AOG 6 mph / max 10 mph	clear
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
9:00AM	RDLRW008	DETO	(A) J U	M (F) U	(Y) N	DETO observed outside of burrow (RDBRW032)			
—			A J U	M F U	Y N	withdrew into shell; crease on 3rd right costal			
—			A J U	M F U	Y N	nares open; MCL ~110-120 mm			
RDSKD003	[redacted] 0433440/3935747		A J U	M F U	Y N	DETO scat; freshly dried		1	
RDSM6032	0433448/3935737		A J U	M F U	Y N	2 scats		3	
RDSM6033	0433433/3935909		A J U	M F U	Y N	1 scat; freshly dried		1	
RDSM6034	0433446/3936133		A J U	M F U	Y N	4 scats		4	
RDSRW007	0433421/3936190		A J U	M F U	Y N	1 scat		3	
RDBKD017	0433433/3936305		A J U	M F U	Y N	under sm. creosote facing NE; should not be modified for DETO; ~110 mm	4		
—			A J U	M F U	Y N				
RDBRW033	0433415/3936356		A J U	M F U	Y N	bizarre shape; partially collapsed + would not be modification; in the open facing NE	4		
—			A J U	M F U	Y N				
RDBRW034	0433415/3936360		A J U	M F U	Y N	under shrub facing S; same as above	4		
RDBKD018	0433429/3936352		A J U	M F U	Y N	needs modification	4		
RMAMG054	0433444/3936380		A J U	M F U	Y N	mostly collapsed, facing SW under shrub			
RDBRW035	0433423/3936561		A J U	M F U	Y N	under sm. shrub facing W; ~120 mm; full of debris	4		
RDBKD019	0433431/3936724		A J U	M F U	Y N	partially collapsed; 130 mm wide; in the open	4		
RMAMG055	0433472/3936887		A J U	M F U	Y N	could be modified by DETO; under Senna shrub			
RMAMG056	0433473/3936776		A J U	M F U	Y N	under Senna shrub; could be modified by DETO			
RDBMG047	0433471/3936415		A J U	M F U	Y N	under sm. shrub facing NE; would need to be modified	4		
RKBKD009	0433461/3936370		A J U	M F U	Y N	3 burr areas, 2 collapsed; 1 could be modified by DETO; no sign of BLOW			

*See Reverse



species observed
analogue ground squirrel

Site: Ridgecrest

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 4/16/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day	1:00 PM	70° F	0-5 mph	clear
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDSMG038	0433443/3935517		A J U	M F U	Y N	DETO scat, still wet		1	
RDBMG053	0433434/3935579		A J U	M F U	Y N	near a small shrub facing NW ~200mm wide			
—			A J U	M F U	Y N	spanner feathers + white wash @ entrance	5		
—			A J U	M F U	Y N	entrance is collapsed w/ re-growth			
RDBMG054	0433442/3935602		A J U	M F U	Y N	under SW side of creosote facing SW; ~120 mm wide	3		
—			A J U	M F U	Y N	DETO scat @ entrance		3	
RDBRW009	0433418/3935651		A J U	M F U	Y N	DETO scat		4	
RDSMG039	0433437/3935652		A J U	M F U	Y N	scat		2	
RMARD047	0433438/3935735		A J U	M F U	Y N	under E side of creosote facing W; would need to			
—			A J U	M F U	Y N	be modified			
RMAMG057	0433446/3935720		A J U	M F U	Y N	under creosote facing W			
RDBKD020	0433497/3935918		A J U	M F U	Y N	next to shrub; tortoise shape, collapsed ~150mm	4		
RDBKD021	0433487/3936025		A J U	M F U	Y N	under NE side of creosote facing W; ~120mm wide	5		
RDBKD008	0433492/3936040		A J U	M F U	Y N	2 pieces of scat		2	
RDBRW039	0433481/3936307		A J U	M F U	Y N	tortoise shape track + can't see end; ~150mm	2		
RMARD048	0433497/3936568		A J U	M F U	Y N	under creosote on W side; would need to be modified by DETO			
RKBRW011	0433504/3936802		A J U	M F U	Y N	opening in 30' radius; KF scat, no sign of			
—			A J U	M F U	Y N	BHOW, but may be modified			
RDBRW040	0433499/3936507		A J U	M F U	Y N	burrow w/ DETO inside; in the open facing SW → ~150mm wide	1		
RDLRW009	0433500/3936508		A J U	M F U	Y N	burrow ~1500' S of Hwy. 395; see health sheet			2:35 PM
RDBRW041 ~~0433499~~			A J U	M F U	Y N	under creosote on N side; ~100mm wide	4		
	0433494/3936503					between tal, end ~1' fault			

*See Reverse

Site: Ridgecrest

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 4/16/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDSKD004	0433462/3936320		A J U	M F U	Y N	1 DETO scat		4	
RDBMG048	0433478/3936291		A J U	M F U	Y N	narrows down ~1' back; ~175 mm wide	3		
RDBMG049	0433467/3936160		A J U	M F U	Y N	~180 mm wide; collapsed back ~1'; 1 DETO scat @ opg	3	3	
RDBMG050	0433467/3936124		A J U	M F U	Y N	mostly collapsed; would need modification	3		
RDBRW036	0433453/3936092		A J U	M F U	Y N	in creosote ring facing E; freshly flattened veg.	1		
—			A J U	M F U	Y N	~DETO scat; ~150-175 mm wide		3	
RDSMG035	0433470/3935983		A J U	M F U	Y N	DETO scat		3	
RDBMG051	0433472/3935974		A J U	M F U	Y N	~180-190mm wide; on E side of creosote facing N	1		
—			A J U	M F U	Y N	DETO scat around entrance		2-3	
RDSRW008	0433455/3935923		A J U	M F U	Y N	DETO scat		2	
RDSKD005	0433462/3935898		A J U	M F U	Y N	DETO scat		1	
RDSMG0[illegible]	0433471/3935862		A J U	M F U	Y N	DETO scat		3	
DDBMG052	0433468/3935841		A J U	M F U	Y N	in the open facing W; mostly collapsed; ~120mm	3		
RDBRW037	0433454/395652		A J U	M F U	Y N	under N side of creosote facing N; ~200 mm wide	1		
[redacted]			A J U	M F U	Y N	looks freshly used			
RDSMG037	0433468/3935649		A J U	M F U	Y N	6 scat in 30' radius		3-4	
RDSKD006	0433463/3935592		A J U	M F U	Y N	scaly appearance		4	
RDSKD007	0433462/3935542		A J U	M F U	Y N	2 scat; freshly dried		1	
ROORW002	0433394/3935247		A J U	M F U	Y N	coyote den			
RMAKD046	0433429/3935448		A J U	M F U	Y N	under NW side of creosote; would need to be modified			
RDBRW038	0433417/3935505		A J U	M F U	Y N	under sm. shrub facing SE; ~190mm wide; looks freshly used by trackbound foot	1		

*See Reverse

Site: Ridgecrest

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 4/16/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDSKD009	0433502/3936032		A J U	M F U	Y N	DETO scat; old		4	
RDBKD022	0433511/3935956		A J U	M F U	Y N	on E side of wash facing SW; ~150mm wide	1		
RKBKD010	0433527/3935604		A J U	M F U	Y N	3 openings, 1 very large (coyote size), 1 w/ white			
—			A J U	M F U	Y N	wash; lots of KF scat			
RDBKD023	0433516/3935299		A J U	M F U	Y N	tortoise shape (~150mm wide) + can't see the end	3		
—			A J U	M F U	Y N	partially collapsed			
RDBRW042	0433487/3935531		A J U	M F U	Y N	in the open facing E; ~100mm wide			
—			A J U	M F U	Y N	looks like DETO scat inside burrow			
RMARW064	0433487/3935675		A J U	M F U	Y N	on SW side of wash, collapsed			
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

SM 8 (RW)
SM 13 (MG)

0433520	✓	540	✓	560	✓	580	✓	600	THIS TRANSECT NOT SURVEYED
530	✓	550	✓	570	✓	590	✓		

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridgecrest Date: 4/17/09 Page 1 of 2

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
			ROB WOLFSON MIKE GALLAGHER	

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	0905	68°F	2-5 MPH (W)	0% CLOUDS
Mid-day	1400	77	2-4 (S)	0%
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDSMG040	0433476/3935765		A J U	M F U	Y N	right on dirt road		2	
RDSMG041	0433515/3936039		A J U	M F U	Y N	2 pieces within 1 meter		4	
RUXOMG009	0433524/3936312		A J U	M F U	Y N	complete, 2 ft. long projectile/fins			
RDLMG006	0433511/3936394		(A) J U	(M) F U	(Y) N	in open, 100 yds from RDLRW009 on 4/16			
RDSRW010	0433507/3936430		A J U	M F U	Y N	still wet, app 40 meters from TORT		1	
RMAMG058	0433526/3936520		A J U	M F U	Y N	under creosote - no sign			
RDBMG055	0433538/3936040		A J U	M F U	Y N	under bush, app 120 cm	4		
RDSMG042	0433537/3935907		A J U	M F U	Y N	1 piece, very old		5	
RMARW065	0433560/3935874		A J U	M F U	Y N	under creosote, no sign			
RDBRW043	0433552/3935795		A J U	M F U	Y N	under creosote, no sign, 140 cm	5		
RDSMG043	0433529/3935601		A J U	M F U	Y N	near KB, 2 pieces - 1 older		2	
RDSRW011	0433528/3935527		A J U	M F U	Y N	1 piece, in small wash		3	
RDBRW044	0433527/3935565		A J U	M F U	Y N	190 cm, next creosote, owl pellets	2		
RBPRW001	0433528/3935566		A J U	M F U	Y N	bones + bug parts, ww, 12 pieces			
RDSMG044	0433525/3935620		A J U	M F U	Y N	2 large pieces, in open		3	
RDSMG045	0433524/3935713		A J U	M F U	Y N	1 med-size - in middle of road		2	
RDSRW012	0433520/3935760		A J U	M F U	Y N	1 piece in open.		4	
RMAMG059	0433569/3936209		A J U	M F U	Y N	in open, no sign			
RDSMG046	0433509/3936444		A J U	M F U	Y N	single, large piece - Fresh!		1	
RDSRW013	0433519/3936408		A J U	M F U	Y N	Single piece		4	
RKBRW012	0433564/3936477		A J U	M F U	Y N	complex in open, no sign. 9 holes 1 hole looks tortoise friendly Coyotescat.			

*See Reverse

Site: Ridgecrest

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 04/17/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
	#13 # 8			Michael Gallagher Rob Wolfson

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End	1720	87°F	7mph SW	0%

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDBRW045	0433572/3936045		A J U	M F U	Y N	under bush, no sign, 110cm	5		
RDBMG056	0433584/3935908		A J U	M F U	Y N	hidden by bush, 130 cm	5		
RDSMG047	0433589/3935838		A J U	M F U	Y N	very large, very old	*	5	
RDSMG048	0433592/3935666		A J U	M F U	Y N	Very large, fresh, next to road		1	
RBBMG002	0433591/3935576		A J U	M F U	Y N	190cm W by 200cm + hT. feather, pellets			
			A J U	M F U	Y N	very little whitewash			
RMARW066	0433581/3935489		A J U	M F U	Y N	under creosote, no sign			
RDSRW014	0433582/3935476		A J U	M F U	Y N	1 large piece, very old		5	
RDSMG049	0433589/3935444		A J U	M F U	Y N	1 small piece		5	
RKBBW013	0433564/3935402		A J U	M F U	Y N	2 holes in open, old kfox scat			
RDSRW015	0433564/3935735		A J U	M F U	Y N	1 large piece, very old		5	
RDBRW046	0433486/3935786		A J U	M F U	Y N	short, pallet-like w/tracks		5	
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

Do not abbreviate

Data Sheet for Live Desert Tortoises

Write on this side only

Located by Rob Wolfson/Michael Gallagher
Processed by no handling permit
Study site name Ridgecrest

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
..... meters North ..... meters East

UTM's ..... n ..... e
Elevation ..... m Accuracy ± ..... m
County Kern State CA

☒ On Plot ○ Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLRW009 / RDLMG006 ?
Year first marked .....
Verification of ID ☐
Capture type ..... Sex .....
Date (dd/mm/yy) .....
Time (PST): Start ..... End .....
Frequency ..... Transmitter # .....
Transmitter type .....
Transmitter attached .....
Transmitter to be replaced on .....
PIT # .....

Tortoise Location

Cover site type:
- ☐ burrow
- ☐ pallet
- ☐ shrub
- ☐ caliche cave
- ☐ rock shelter

At cover site:
- ☐ entering
- ☐ exiting
- ☐ on mound
- ☐ inside

Not at cover site:
- ☒ in open
- ☐ other

Burrow Data

ID # .....
Orientation .....
Length ..... Height .....
Width ..... Soil cover .....
Location .....

Survey Type

- ○ Radio track
- ○ Burrow search
- ○ Coverage 1
- ○ Coverage 2
- ○ Incidental
- ☒ Other

Presence/Absence

Tortoise Activity

- ☐ resting
- ☐ basking
- ☒ walking
- ☐ feeding
- ☐ Interacting with other tortoise
- ☐ Interacting with other animals

ID & sex of other tortoise .....
Species .....
Describe interaction:

Plants/items eaten (specific):

Color (shell & skin)

	HV	Hue	Value	Chroma	Color
V1 (center)					
V4 (center)					
LC1,2&V2 (seam)					
LM5,6 & LC2 (seam)					
Foreleg					
Hindleg					

Are you color blind? ○ Yes ○ No
Type of blindness .....

Body Measurements

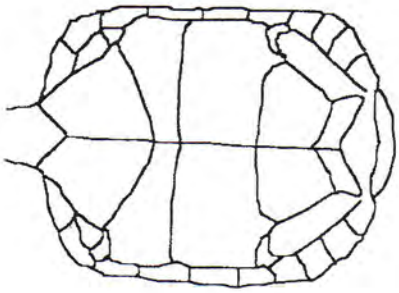
MCL (mm) _____
PLN (mm) _____
Weight (g) _____
Void (g) _____
Total wt (g) _____

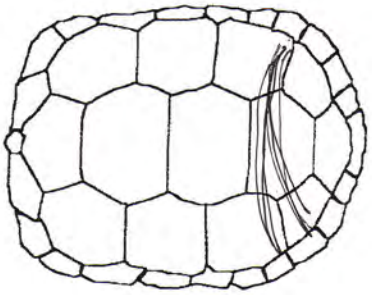
New growth
☐ present ☐ absent

Epoxy #
☐ present ☐ legible

Behavior

walking, stopped to watch us, then continued walking. Very Alert.





Other notes

shallow crease, smooth, curving across back. Right costal scute #3, 4th vertebral scute, and 3rd left costal

Photos; roll ..... frames .....

Draw locations of notches (old and new), chips, and anomalies, etc.
Describe anomalies in numbering of marginals and any identification problems.

Entered by ~~M Gallagher~~ date ☐ ☐ on computer ☐
Modified by ☐ on ☐

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Data Sheet for Live Desert Tortoise

Located by Michael Gallagher and Rob Wolfson Tortoise GPS ID #

Project site name Ridgecrest Date 4/16/09 and 4/17/09

Time 1030

Map ID _____ Sex M

GPS Unit #8 UTM _____ n _____ e

Elevation 820 m Accuracy +/- ____ m

County Kern State CA

Tortoise Location
in open

Burrow Data

Survey Type
presence/absence

Cover site type

burrow GPS ID# _____ Focused tortoise survey

Tortoise Location	Burrow Data	Survey Type
burrow	GPS ID #	Tortoise Habitat Assessment
in open	Orientation	X Tortoise Focused Survey
	Length (depth)	Burrowing Owl Focused Survey
	Width	Botanical Survey
	Height	Mojave Ground Squirrel Survey
	Location	Other
	Soil Cover	Focused tortoise survey

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by Michael Gallagher / Rob Wolfson
Processed by M. Gallagher – NO handling
Study site name Ridgecrest

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
..... meters North ..... meters East

UTM's ..... n ..... e

County Kern State CA

☒ On Plot ○ Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDL
Year first marked .....
Verification of ID ☐
Capture type ..... Sex M
Date (dd/mm/yy) .....
Time (PST): Start ..... End .....
Shell wear class .....
Process time ..... hours
Frequency .....
Transmitter # .....

BEAK & NARES

Beak/nares wet	○ Yes	● No	○ Unk
Beak/nose damp	○ Yes	● No	○ Unk
Nasal exudate present	○ Yes	● No	○ Unk

Exudate color ☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green

Bubble(s) from nares	○ Yes	● No	○ Unk
One nare occluded	○ Yes	● No	○ Unk
Both nares occluded	○ Yes	● No	○ Unk
Dirt on nose/beak	○ Yes	● No	○ Unk
Dirt in nares	○ Yes	● No	○ Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	○ Yes	● No	○ Unk
Moisture on forelegs	○ Yes	● No	○ Unk
Dried exud. on scales	○ Yes	● No	○ Unk
Scales cracking	○ Yes	● No	○ Unk

BREATHING

Smooth	○ Yes	○ No	● Unk
Wheezing	○ Yes	○ No	● Unk
Rasping, clicking	○ Yes	○ No	● Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	○ Yes	● No	○ Unk
Eyelids swollen	○ Yes	● No	○ Unk
Eyes/lids wet	○ Yes	● No	○ Unk
Discharge from eyes	○ Yes	● No	○ Unk
Eyes sunken	☒ Yes	○ No	○ Unk
Eyes clear, bright	● Yes	○ No	○ Unk
Eyes dull, cloudy	○ Yes	○ No	○ Unk
Chin glands draining	○ Yes	☒ No	○ Unk

INTEGUMENT

Integument dull	☒ Yes	○ No	○ Unk
Integument glossy	○ Yes	☒ No	○ Unk
Normal elasticity	● Yes	○ No	○ Unk
Abnormal skin peeling	○ Yes	☒ No	○ Unk

POSTURE/BEHAVIOR

Alert, responsive	☒ Yes	○ No	○ Unk
Lethargic	○ Yes	● No	○ Unk
Can withdraw tightly into shell	● Yes	○ No	☒ Unk
Limbs, head hanging loose	○ Yes	● No	○ Unk

ORAL CAVITY

Observed	○ Yes	○ No	● Unk
Discharge present	○ Yes	○ No	● Unk
Membranes pink	○ Yes	○ No	● Unk
Membranes pale, white	○ Yes	○ No	● Unk
Smells/mouth rot	○ Yes	○ No	● Unk

EVIDENCE OF SHELL DISEASE

Lesions present	○ Yes	● No	○ Unk
Lesions active	○ Yes	● No	○ Unk
Lesions healed	○ Yes	● No	○ Unk
Scute laminae peeling	○ Yes	● No	○ Unk
Scutes missing/peeling	○ Yes	● No	○ Unk
Pitting	○ Yes	● No	○ Unk
Scutes depressed/concave	☒ Yes	○ No	○ Unk
Fungal areas	○ Yes	☒ No	○ Unk

EVIDENCE OF TRAUMA

Head	○ Yes	● No	○ Unk
Gular	○ Yes	● No	○ Unk
Forelimbs	○ Yes	● No	○ Unk
Hindlimbs	○ Yes	● No	○ Unk
Shell	○ Yes	● No	○ Unk
Scute/bone replacement	○ Yes	● No	○ Unk

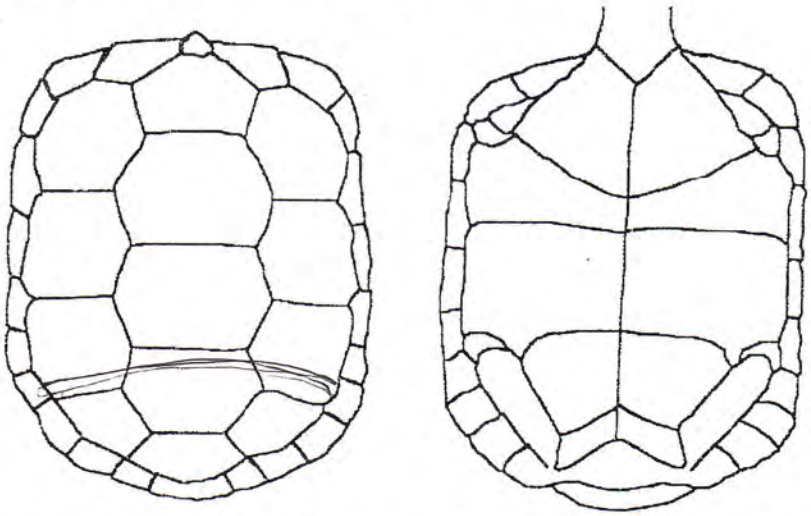
Describe: .....

Soil dryness: ○ wet ○ damp ☒ dry

Last precipitation (dd/mm/yy) March 09

Urine (vol) .....
Color .....
Viscosity .....
Particulates .....
Color .....
Nasal wash collected .....
Amt. blood/lymph taken (cc) .....
# of needle sticks .....
Time (min) of needle sticks .....
Location .....
PCV% .....
Other samples taken .....
Describe/draw parasites .....

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes chin glands swollen, but dry + clean. Depression in LC4, V3, RC4 – only a slight crease across back in an arc. smooth crease.

© Berry 1997

0431900 x
0431910 x
0431920 x
0431930 x

1860 x 1820 x 1780 x 1740 x 1700 x 1940 x 1980 x 2020 x
1870 x 1830 x 1790 x 1750 x 1710 x 1950 x 1990 x 2030 x
1880 x 1840 x 1800 x 1760 x 1720 x 1960 x 2000 x 2040 x
1890 x 1850 x 1810 x 1770 x 1730 x 1970 x 2010 x 2050 x

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: RIDGECREST Date: 5/21/09 Page 1 of 6

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
TORTOISE FOCUSED	5	C4- C7	RWO (5) EEL (7)	JL (4) ESC (9)

DATA ON GPS #5

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	0650	74°F	4mph / South	2% High Clouds
Mid-day	1330	92°F	6mph / South	0%
End	1649	95°F	8mph / West	0%

	GPS Ident Code*	115 GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDB	RW 047	043 1925		A J U	M F U	Y N	300 wide 150 high 3' deep	1	3	
		393 5663		A J U	M F U	Y N	scat mostly sand			
				A J U	M F U	Y N				
RDB	ES 001	043 1891		A J U	M F U	Y N	200 wide 100 high 6" inches	4		
		393 5667		A J U	M F U	Y N				
				A J U	M F U	Y N				
RDF	ES 001	043 1895		A J U	M F U	Y N	JUVE TRACKS IN SAND PHOTO TAKEN			
		393 5781		A J U	M F U	Y N	134 ELIAS 70 mm wide			
				A J U	M F U	Y N	ROB SAME TRACKS OBN 7M			
				A J U	M F U	Y N	NORTH CROSSING SAME SANDY			
				A J U	M F U	Y N	CHANNEL TO WASH			
				A J U	M F U	Y N				
RDL	EE 001	043 1923	DETO	A J U	M F U	Y N	SOME DIRT ON BACK			
		393 5791		A J U	M F U	Y N				
				A J U	M F U	Y N				
RDB	JL 001	043 1907		A J U	M F U	Y N	240 mm wide 110 mm high 3+ feet			
		393 5959		A J U	M F U	Y N				
				A J U	M F U	Y N				
RDL	JL 001	043 1905	DETO	A J U	M F U	Y N	NARES CLEARS EYES CLEAR	1	2	
		393 5959		A J U	M F U	Y N				
				A J U	M F U	Y N				

potential burrow DETO | Burrow

*See Reverse

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: RIDGECREST Date: 5/21/09 Page 2 of 6

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

	GPS Ident Code*	GPS Coordinates		Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell	Potential Burrow DETO	Burrow
RMA	RW 067	043	1929		A J U	M F U	Y N	POSS. TORT NO SIGN					
		393	6075		A J U	M F U	Y N						
					A J U	M F U	Y N						
RDB	EE 001	043	1922		A J U	M F U	Y N	230 wide 190 high 3+ deep	1	2			
		393	6287		A J U	M F U	Y N	Scat deep in Burrow					
					A J U	M F U	Y N						
RMA	RW 068	043	1924		A J U	M F U	Y N	NO SIGN POSS. TORT. FALLET					
		393	6305		A J U	M F U	Y N						
					A J U	M F U	Y N						
RDB	EE 002	043	1920		A J U	M F U	Y N	200 wide 110 high 2+ deep	4				X
		393	6552		A J U	M F U	Y N						
					A J U	M F U	Y N						
RDS	EE 001	043	1913		A J U	M F U	Y N	POSS TORT SCAT POSS BURRO		2			
		393	6646		A J U	M F U	Y N	15mm in diameter w/ 10mm long					
					A J U	M F U	Y N	coarse fibers					
~~RDP~~	~~EE 001~~				A J U	M F U	Y N						
RDP	EE 001	043	1920		A J U	M F U	Y N		4				
		393	6726		A J U	M F U	Y N						
					A J U	M F U	Y N						
RKB	ES 001	043	1864		A J U	M F U	Y N	FOX SCAT				N	N
		393	6914		A J U	M F U	Y N						

*See Reverse

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: RIDGECREST Date: 5/21/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

	GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell	POTENT. DETO	BLOW
RMA	RW069	043 1889		A J U	M F U	Y N	KIT FOX LIKE NO POOP				X	X
		393 6875		A J U	M F U	Y N						
				A J U	M F U	Y N						
RDB	JL 002	043 1872		A J U	M F U	Y N	300mm 170mm	1				X
		393 6659		A J U	M F U	Y N	TAMPED DOWN GRASS					
				A J U	M F U	Y N						
RDC	ES 001	043 1860	DETO	A (J) U	M F (U)	Y N	75mm length 65mm width			2		
		393 6653		A J U	M F U	Y N						
				A J U	M F U	Y N						
RDB	RW 048	043 1845		A J U	M F U	Y N	270mm wide 150mm tall	1				
		393 6673		A J U	M F U	Y N						
				A J U	M F U	Y N						
RDB	ES 002	043 1820		A J U	M F U	Y N	270mm wide 140mm tall	1				
		393 6809		A J U	M F U	Y N	PALLET 2m away					
				A J U	M F U	Y N						
RDS	ES 002	043 1840		A J U	M F U	Y N			3			
		393 6940		A J U	M F U	Y N						
				A J U	M F U	Y N						
RDP	RW 003	043 1825		A J U	M F U	Y N		4				
		393 6954		A J U	M F U	Y N						
				A J U	M F U	Y N						

*See Reverse

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: RIDGECREST

Date: 5/21/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

	GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell	DETO	SHOW
RDB	JL 003	043 1790/393 6901		A J U	M F U	Y N	280mm wide 190mm tall	5				
RMA	EE 001	043 1802/393 6886		A J U	M F U	Y N					X	
RDS	ES 003	043 1743/393 6916		A J U	M F U	Y N	220mm wide 130mm tall	5				
RDS	RW 016	043 1765/393 6914		A J U	M F U	Y N			3			
RDS	JL 001	043 1788/393 6971		A J U	M F U	Y N			2			
RMA	ES 001	043 1948/393 6792		A J U	M F U	Y N	POSS DETO SCAT RIGHT SIZE COARSE	5			X	
RDB	JL 004	043 1955/393 6681		A J U	M F U	Y N	160mm wide 100mm tall	5				
RDB	ES 004	043 1945/393 6547		A J U	M F U	Y N	200mm wide 120mm tall	1	2			
RDB	EE 003	043 1957/393 6571		A J U	M F U	Y N	190mm wide 100mm tall	2				X
RMA	ES 002	043 1955/393 6650		A J U	M F U	Y N	POSS PELLET	5			X	
RDB	JL 005	043 1956/393 5978		A J U	M F U	Y N	180 mm wide 90 mm tall	5				
RMA	EE 002	043 1961/393 5898		A J U	M F U	Y N					X	
RDB	JL 006	043 1953/393 5832		A J U	M F U	Y N	310 mm wide 150mm tall	1	2			
RDS	JL 002	043 1956/393 5777		A J U	M F U	Y N			2			
RDS	EE 003	043 1963/393 5713		A J U	M F U	Y N			2			
D RDP	EE 002	043 1973/393 5610		A J U	M F U	Y N		5			X	
RDS	JL 003	043 1951/393 5498		A J U	M F U	Y N	2 pieces in 1 within 30 m		2			
RMA	ES 003	043 1935/393 5476		A J U	M F U	Y N	POSS KF BY SIZE & SHAPE				X	X
RLB	ES 002	043 1931/393 5441		A J U	M F U	Y N	KF SCAT	5			X	X
[redacted]				A J U	M F U	Y N						
RMA	RW 070	043 2014/393 5462		A J U	M F U	Y N		5			X	

*See Reverse

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: RIDGECREST

Date: 5/21/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

	GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell	
RDB	RW 045	043 2018/393 5654		A J U	M F U	Y N	130mm 70mm	2			
RDB	JL 007	043 1997/393 5669		A J U	M F U	Y N	300mm 150mm	2			
RDB	ES 005	043 1999/393 5914		A J U	M F U	Y N	320mm 150mm	1			
RDL	ES 001	043 1990/393 5912	DETO	A J U	M F U	Y N					D
RDS	ES 001	043 1987/393 5918		A J U	M F U	Y N			2		
RDB	ES 006	043 1976/393 6009		A J U	M F U	Y N	220mm 120mm	1			
RDS	EE 004	043 1998/393 6189		A J U	M F U	Y N			5		
RDL	JL 002	043 1985/393 6233	DETO	A J U	M F U	Y N	MANARES AND CLOAK AROUND HOPALITY				ADULT USED
RDB	JL 008	043 1985/393 6234		A J U	M F U	Y N	310mm 130mm 6 SCATS	1	2		
RDB	JL 009	043 1987/393 6329		A J U	M F U	Y N	200mm 170mm				x
RDB	EE 004	043 1995/393 6646		A J U	M F U	Y N		5			
RDS	JL 004	043 1996/393 6654		A J U	M F U	Y N			3		
RDB	RW 050	043 2010/393 6713		A J U	M F U	Y N	115mm 50mm	5			
RNA	JL 001	043 1997/393 6742		A J U	M F U	Y N				x	x
RDP	RW 004	043 2050/393 6536		A J U	M F U	Y N	200mm 100mm inside shrub	4			
RMA	RW 071	043 2053/393 6521		A J U	M F U	Y N				x	
RDS	EE 005	043 2041/393 6182		A J U	M F U	Y N			5		
RDB	EE 005	043 2032/393 6187		A J U	M F U	Y N	200 mm 100mm	1			
RUXO	EE 001	043 2042/393 5965		A J U	M F U	Y N	DAY-NIGHT FLARE EXAUSTED				
RUXO	RW 010	043 2051/393 5935		A J U	M F U	Y N	DAY-NIGHT FLARE EXAUSTED				
RDB	EE 006	043 2035/393 5906		A J U	M F U	Y N	200mm 100mm 2thirds	2			

*See Reverse

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: RIDGECREST

Date: 5/21/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

	GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell	DETO	SHOW
RDB	ES 007	043 2019 / 393 5739		A J U	M F U	Y N	300MM 160MM	1				
RKB	EE 001	043 2035 / 393 5571		A J U	M F U	Y N	WHITE WASH = POSS BURROW SITE.				X	X
RDB	RW 051	043 2064 / 393 5475		A J U	M F U	Y N		5				
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						

*See Reverse

Do not abbreviate

Data Sheet for Live Desert Tortoises

Write on this side only

Located by ELIAS ELIAS
Processed by
Study site name RIDGECREST

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
..... meters North ..... meters East

UTM's 393 5791 n 043 1923 e

Elevation ..... m Accuracy ± ..... m

County KERN State CALIFORNIA

☒ On Plot ○ Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLEE001
Year first marked
Verification of ID ☐
Capture type ..... Sex .....
Date (dd/mm/yy) 21/05/2009
Time (PST): Start ..... End .....
Frequency ..... Transmitter # .....
Transmitter type .....
Transmitter attached .....
Transmitter to be replaced on .....
PIT # .....

Tortoise Location

Cover site type:
- ☐ burrow
- ☐ pallet
- ☒ shrub
- ☐ caliche cave
- ☐ rock shelter

At cover site:
- ☐ entering
- ☐ exiting
- ☐ on mound
- ☒ inside

Not at cover site:
- ☐ in open
- ☐ other

Burrow Data

ID #
Orientation
Length ..... Height .....
Width ..... Soil cover .....
Location

Survey Type

- ○ Radio track
- ○ Burrow search
- ○ Coverage 1
- ○ Coverage 2
- ○ Incidental
- ☒ Other

FOCUS

Tortoise Activity

- ☐ resting
- ☐ basking
- ☒ walking
- ☐ feeding
- ☐ Interacting with other tortoise
- ☐ Interacting with other animals

ID & sex of other tortoise JUVIE UNKSEX
Species
Describe interaction:

Plants/items eaten (specific):

Color (shell & skin)

	HV	Hue	Value	Chroma	Color
V1 (center)					
V4 (center)					
LC1,2&V2 (seam)					
LM5,6 & LC2 (seam)					
Foreleg					
Hindleg					

Are you color blind? ○ Yes ● No
Type of blindness .....

Body Measurements

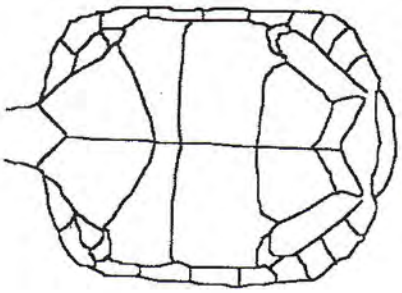
MCL (mm) 150 estimated
PLN (mm)
Weight (g)
Void (g)
Total wt (g)

New growth
☐ present ☒ absent

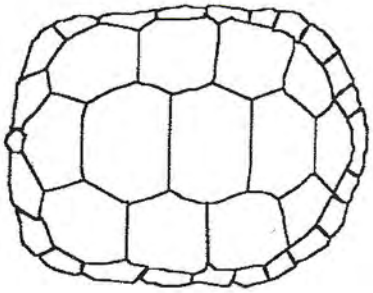
Epoxy #
☐ present ☐ legible

Behavior

sitting on ground under bush. walked a little



NO MARKS
NO CHIPS



Other notes

ELIAS TOOK PHOTO
CONTACT ELIAS @ fabflockfinder@gmail.com

Photos; roll ..... frames .....

Draw locations of notches (old and new), chips, and anomalies, etc.
Describe anomalies in numbering of marginals and any identification problems.

Entered by ☐ date ☐ ☐ on computer ☐
Modified by ☐ on ☐

© Berry 1997

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by ELIAS ELIAS
Processed by
Study site name RIDGECREST
Township Range
Section Quadrat
Coordinates (Reference SW corner)
meters North meters East
UTM's 343579 n 0423923 e
County KERN State CALIF
● On Plot ○ Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLEE001
Year first marked
Verification of ID ☐
Capture type Sex
Date (dd/mm/yy) 21/05/2009
Time (PST): Start End
Shell wear class
Process time hours
Frequency
Transmitter #

BEAK & NARES

Beak/nares wet	○ Yes	○ No	● Unk
Beak/nose damp	○ Yes	○ No	● Unk
Nasal exudate present	○ Yes	○ No	● Unk

Exudate color ☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green

Bubble(s) from nares	○ Yes	○ No	● Unk
One nare occluded	○ Yes	○ No	● Unk
Both nares occluded	○ Yes	○ No	● Unk
Dirt on nose/beak	○ Yes	○ No	● Unk
Dirt in nares	○ Yes	○ No	● Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	○ Yes	○ No	● Unk
Moisture on forelegs	○ Yes	○ No	● Unk
Dried exud. on scales	○ Yes	○ No	● Unk
Scales cracking	○ Yes	○ No	● Unk

BREATHING

Smooth	● Yes	○ No	○ Unk
Wheezing	○ Yes	● No	○ Unk
Rasping, clicking	○ Yes	● No	○ Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	○ Yes	○ No	● Unk
Eyelids swollen	○ Yes	○ No	● Unk
Eyes/lids wet	○ Yes	○ No	● Unk
Discharge from eyes	○ Yes	○ No	● Unk
Eyes sunken	○ Yes	○ No	● Unk
Eyes clear, bright	○ Yes	○ No	● Unk
Eyes dull, cloudy	○ Yes	○ No	● Unk
Chin glands draining	○ Yes	○ No	● Unk

INTEGUMENT

Integument dull	○ Yes	○ No	● Unk
Integument glossy	○ Yes	○ No	● Unk
Normal elasticity	○ Yes	○ No	● Unk
Abnormal skin peeling	○ Yes	○ No	● Unk

POSTURE/BEHAVIOR

Alert, responsive	● Yes	○ No	○ Unk
Lethargic	○ Yes	● No	○ Unk
Can withdraw tightly into shell	○ Yes	○ No	● Unk
Limbs, head hanging loose	○ Yes	● No	○ Unk

ORAL CAVITY

Observed	○ Yes	● No	○ Unk
Discharge present	○ Yes	○ No	● Unk
Membranes pink	○ Yes	○ No	● Unk
Membranes pale, white	○ Yes	○ No	● Unk
Smells/mouth rot	○ Yes	○ No	● Unk

EVIDENCE OF SHELL DISEASE NONE

Lesions present	○ Yes	● No	○ Unk
Lesions active	○ Yes	● No	○ Unk
Lesions healed	○ Yes	● No	○ Unk
Scute laminae peeling	○ Yes	● No	○ Unk
Scutes missing/peeling	○ Yes	● No	○ Unk
Pitting	○ Yes	● No	○ Unk
Scutes depressed/concave	○ Yes	● No	○ Unk
Fungal areas	○ Yes	● No	○ Unk

EVIDENCE OF TRAUMA NONE

Head	○ Yes	● No	○ Unk
Gular	○ Yes	● No	○ Unk
Forelimbs	○ Yes	● No	○ Unk
Hindlimbs	○ Yes	● No	○ Unk
Shell	○ Yes	● No	○ Unk
Scute/bone replacement	○ Yes	● No	○ Unk

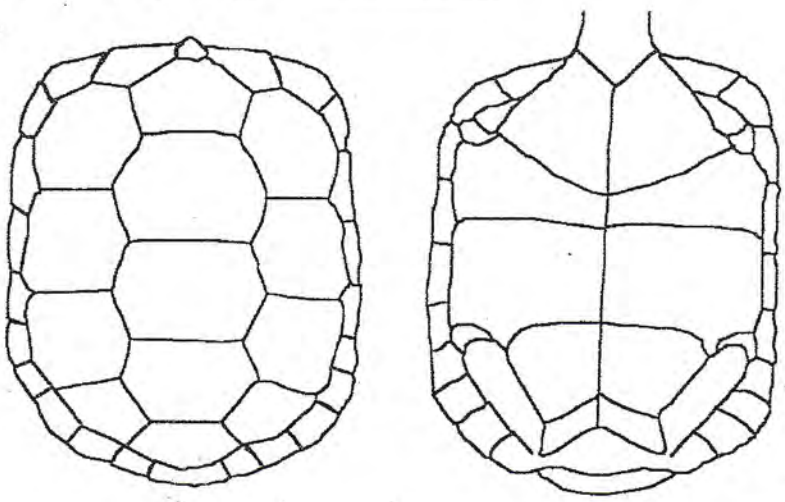
Describe:

Soil dryness: ○ wet ○ damp ● dry

Last precipitation (dd/mm/yy) unknown

Urine (vol)
Color
Viscosity
Particulates
Color
Nasal wash collected
Amt. blood/lymph taken (cc)
# of needle sticks
Time (min) of needle sticks
Location
PCV%
Other samples taken
Describe/draw parasites

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes

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Do not abbreviate

Data Sheet for Live Desert Tortoises

Write on this side only

Located by JIM LUTTREL
Processed by
Study site name RIDGECREST

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
..... meters North ..... meters East

UTM's 393 5959 n 0443 1905 e

Elevation ..... m Accuracy ± ..... m

County KERN State CALIF

● On Plot ○ Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLJL001
Year first marked .....
Verification of ID ☐
Capture type ..... Sex .....
Date (dd/mm/yy) 21/5/09
Time (PST): Start ..... End .....
Frequency ..... Transmitter # .....
Transmitter type .....
Transmitter attached .....
Transmitter to be replaced on .....
PIT # .....

Tortoise Location

Cover site type:
- ■ burrow
- ☐ pallet
- ☐ shrub
- ☐ caliche cave
- ☐ rock shelter

At cover site:
- ☐ entering
- ☐ exiting
- ☐ on mound
- ■ inside

Not at cover site:
- ☐ in open
- ☐ other

Burrow Data

ID # RDBJL001
Orientation NORTH
Length 100mm Height 110mm
Width 240mm Soil cover .....
Location .....

Survey Type

- ○ Radio track
- ● Burrow search
- ○ Coverage 1
- ○ Coverage 2
- ○ Incidental
- ○ Other

Tortoise Activity

- ■ resting
- ☐ basking
- ☐ walking
- ☐ feeding
- ☐ Interacting with other tortoise
- ☐ Interacting with other animals

ID & sex of other tortoise .....
Species .....
Describe interaction:

Plants/items eaten (specific):

Color (shell & skin)

	HV	Hue	Value	Chroma	Color
V1 (center)					
V4 (center)					
LC1,2&V2 (seam)					
LM5,6 & LC2 (seam)					
Foreleg					
Hindleg					

Are you color blind? ○ Yes ● No
Type of blindness .....

Body Measurements

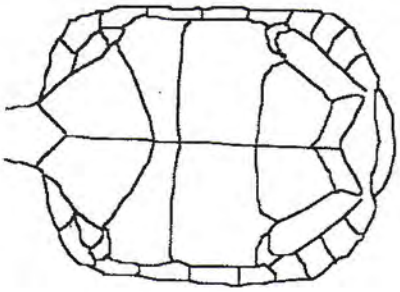
MCL (mm) _____
PLN (mm) _____
Weight (g) _____
Void (g) _____
Total wt (g) _____

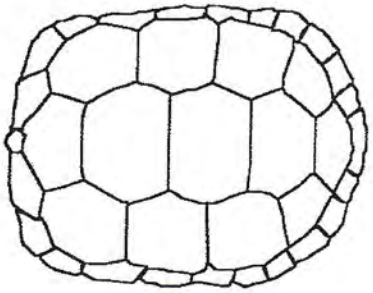
New growth
☐ present ☐ absent

Epoxy #
☐ present ☐ legible

Behavior

Sitting in burrow, head toward opening. Winced w/ mirrored.





Other notes

Photos; roll ..... frames .....

Draw locations of notches (old and new), chips, and anomalies, etc.
Describe anomalies in numbering of marginals and any identification problems.

Entered by ☐ date ☐ on computer ☐
Modified by ☐ on ☐

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Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by JIM LUTTREL
Processed by
Study site name RIDGECREST

Township Range
Section Quadrat

Coordinates (Reference SW corner)
meters North meters East

UTM's 393 5959 n 043 1905 e

County KERN State CALIFORNIA

● On Plot ○ Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLJL001
Year first marked
Verification of ID ☐
Capture type Sex
Date (dd/mm/yy) 21/05/09
Time (PST): Start End
Shell wear class
Process time hours
Frequency
Transmitter #

BEAK & NARES

Beak/nares wet	○ Yes	● No	○ Unk
Beak/nose damp	○ Yes	● No	○ Unk
Nasal exudate present	○ Yes	● No	○ Unk

Exudate color ☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green

Bubble(s) from nares	○ Yes	● No	○ Unk
One nare occluded	○ Yes	● No	○ Unk
Both nares occluded	○ Yes	● No	○ Unk
Dirt on nose/beak	○ Yes	● No	○ Unk
Dirt in nares	○ Yes	● No	○ Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	○ Yes	○ No	● Unk
Moisture on forelegs	○ Yes	○ No	● Unk
Dried exud. on scales	○ Yes	○ No	● Unk
Scales cracking	○ Yes	○ No	● Unk

BREATHING

Smooth	○ Yes	● No	○ Unk
Wheezing	○ Yes	● No	○ Unk
Rasping, clicking	○ Yes	● No	○ Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	○ Yes	● No	○ Unk
Eyelids swollen	○ Yes	● No	○ Unk
Eyes/lids wet	○ Yes	● No	○ Unk
Discharge from eyes	○ Yes	● No	○ Unk
Eyes sunken	○ Yes	● No	○ Unk
Eyes clear, bright	● Yes	○ No	○ Unk
Eyes dull, cloudy	○ Yes	● No	○ Unk
Chin glands draining	○ Yes	● No	○ Unk

INTEGUMENT

Integument dull	○ Yes	○ No	● Unk
Integument glossy	○ Yes	○ No	● Unk
Normal elasticity	○ Yes	○ No	● Unk
Abnormal skin peeling	○ Yes	○ No	● Unk

POSTURE/BEHAVIOR

Alert, responsive	● Yes	○ No	○ Unk
Lethargic	○ Yes	● No	○ Unk
Can withdraw tightly into shell	○ Yes	○ No	● Unk
Limbs, head hanging loose	○ Yes	○ No	● Unk

ORAL CAVITY

Observed	○ Yes	● No	○ Unk
Discharge present	○ Yes	○ No	● Unk
Membranes pink	○ Yes	○ No	● Unk
Membranes pale, white	○ Yes	○ No	● Unk
Smells/mouth rot	○ Yes	○ No	● Unk

EVIDENCE OF SHELL DISEASE

Lesions present	○ Yes	○ No	● Unk
Lesions active	○ Yes	○ No	● Unk
Lesions healed	○ Yes	○ No	● Unk
Scute laminae peeling	○ Yes	○ No	● Unk
Scutes missing/peeling	○ Yes	○ No	● Unk
Pitting	○ Yes	○ No	● Unk
Scutes depressed/concave	○ Yes	○ No	● Unk
Fungal areas	○ Yes	○ No	● Unk

EVIDENCE OF TRAUMA

Head	○ Yes	● No	○ Unk
Gular	○ Yes	● No	○ Unk
Forelimbs	○ Yes	● No	○ Unk
Hindlimbs	○ Yes	○ No	● Unk
Shell	○ Yes	○ No	● Unk
Scute/bone replacement	○ Yes	○ No	● Unk

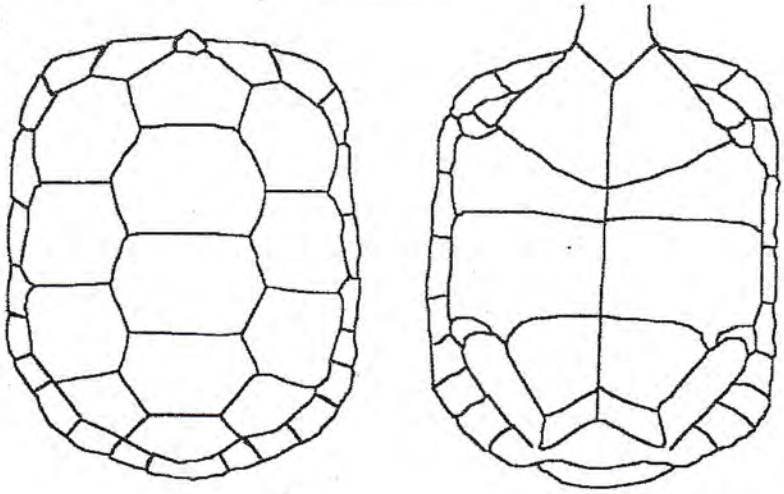
Describe:

Soil dryness: ○ wet ○ damp ● dry

Last precipitation (dd/mm/yy) unknown

Urine (vol)
Color
Viscosity
Particulates
Color
Nasal wash collected
Amt. blood/lymph taken (cc)
# of needle sticks
Time (min) of needle sticks
Location
PCV%
Other samples taken
Describe/draw parasites

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes

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3

Do not abbreviate

Data Sheet for Live Desert Tortoises

Write on this side only

Located by ELLEN
Processed by
Study site name RIDGECREST

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
..... meters North ..... meters East

UTM's 393 5912 n 013 1990 e

Elevation ..... m Accuracy ± ..... m

County KERN State CALIF

● On Plot ○ Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLES001
Year first marked
Verification of ID ☐
Capture type ..... Sex .....
Date (dd/mm/yy) 21/05/09
Time (PST): Start ..... End .....
Frequency ..... Transmitter # .....
Transmitter type .....
Transmitter attached .....
Transmitter to be replaced on .....
PIT # .....

Tortoise Location

Cover site type:
- ■ burrow
- ☐ pallet
- ☐ shrub
- ☐ caliche cave
- ☐ rock shelter

At cover site:
- ☐ entering
- ☐ exiting
- ☐ on mound
- ■ inside

Not at cover site:
- ☐ in open
- ☐ other

Burrow Data

ID # RDBES005
Orientation SW
Length 600MM Height 150MM
Width 320MM Soil cover
Location

Survey Type

- ○ Radio track
- ● Burrow search
- ○ Coverage 1
- ○ Coverage 2
- ○ Incidental
- ○ Other

Tortoise Activity

- ■ resting
- ☐ basking
- ☐ walking
- ☐ feeding
- ☐ Interacting with other tortoise
- ☐ Interacting with other animals

ID & sex of other tortoise
Species
Describe interaction:

Plants/items eaten (specific):

Color (shell & skin)

	HV	Hue	Value	Chroma	Color
V1 (center)					
V4 (center)					
LC1,2&V2 (seam)					
LM5,6 & LC2 (seam)					
Foreleg					
Hindleg					

Are you color blind? ○ Yes ● No
Type of blindness

Body Measurements

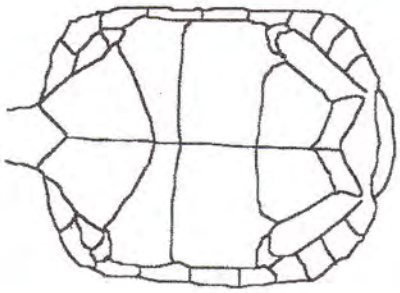
MCL (mm)
PLN (mm)
Weight (g)
Void (g)
Total wt (g)

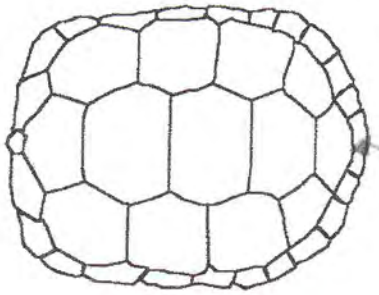
New growth
☐ present ■ absent

Epoxy #
☐ present ☐ legible

Behavior

Sitting in burrow saw quarter left rear of animal.





1/4" chunk removed

Other notes

Photos; roll ..... frames .....

Draw locations of notches (old and new), chips, and anomalies, etc.
Describe anomalies in numbering of marginals and any identification problems.

Entered by ☐ date ☐ on computer ☐
Modified by ☐ on ☐

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Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by: ELLEN
Processed by:
Study site name: RIDGECREST
Township: Range:
Section: Quadrat:
Coordinates (Reference SW corner)
meters North: meters East:
UTM's: 353 5912 n 043 1990 e
County: KERN State: CALIFORNIA
● On Plot ○ Off Plot

Show location of tortoise in quadrat

Tortoise ID #: RDLGS001
Year first marked:
Verification of ID: ☐
Capture type: Sex:
Date (dd/mm/yy): 21/05/09
Time (PST): Start: End:
Shell wear class:
Process time: hours
Frequency:
Transmitter #:

BEAK & NARES

Beak/nares wet	○ Yes	○ No	● Unk
Beak/nose damp	○ Yes	○ No	● Unk
Nasal exudate present	○ Yes	○ No	● Unk
Exudate color	☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green		
Bubble(s) from nares	○ Yes	○ No	● Unk
One nare occluded	○ Yes	○ No	● Unk
Both nares occluded	○ Yes	○ No	● Unk
Dirt on nose/beak	○ Yes	○ No	● Unk
Dirt in nares	○ Yes	○ No	● Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	○ Yes	○ No	● Unk
Moisture on forelegs	○ Yes	○ No	● Unk
Dried exud. on scales	○ Yes	○ No	● Unk
Scales cracking	○ Yes	○ No	● Unk

BREATHING

Smooth	○ Yes	○ No	● Unk
Wheezing	○ Yes	○ No	● Unk
Rasping, clicking	○ Yes	○ No	● Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	○ Yes	○ No	● Unk
Eyelids swollen	○ Yes	○ No	● Unk
Eyes/lids wet	○ Yes	○ No	● Unk
Discharge from eyes	○ Yes	○ No	● Unk
Eyes sunken	○ Yes	○ No	● Unk
Eyes clear, bright	○ Yes	○ No	● Unk
Eyes dull, cloudy	○ Yes	○ No	● Unk
Chin glands draining	○ Yes	○ No	● Unk

INTEGUMENT

Integument dull	○ Yes	○ No	● Unk
Integument glossy	○ Yes	○ No	● Unk
Normal elasticity	○ Yes	○ No	● Unk
Abnormal skin peeling	○ Yes	○ No	● Unk

POSTURE/BEHAVIOR

Alert, responsive	○ Yes	○ No	● Unk
Lethargic	○ Yes	○ No	● Unk
Can withdraw tightly into shell	○ Yes	○ No	● Unk
Limbs, head hanging loose	○ Yes	○ No	● Unk

ORAL CAVITY

Observed	○ Yes	● No	○ Unk
Discharge present	○ Yes	○ No	● Unk
Membranes pink	○ Yes	○ No	● Unk
Membranes pale, white	○ Yes	○ No	● Unk
Smells/mouth rot	○ Yes	○ No	● Unk

EVIDENCE OF SHELL DISEASE

Lesions present	○ Yes	● No	○ Unk
Lesions active	○ Yes	● No	○ Unk
Lesions healed	○ Yes	● No	○ Unk
Scute laminae peeling	○ Yes	● No	○ Unk
Scutes missing/peeling	○ Yes	● No	○ Unk
Pitting	○ Yes	● No	○ Unk
Scutes depressed/concave	○ Yes	● No	○ Unk
Fungal areas	○ Yes	● No	○ Unk

EVIDENCE OF TRAUMA

Head	○ Yes	○ No	● Unk
Gular	○ Yes	○ No	● Unk
Forelimbs	○ Yes	○ No	● Unk
Hindlimbs	○ Yes	● No	○ Unk
Shell	○ Yes	● No	○ Unk
Scute/bone replacement	○ Yes	● No	○ Unk

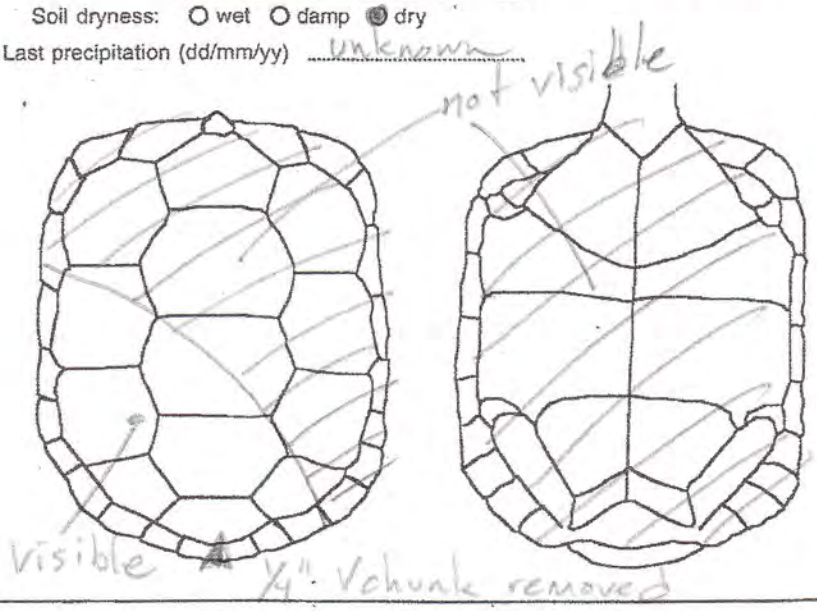
Describe:

Soil dryness: ○ wet ○ damp ● dry

Last precipitation (dd/mm/yy): unknown

Urine (vol):
Color:
Viscosity:
Particulates:
Color:
Nasal wash collected:
Amt. blood/lymph taken (cc):
# of needle sticks:
Time (min) of needle sticks:
Location:
PCV%:
Other samples taken:
Describe/draw parasites

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes:

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Do not abbreviate

Data Sheet for Live Desert Tortoises

Write on this side only

Located by JIM LUTTREL
Processed by
Study site name RIDGECREST

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
..... meters North ..... meters East

UTM's 393 6233 n 043 1985 e

Elevation ..... m Accuracy ± ..... m

County KERN State CALIF.

● On Plot ○ Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLJL002
Year first marked .....
Verification of ID ☐
Capture type ..... Sex .....
Date (dd/mm/yy) 21/05/09
Time (PST): Start ..... End .....
Frequency ..... Transmitter # .....
Transmitter type .....
Transmitter attached .....
Transmitter to be replaced on .....
PIT # .....

Tortoise Location

Cover site type:
- ■ burrow
- ☐ pallet
- ☐ shrub
- ☐ caliche cave
- ☐ rock shelter

At cover site:
- ☐ entering
- ☐ exiting
- ☐ on mound
- ■ inside

Not at cover site:
- ☐ in open
- ☐ other

Burrow Data

ID # RDBJL008
Orientation NORTH
Length 600 Height 130MM
Width 310MM Soil cover .....
Location .....

Survey Type

- ○ Radio track
- ● Burrow search
- ○ Coverage 1
- ○ Coverage 2
- ○ Incidental
- ○ Other

Tortoise Activity

- ■ resting
- ☐ basking
- ☐ walking
- ☐ feeding
- ☐ Interacting with other tortoise
- ☐ Interacting with other animals

ID & sex of other tortoise .....
Species .....
Describe interaction:

Plants/items eaten (specific):

Color (shell & skin)

	HV	Hue	Value	Chroma	Color
V1 (center)					
V4 (center)					
LC1,2&V2 (seam)					
LM5,6 & LC2 (seam)					
Foreleg					
Hindleg					

Are you color blind? ○ Yes ● No
Type of blindness .....

Body Measurements

MCL (mm) _____
PLN (mm) _____
Weight (g) _____
Void (g) _____
Total wt (g) _____

New growth
☐ present ☐ absent

Epoxy #
☐ present ☐ legible

Behavior

sitting in burrow

Other notes

Photos; roll ..... frames .....

Draw locations of notches (old and new), chips, and anomalies, etc.
Describe anomalies in numbering of marginals and any identification problems.

Entered by ☐ date ☐ on computer ☐
Modified by ☐ on ☐

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Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by JIM LUTTREL
Processed by
Study site name RIDGECREST

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
..... meters North ..... meters East

UTM's 393 6233 n 043 1985 e

County KERN State CALIF

● On Plot ○ Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLJL002
Year first marked
Verification of ID ☐
Capture type ..... Sex .....
Date (dd/mm/yy) 21/05/09
Time (PST): Start ..... End .....
Shell wear class
Process time ..... hours
Frequency
Transmitter #

BEAK & NARES

Beak/nares wet	○ Yes	○ No	● Unk
Beak/nose damp	○ Yes	○ No	● Unk
Nasal exudate present	○ Yes	○ No	● Unk
Exudate color	☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green		
Bubble(s) from nares	○ Yes	○ No	● Unk
One nare occluded	○ Yes	○ No	● Unk
Both nares occluded	○ Yes	○ No	● Unk
Dirt on nose/beak	○ Yes	○ No	● Unk
Dirt in nares	○ Yes	○ No	● Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	○ Yes	○ No	● Unk
Moisture on forelegs	○ Yes	○ No	● Unk
Dried exud. on scales	○ Yes	○ No	● Unk
Scales cracking	○ Yes	○ No	● Unk

BREATHING

Smooth	○ Yes	○ No	● Unk
Wheezing	○ Yes	○ No	● Unk
Rasping, clicking	○ Yes	○ No	● Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	○ Yes	● No	○ Unk
Eyelids swollen	○ Yes	● No	○ Unk
Eyes/lids wet	○ Yes	● No	○ Unk
Discharge from eyes	○ Yes	● No	○ Unk
Eyes sunken	○ Yes	● No	○ Unk
Eyes clear, bright	○ Yes	○ No	● Unk
Eyes dull, cloudy	○ Yes	○ No	● Unk
Chin glands draining	○ Yes	○ No	● Unk

INTEGUMENT

Integument dull	○ Yes	○ No	● Unk
Integument glossy	○ Yes	○ No	● Unk
Normal elasticity	○ Yes	○ No	● Unk
Abnormal skin peeling	○ Yes	○ No	● Unk

POSTURE/BEHAVIOR

Alert, responsive	● Yes	○ No	○ Unk
Lethargic	○ Yes	● No	○ Unk
Can withdraw tightly into shell	○ Yes	○ No	● Unk
Limbs, head hanging loose	○ Yes	● No	○ Unk

ORAL CAVITY

Observed	○ Yes	● No	○ Unk
Discharge present	○ Yes	○ No	● Unk
Membranes pink	○ Yes	○ No	● Unk
Membranes pale, white	○ Yes	○ No	● Unk
Smells/mouth rot	○ Yes	○ No	● Unk

EVIDENCE OF SHELL DISEASE

Lesions present	○ Yes	○ No	● Unk
Lesions active	○ Yes	○ No	● Unk
Lesions healed	○ Yes	○ No	● Unk
Scute laminae peeling	○ Yes	○ No	● Unk
Scutes missing/peeling	○ Yes	○ No	● Unk
Pitting	○ Yes	○ No	● Unk
Scutes depressed/concave	○ Yes	○ No	● Unk
Fungal areas	○ Yes	○ No	● Unk

EVIDENCE OF TRAUMA

Head	○ Yes	○ No	● Unk
Gular	○ Yes	○ No	● Unk
Forelimbs	○ Yes	○ No	● Unk
Hindlimbs	○ Yes	○ No	● Unk
Shell	○ Yes	○ No	● Unk
Scute/bone replacement	○ Yes	○ No	● Unk

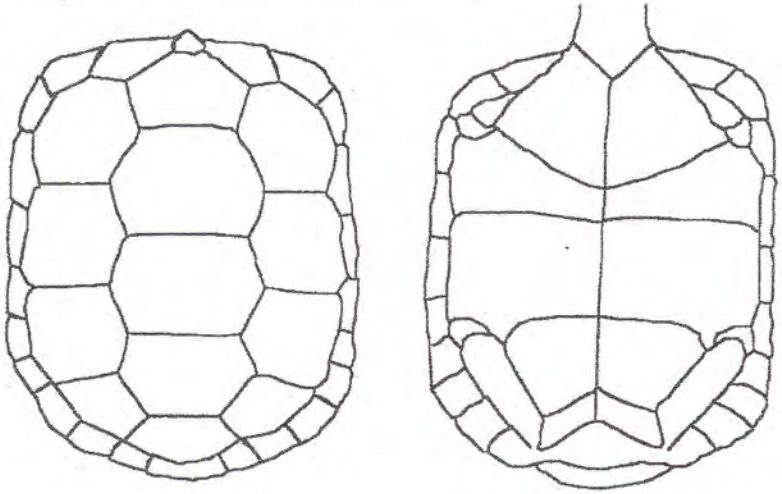
Describe:

Soil dryness: ○ wet ○ damp ● dry

Last precipitation (dd/mm/yy) Unknown

Urine (vol) .....
Color .....
Viscosity .....
Particulates .....
Color .....
Nasal wash collected .....
Amt. blood/lymph taken (cc) .....
# of needle sticks .....
Time (min) of needle sticks .....
Location .....
PCV% .....
Other samples taken .....
Describe/draw parasites

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



Other notes

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2060	X	2100	X	2140	X	2180	X
2070	X	2110	X	2150	X	2190	X
2080	X	2120	X	2160	X	2200	X
2090	X	2130	X	2170	X	2210	X

EE 78 WASH WEST. 433590

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: RIDGECREST Date: 5/22/09 Page 1 of 3

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
FOCUSED	GM 7.5	C-4 to	JLU-4	EEL-7
	4.9	C-7	RWD-5	ES C-9

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	6:20	78	Ø CALM	CLEAR 0%
Mid-day	14:00	96	3 NORTH	5% CC
End	15 55	96	8 SOUTH	5% CC

	GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell	DETO	SHOW
RDB	EE 007	043 2084/393 5399		A J U	M F U	Y N	100mm 50mm	1				
RMA	EE 003	043 2076/393 5829		A J U	M F U	Y N		4			X	X
RNE	JL 001	043 2076/393 6247		A J U	M F U	Y N	unidable open cup 1m up shrub					
RMA	RW 072	043 2087/393 6252		A J U	M F U	Y N	under shrub @ edge of wash	5			X	
RMA	RW 073	043 2090/393 6410		A J U	M F U	Y N		5			X	
RDB	EE 008	043 2084/393 6450		A J U	M F U	Y N	160mm 90mm	1				
RMA	EE 004	043 2079/393 6690		A J U	M F U	Y N	ROOF BUMPY LARGE 350mm x 150mm	5			X	
RDS	EE 006	043 2122/393 6636		A J U	M F U	Y N	VERY DETERIORATED		5			
RDS	EE 007	043 2119/393 6839		A J U	M F U	Y N	VERY SANDY		3			
RDS	EE 008	043 2123/393 6287		A J U	M F U	Y N			5			
RMA	JL 002	043 2104/393 5974		A J U	M F U	Y N					X	
RDB	JL 010	043 2113/393 5768		A J U	M F U	Y N	KIT FOX SCAT				X	X
RKS	ES 003	043 2115/393 5737		A J U	M F U	Y N	PROB COYOTE SYSTEM (4 HOLES) COYOTE SCAT & WHITE WASH				X	X
RDB	ES 008	043 2105/393 5410		A J U	M F U	Y N	100mm 50mm	5				
RDS	EE 009	043 2161/393 5262		A J U	M F U	Y N			2			
RDB	ES 009	043 2141/393 5301		A J U	M F U	Y N	200mm 100mm	5				
RDS	ES 002	043 2136/393 5313		A J U	M F U	Y N			2			
RDS	ES 010	043 2162/393 5316		A J U	M F U	Y N			5			
RMA	EE 005	043 2163/393 5692		A J U	M F U	Y N	TORT SHAPE BUT BIG ROCKS @ APRON	4			X	
RDS	JL 005	043 2154/393 5708		A J U	M F U	Y N			2			
RDB	RW 052	043 2167/393 5946		A J U	M F U	Y N	240mm 120mm	5				

*See Reverse

433060
70

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: RIDGECREST Date: 5/22/09 Page 2 of 3

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

	GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell	DETO	BYOW
RDB	EE 010	043 2153/393 6080		A J U	M F U	Y N	LOTS OF SCAT 300mm 120mm	1				X
RDL	EE 002	043 2154/393 6078	DETO	(A) J U	M F (U)	Y N	INSIDE BURROW RDBEE010 (Above)					
RDC	RW 004	043 2173/393 6179		(A) J U	M (F) U	Y N	FEMALE MOST OF PLASTRON & PART OF CARAPACE.			4		
RKB	ES 004	043 2178/393 5593		A J U	M F U	Y N		5			X	X
RDB	RW 009			A J U	M F U	Y N	FROM 3/31/09 - still occupied w/ tortoise					
				A J U	M F U	Y N	RDL RW002 #003 where here 3/31					
RDS	JL 006	043 2155/393 5258		A J U	M F U	Y N			2			
RDC	RW 025	043 2041/393 5081		A J U	M F U	Y N	ROAD KILL 7" long. EMPTY			2		
				A J U	M F U	Y N						
				A J U	M F U	Y N						
	MOVED TO MAP E-8			A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						

*See Reverse

0433050	x	90	x	130 x	170 x	210 x	250 x
60	x	100	x	140 x	180 x	220 x	260 x
70	x	110	x	150 x	190 x	230 x	270 x
80	x	120	x	160 x	200 x	240 x	280 x

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: RIDGECREST Date: 5/22/09 Page 3 of 3

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
Focus		E-8		

NEW MAP

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

	GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell	DETO	BURROW
RMA	JL 003	043 3070/393 4958		A J U	M F U	Y N					x	x
RNE	JL 002	043 3113/393 5007		A J U	M F U	Y N						
RMA	RW 074	043 3132/393 5071		A J U	M F U	Y N					x	
RLT	JL 001	043 3183/393 5073		A J U	M F U	Y N						
RDC	EE 001	043 3178/393 4916	DETO	(A) J U	M F (U)	Y N	scattered 15m to east			4		
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						

*See Reverse

Do not abbreviate

Data Sheet for Live Desert Tortoises

Write on this side only

Located by ROB WOLFSON
Processed by
Study site name SM RIDGECREST

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
NAD 83 ..... meters North UTM UAS meters East

UTMs 043 2154 n 393 6078 e

Elevation ..... m Accuracy ± ..... m

County KERN State CA

O On Plot O Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLEE002
Year first marked 2009
Verification of ID ☐
Capture type ..... Sex UNK.
Date (dd/mm/yy) 5/22/09
Time (PST): Start 1032 AM End .....
Frequency ..... Transmitter # .....
Transmitter type .....
Transmitter attached .....
Transmitter to be replaced on .....
PIT # .....

Tortoise Location

Cover site type:
- ☒ burrow
- ☐ pallet
- ☐ shrub
- ☐ caliche cave
- ☐ rock shelter

At cover site:
- ☐ entering
- ☐ exiting
- ☐ on mound
- ☒ inside

Not at cover site:
- ☐ in open
- ☐ other

Burrow Data

ID # [redacted]
Orientation .....
Length ..... Height .....
Width ..... Soil cover .....
Location .....

Survey Type

- O Radio track
- ☒ Burrow search
- O Coverage 1
- O Coverage 2
- O Incidental
- O Other

Tortoise Activity

- ☒ resting
- ☐ basking
- ☐ walking
- ☐ feeding
- ☐ Interacting with other tortoise
- ☐ Interacting with other animals

ID & sex of other tortoise UNKNOWN
Species .....
Describe interaction:

Plants/items eaten (specific):

Color (shell & skin)

	HV	Hue	Value	Chroma	Color
V1 (center)					
V4 (center)					
LC1,2&V2 (seam)					
LM5,6 & LC2 (seam)					
Foreleg					
Hindleg					

Are you color blind? O Yes ☒ No
Type of blindness .....

Body Measurements

MCL (mm) UNKNOWN
PLN (mm) _____
Weight (g) _____
Void (g) _____
Total wt (g) _____

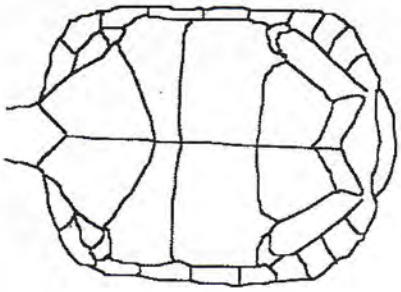
New growth
☐ present ☐ absent

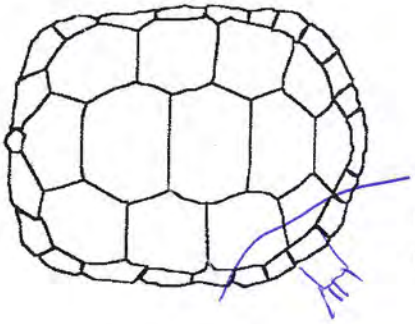
Epoxy #
☐ present ☐ legible

Behavior

Other notes

COULD ONLY SEE A FOOT AND PART OF SHELL. APPEARED HEALTHY AND ALIVE.





Photos; roll ..... frames .....

Draw locations of notches (old and new), chips, and anomalies, etc.
Describe anomalies in numbering of marginals and any identification problems.

Entered by ☐ date ☐ on computer ☐
Modified by ☐ on ☐

© Berry 1997

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by ROB WOLFSON
Processed by
Study site name SM RIDGECREST

Township Range
Section Quadrat

Coordinates (Reference SW corner)
meters North meters East

UTM's 043 2154 n 393 6078 e

County KERN State CA

☒ On Plot ○ Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLEE002
Year first marked
Verification of ID ☐
Capture type Sex
Date (dd/mm/yy) 5/22/09
Time (PST): Start 1032 End
Shell wear class
Process time hours
Frequency
Transmitter #

BEAK & NARES

Beak/nares wet	○ Yes	○ No	● Unk
Beak/nose damp	○ Yes	○ No	● Unk
Nasal exudate present	○ Yes	○ No	● Unk

Exudate color ☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green

Bubble(s) from nares	○ Yes	○ No	● Unk
One nare occluded	○ Yes	○ No	● Unk
Both nares occluded	○ Yes	○ No	● Unk
Dirt on nose/beak	○ Yes	○ No	● Unk
Dirt in nares	○ Yes	○ No	● Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	○ Yes	○ No	● Unk
Moisture on forelegs	○ Yes	○ No	● Unk
Dried exud. on scales	○ Yes	○ No	● Unk
Scales cracking	○ Yes	○ No	● Unk

BREATHING

Smooth	○ Yes	○ No	● Unk
Wheezing	○ Yes	○ No	● Unk
Rasping, clicking	○ Yes	○ No	● Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	○ Yes	○ No	● Unk
Eyelids swollen	○ Yes	○ No	● Unk
Eyes/lids wet	○ Yes	○ No	● Unk
Discharge from eyes	○ Yes	○ No	● Unk
Eyes sunken	○ Yes	○ No	● Unk
Eyes clear, bright	○ Yes	○ No	● Unk
Eyes dull, cloudy	○ Yes	○ No	● Unk
Chin glands draining	○ Yes	○ No	● Unk

INTEGUMENT

Integument dull	○ Yes	○ No	● Unk
Integument glossy	○ Yes	○ No	● Unk
Normal elasticity	☒ Yes	○ No	○ Unk
Abnormal skin peeling	○ Yes	○ No	● Unk

POSTURE/BEHAVIOR

Alert, responsive	○ Yes	○ No	● Unk
Lethargic	○ Yes	○ No	● Unk
Can withdraw tightly into shell	○ Yes	○ No	● Unk
Limbs, head hanging loose	○ Yes	○ No	● Unk

ORAL CAVITY

Observed	○ Yes	○ No	● Unk
Discharge present	○ Yes	○ No	● Unk
Membranes pink	○ Yes	○ No	● Unk
Membranes pale, white	○ Yes	○ No	● Unk
Smells/mouth rot	○ Yes	○ No	● Unk

EVIDENCE OF SHELL DISEASE

Lesions present	○ Yes	○ No	● Unk
Lesions active	○ Yes	○ No	● Unk
Lesions healed	○ Yes	○ No	● Unk
Scute laminae peeling	○ Yes	○ No	● Unk
Scutes missing/peeling	○ Yes	○ No	● Unk
Pitting	○ Yes	○ No	● Unk
Scutes depressed/concave	○ Yes	☒ No	○ Unk
Fungal areas	○ Yes	○ No	● Unk

EVIDENCE OF TRAUMA

Head	○ Yes	○ No	● Unk
Gular	○ Yes	○ No	● Unk
Forelimbs	○ Yes	○ No	● Unk
Hindlimbs	○ Yes	○ No	● Unk
Shell	○ Yes	○ No	● Unk
Scute/bone replacement	○ Yes	○ No	● Unk

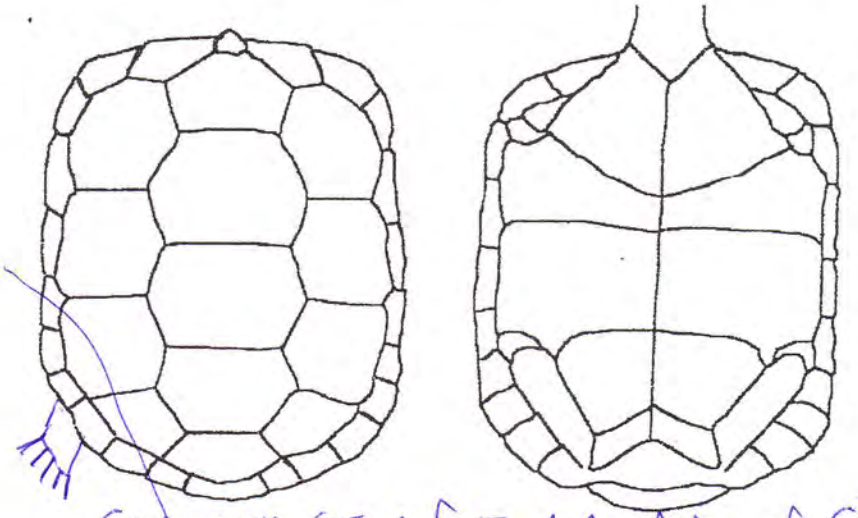
Describe:

Soil dryness: ○ wet ○ damp ○ dry

Last precipitation (dd/mm/yy)

Urine (vol)
Color
Viscosity
Particulates
Color
Nasal wash collected
Amt. blood/lymph taken (cc)
# of needle sticks
Time (min) of needle sticks
Location
PCV%
Other samples taken
Describe/draw parasites

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).



COULD ONLY SEE A FOOT AND PART OF SHELL

Other notes

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0433290	x	340	x	390	x	440	x	490	x	540	x	590	x	640	x	690	x	740	x	790	x	840	x		
300	x	350	x	400	x	450	x	500	x	550	x	600	x	650	x	700	x	750	x	800	x	850	x		
310	x	360	x	410	x	460	x	510	x	560	x	610	x	660	x	710	x	760	x	810	x	860	x		
320	x	370	x	420	x	470	x	520	x	570	x	620	x	670	x	720	x	770	x	820	x	870	x		
330	-	380	x	430	x	480	x	530	x	580	x	630	x	680	x	730	x	780	x	830	x	880	x		

↑↑↑ to E6 ↗ → → ↓E8 ONLY ↗ in box

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridgecrest

Date: 5/23/09

Page 1 of 4

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
		E8		

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	6:51	69°	5 S	HIGH CLOUD 5%
Mid-day				
End	4:42	89°	16 S	CLEAR 1%

~~@ 0433600 go to~~

DATA ON GPS # 8

POTENTIAL USAGE SEE BELOW

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments			DETO Sign Type* (include comments) Burr	Scat	Shell
RMAES004	043 3364		A J U	M F U	Y N	WHITEWASH + PELLETS ?	x	x	5		
	393 5180		A J U	M F U	Y N	APRON					
RMAES005	043 3373		A J U	M F U	Y N		x		4		
	393 5060		A J U	M F U	Y N						
RNEJL003	043 3435		A J U	M F U	Y N	POSSIBLE SHRIKE - OTHER					
	393 5061		A J U	M F U	Y N	NESTS IN CHOLLA					
RLSCG001	043 3402		A J U	M F U	Y N	HEARD THEN SEEN					
	393 5278		A J U	M F U	Y N						
RDPCG002	043 3477		A J U	M F U	Y N	DEFORMED POSSIBLY	x		4		
	393 4904		A J U	M F U	Y N	TORTOISE 15cm x 8cm					
RDBEE011	043 3542		A J U	M F U	Y N	25cm x 15cm	x		2		
	393 5259		A J U	M F U	Y N						
RDSES003	043 3547		A J U	M F U	Y N	W/GLOSS				2	
	393 5282		A J U	M F U	Y N						
RDSEE011	043 3550		A J U	M F U	Y N	W/GLOSS				2	
	393 5265		A J U	M F U	Y N						
~~RSLM~~			A J U	M F U	Y N						
RMASL004	043 3553		A J U	M F U	Y N		x		4		
	393 5226		A J U	M F U	Y N						
RNEJL004	043 3551		A J U	M F U	Y N						
	393 5208		A J U	M F U	Y N						

890
900
910
920
930
940
950
960
970
980
990
4000
4010
4020
4030

*See Reverse

Site: RIDGECREST

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: MAY 23, 2009

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell	POTENTIAL USAGE BELOW DETO
RMAEE006	043 3543		A J U	M F U	Y N	RING OF CREOSOTE	4			X
	393 5224		A J U	M F U	Y N					
RDBJL011	043 3642		A J U	M F U	Y N	25cm x 12cm	3			X
	393 5587		A J U	M F U	Y N					
RDSES004	043 3659		A J U	M F U	Y N	2 PIECES ≈ ~~[illegible]~~ est 8cm		2		
	393 5574		A J U	M F U	Y N					
RDSES005	043 3621		A J U	M F U	Y N	2 PIECES = ~~6cm~~ 6cm		2		
	393 5597		A J U	M F U	Y N					
RDSEE012	043 3601		A J U	M F U	Y N	1 PIECE ≈ ~~[illegible]~~ 8cm		2		
	393 5623		A J U	M F U	Y N					
RDCIL001	043 3610		A J U	M F U	Y N	EST3 FROM 120mm x 50cm			2	
	393 5779		A J U	M F U	Y N					
RDPES001	043 3628		A J U	M F U	Y N	25cm x 10cm	4			X
	393 6033		A J U	M F U	Y N					
RDBCL003	043 3683		A J U	M F U	Y N	25cm x 16cm	4			X
	393 5706		A J U	M F U	Y N					
RMARW075	043 3632		A J U	M F U	Y N	UNDER CREOSOTE	4			X
	393 5516		A J U	M F U	Y N					
RDSRW017	043 3633		A J U	M F U	Y N	DRIED		2		
	393 5515		A J U	M F U	Y N	8cm				
			A J U	M F U	Y N					

*See Reverse

Site: Ridgecrest

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: MAY 23 2009

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell	Potential Lesser Desert Tortoise Burrow
RMAJL005	043 393 3661		A J U	M F U	Y N		5			X
	393 043 5278		A J U	M F U	Y N					
RMAGE007	~~393~~ 0		A J U	M F U	Y N		5			X
↳	043 3651		A J U	M F U	Y N	WHITE WASH PRESENT				
	393 4905		A J U	M F U	Y N					
RDPCG003	043 3724		A J U	M F U	Y N		4			X
	393 5001		A J U	M F U	Y N					
RDSCG001	043 3712		A J U	M F U	Y N			3		
	393 5060		A J U	M F U	Y N					
*RBBJL001	043 3712		A J U	M F U	Y N	FOOT PRINTS / TRACKS				X
	393 5486		A J U	M F U	Y N	ALL OVER APRON W/ WITHERED				
RDSEE013	043 3706		A J U	M F U	Y N	& PELLETS				
	393 5512		A J U	M F U	Y N	3 PELLETS		3		
			A J U	M F U	Y N					
			A J U	M F U	Y N					
RBLES001	043 3712		A J U	M F U	Y N	2 BURROWING OWL -				
	393 5486		A J U	M F U	Y N	SEEN @ 12:45 - FLUSHED				
			A J U	M F U	Y N					
RMAEE008	043 3759		A J U	M F U	Y N	CANID SCAT PRESENT	5			
	393 5847		A J U	M F U	Y N					
			A J U	M F U	Y N					

*See Reverse

Site: RIDGECREST

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: MAY 23, 2009

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell	POTENTIAL USERS BLOW	DEN
RDP004	043 3786		A J U	M F U	Y N		4				
CG	393 5694		A J U	M F U	Y N						X
			A J U	M F U	Y N						
RDPES002	043 3750		A J U	M F U	Y N		3				
	393 5667		A J U	M F U	Y N						X
			A J U	M F U	Y N						
RNEES003	043 3732		A J U	M F U	Y N	IN ROCKS DETO CONTAINS CARCASS PARTS					
	393 5173		A J U	M F U	Y N						
RDCES002	043 3732		A J U	M F U	Y N						
	393 5173		A J U	M F U	Y N						
RBCCG001	043 3783		A J U	M F U	Y N	BARREL CACTUS MULTIPLE COTTON TOP					
	393 5131		A J U	M F U	Y N						
RBCRW001	043 3730		A J U	M F U	Y N						
	393 5141		A J U	M F U	Y N						
RBCRW002	043 3754		A J U	M F U	Y N	B					
	393 5119		A J U	M F U	Y N						
RBCCG002	043 3835		A J U	M F U	Y N						
	393 5093		A J U	M F U	Y N						
RNEES004	043 3838		A J U	M F U	Y N						
	393 4883		A J U	M F U	Y N	VERDIN = VACATED					
			A J U	M F U	Y N						

*See Reverse

432810	850	890	
820	860	900	
830	870	910	
840	880	920	

431300	✓	340	✓	380
310	✓	350	✓	390
320	✓	360	✓	400
330	✓	370	✓	410

431050	090
1060	100
070	110
080	120

130
140 to gam
150 to
160 here
170
180
190
200
210
220
230
240
250

⊕ triangle @ 430960

11.19 km

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: RIDGECREST

Date: 5/23/09

Page 1 of

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
Focused	1.6	C8-C12	1-SDA 6-GLU	

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	9:03 AM	74°F	0 to 1 mph	20% CC
Mid-day	1:25 PM	89°F	4 to 11 mph	5% CC
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDLGL002	0431320 3934042	DETO	A (J) U	M F (U)	(Y) N	juvenile DETO, popcorn flower in mouth			
			A J U	M F U	Y N	walking ~~[illegible]~~ MCL, picture			
			A J U	M F U	Y N	↳ to east ~~[illegible]~~ 5" MCL, 4" x midbs			
			A J U	M F U	Y N	likely male, large gular → split			
			A J U	M F U	Y N	burrow not observed			
			A J U	M F U	Y N				
RDBGL002	0431357 3933884	DETO	A J U	M F U	Y N	tort burrow, root blocks burrow	2		
			A J U	M F U	Y N	further back, likely used by			
			A J U	M F U	Y N	juvenile and as tort grew			
			A J U	M F U	Y N	dug front of burrow			
			A J U	M F U	Y N	6" wide x 4" high x 18" deep			
			A J U	M F U	Y N	(burrow/pallet), no potential for ~~[illegible]~~ KFOX			
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

thistle sage, western whiptail, DETO, kit fox (skull), wild burrough skat

raven, coyote

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by .....
Processed by .....
Study site name [ ]

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
..... meters North ..... meters East

UTM's ..... n ..... e

County ..... State .....

O On Plot O Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLGL002
Year first marked .....
Verification of ID [ ]
Capture type ..... Sex .....
Date (dd/mm/yy) .....
Time (PST): Start ..... End .....
Shell wear class .....
Process time ..... hours
Frequency .....
Transmitter # .....

BEAK & NARES

Beak/nares wet	O Yes	✓ No	O Unk
Beak/nose damp	O Yes	✓ No	O Unk
Nasal exudate present	O Yes	✓ No	O Unk
Exudate color	☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green		
Bubble(s) from nares	O Yes	✓ No	O Unk
One nare occluded	O Yes	✓ No	O Unk
Both nares occluded	O Yes	✓ No	O Unk
(food) Dirt on nose/beak	✓ Yes	O No	O Unk
Dirt in nares	O Yes	✓ No	O Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	O Yes	✓ No	O Unk
Moisture on forelegs	O Yes	✓ No	O Unk
Dried exud. on scales	O Yes	✓ No	O Unk
Scales cracking	O Yes	✓ No	O Unk

BREATHING

Smooth	✓ Yes	O No	O Unk
Wheezing	O Yes	✓ No	O Unk
Rasping, clicking	O Yes	✓ No	O Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	O Yes	✓ No	O Unk
Eyelids swollen	O Yes	✓ No	O Unk
Eyes/lids wet	O Yes	✓ No	O Unk
Discharge from eyes	O Yes	✓ No	O Unk
Eyes sunken	O Yes	✓ No	O Unk
Eyes clear, bright	✓ Yes	O No	O Unk
Eyes dull, cloudy	O Yes	✓ No	O Unk
Chin glands draining	O Yes	✓ No	O Unk

INTEGUMENT

Integument dull	O Yes	✓ No	O Unk
Integument glossy	✓ Yes	O No	O Unk
Normal elasticity	✓ Yes	O No	O Unk
Abnormal skin peeling	O Yes	✓ No	O Unk

POSTURE/BEHAVIOR

Alert, responsive	✓ Yes	O No	O Unk
Lethargic	O Yes	✓ No	O Unk
Can withdraw tightly into shell	O Yes	O No	✓ Unk
Limbs, head hanging loose	O Yes	✓ No	O Unk

ORAL CAVITY

Observed	O Yes	O No	O Unk
Discharge present	O Yes	O No	O Unk
Membranes pink	O Yes	O No	O Unk
Membranes pale, white	O Yes	O No	O Unk
Smells/mouth rot	O Yes	O No	O Unk

EVIDENCE OF SHELL DISEASE

Lesions present	✓ Yes	✓ No	O Unk
Lesions active	O Yes	✓ No	O Unk
Lesions healed	O Yes	✓ No	O Unk
Scute laminae peeling	O Yes	✓ No	O Unk
Scutes missing/peeling	O Yes	✓ No	O Unk
Pitting	O Yes	✓ No	O Unk
Scutes depressed/concave	✓ Yes	✓ No	O Unk
Fungal areas	O Yes	✓ No	O Unk

EVIDENCE OF TRAUMA

Head	O Yes	✓ No	O Unk
Gular	O Yes	✓ No	O Unk
Forelimbs	O Yes	✓ No	O Unk
Hindlimbs	O Yes	✓ No	O Unk
Shell	O Yes	✓ No	O Unk
Scute/bone replacement	O Yes	✓ No	O Unk

Describe: .....

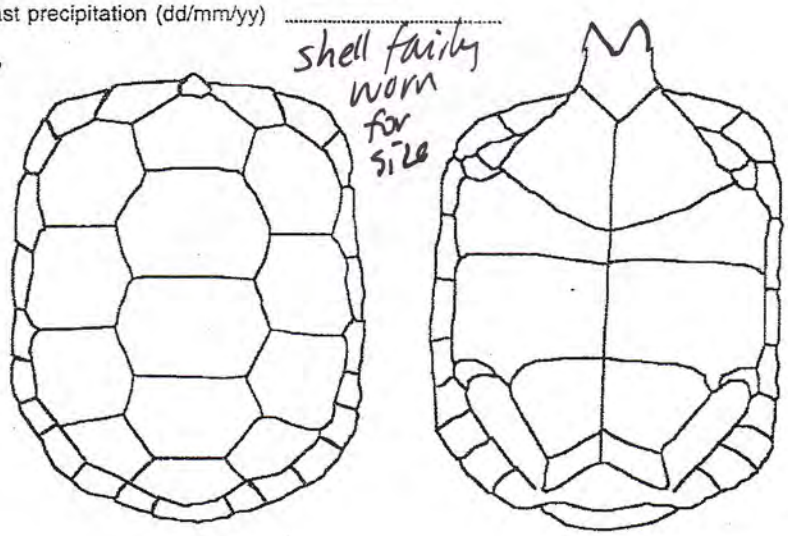
Soil dryness: O wet O damp O dry

Last precipitation (dd/mm/yy) .....

Urine (vol) .....
Color .....
Viscosity .....
Particulates .....
Color .....
Nasal wash collected .....
Amt. blood/lymph taken (cc) .....
# of needle sticks .....
Time (min) of needle sticks .....
Location .....
PCV% .....
Other samples taken .....
Describe/draw parasites

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).

shell fairly worn for size



Other notes

Vertebral scutes beginning to become concave

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Do not abbreviate

Data Sheet for Live Desert Tortoises

Write on this side only

Located by Greg Lukasek
Processed by
Study site name Ridgecrest

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
..... meters North ..... meters East

UTM's 0431320 n 3934042 e

Elevation ..... m Accuracy ± ..... m

County ..... State .....

O On Plot O Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLGL002
Year first marked .....
Verification of ID ☐
Capture type ..... Sex .....
Date (dd/mm/yy) .....
Time (PST): Start ..... End .....
Frequency ..... Transmitter # .....
Transmitter type .....
Transmitter attached .....
Transmitter to be replaced on .....
PIT # .....

Tortoise Location

Cover site type:
- ☐ burrow
- ☐ pallet
- ☐ shrub
- ☐ caliche cave
- ☐ rock shelter

At cover site:
- ☐ entering
- ☐ exiting
- ☐ on mound
- ☐ inside

Not at cover site:
- ☒ in open
- ☐ other

Burrow Data – Not observed

ID # .....
Orientation .....
Length ..... Height .....
Width ..... Soil cover .....
Location .....

Survey Type

- O Radio track
- O Burrow search
- O Coverage 1
- O Coverage 2
- O Incidental
- O Other

Tortoise Activity

- ☐ resting
- ☐ basking
- ☒ walking
- ☐ feeding
- ☐ Interacting with other tortoise
- ☐ Interacting with other animals

ID & sex of other tortoise .....
Species .....
Describe interaction:

Plants/items eaten (specific): popcorn flower

Color (shell & skin)

	HV	Hue	Value	Chroma	Color
V1 (center)					
V4 (center)					
LC1,2&V2 (seam)					
LM5,6 & LC2 (seam)					
Foreleg					
Hindleg					

Are you color blind? O Yes O No
Type of blindness .....

Body Measurements

MCL (mm) 5"
PLN (mm) 4"
Weight (g) –
Void (g) –
Total wt (g) –

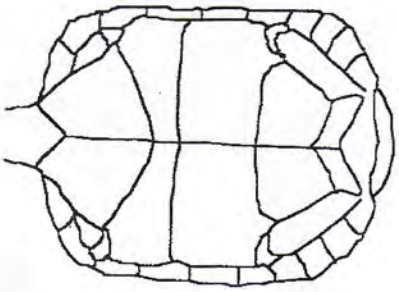
New growth
☐ present ☐ absent

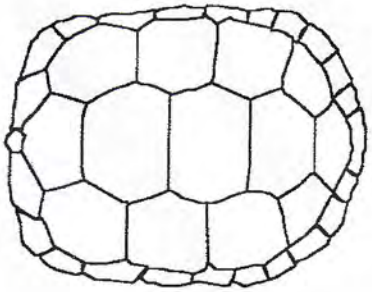
Epoxy #
☐ present ☐ legible

Behavior

Other notes

not near burrow





Photos; roll ..... frames .....

Draw locations of notches (old and new), chips, and anomalies, etc.
Describe anomalies in numbering of marginals and any identification problems.

Entered by ☐ date ☐ on computer ☐
Modified by ☐ on ☐

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From Brown Rd to South (D9-D12)

432810	×	870	
820	×	880	
830	×	890	
840	×	900	
850	×	910	
860	×	920	

B/C8-B/C11 ends shapefile

From Brown Rd to South

REMOVED NOT DONE

43 1250	×	190	
240	×	180	
230	×	170	
220	×	160	
210	×	150	
200	×	140	

E8 only FINISH from yesterday

433890	×	950	×	4010	×
900	×	960	×	4020	×
910	×	970	×	4030	×
920	×	980	×		
930	×	990	×		
940	×	4000	×		

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: RIDGECREST Date: 5/24/05 Page 1 of ____

DID NOT SURVEY SOUTH of UTM 3933490

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
Focused		~~D9-D12~~ E-8	RWO-8 EEL-3	ESC-11

DATA ON 8

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	07:00	70	1 W	NONE 0%
Mid-day	14:00	92	5(15) SW	NONE 0%
End	16:20	93°F	5(10) SW	" "

	GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell	POTENTIAL DETO	BROW
RMA	RW 076	043 3957/393 4775		A J U	M F U	Y N		5			×	
RDP	RW 005	043 3957/393 4965		A J U	M F U	Y N		5			×	
RMA	RW 077	043 3949/393 5038		A J U	M F U	Y N		5			×	
RDC	EE 002	043 3999/393 5096		A J U	M F U	Y N	9 small carapace fragments.			5		
RDC	RW 006	043 4007/393 5001		A J U	M F U	Y N	2 small pieces			5		
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						

*See Reverse

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: RIDGECREST Date: 5/24/09 Page 2 of 3

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
FOCUSED		D-9 D-12		

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

	GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell	POTENT OWL
RDB	EE 012	043 2819/393 4354		A J U	M F U	Y N	POOP 2M away	1			X
RDB	EE 013	043 2846/393 1779		A J U	M F U	Y N	W/MOJAVE RATTLE IN IT	5			X
RMA	EE 009	043 2851/393 4657		A J U	M F U	Y N	UNDER BUSH	5			X
RDS	RW 018	043 2854/393 4400		A J U	M F U	Y N	1 POOP		2		
RDC	RW 007	043 2850/393 3764		A J U	M F U	Y N	PLASTRON OF JUVIE 3" long			5	
RDC	RW 008	043 2831/393 3384		A J U	M F U	Y N	9 VERY SMALL ☐ bits of shell			5	
				A J U	M F U	Y N					
				A J U	M F U	Y N					
				A J U	M F U	Y N					
				A J U	M F U	Y N					
				A J U	M F U	Y N					
				A J U	M F U	Y N					
				A J U	M F U	Y N					
				A J U	M F U	Y N					
				A J U	M F U	Y N					
				A J U	M F U	Y N					
				A J U	M F U	Y N					
				A J U	M F U	Y N					
				A J U	M F U	Y N					
				A J U	M F U	Y N					
				A J U	M F U	Y N					

*See Reverse

Site: RIDGECREST

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 5/24/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
FOCUS		C-8 C-11		

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

POTENT

	GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments)		
								Burr	Scat	Shell
RNE	DS DXS	043 1200/343 4989		A J U	M F U	Y N	UNKNOWN SPEC.			
				A J U	M F U	Y N				
				A J U	M F U	Y N				
				A J U	M F U	Y N				
				A J U	M F U	Y N				
				A J U	M F U	Y N				
				A J U	M F U	Y N				
				A J U	M F U	Y N				
				A J U	M F U	Y N				
				A J U	M F U	Y N				
				A J U	M F U	Y N				
				A J U	M F U	Y N				
				A J U	M F U	Y N				
				A J U	M F U	Y N				
				A J U	M F U	Y N				
				A J U	M F U	Y N				
				A J U	M F U	Y N				
				A J U	M F U	Y N				
				A J U	M F U	Y N				
				A J U	M F U	Y N				
				A J U	M F U	Y N				
				A J U	M F U	Y N				

*See Reverse

3/4, 1 mile buffer

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridgecrest

Date: 5/24/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
3/4 1 mile buffer	1, 6	3/4 1 mile buffer	1-SDA 6-GW 395 to west	

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	10:37AM	79.5	0 to 2mph	0% CC
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDBGL003	0432392 3938250	DETO	A J U	M F U	Y N	potential tort burrow, under	5		
			A J U	M F U	Y N	creosote, ~12"x8", can't			
			A J U	M F U	Y N	see to end, low potential for			
			A J U	M F U	Y N	Buow ~~because entrance~~			
			A J U	M F U	Y N	~~difficult to get~~ no potential for KFox			
			A J U	M F U	Y N				
RKBGL003	0432214 3938249	Kit fox	A J U	M F U	Y N	Kit fox complex, potential for			
			A J U	M F U	Y N	DETO & Buow, no sign & burrows			
			A J U	M F U	Y N	↳ but kit fox scat			
			A J U	M F U	Y N				
			A J U	M F U	Y N				
RDBGL004	0431334 3938115	DETO	A J U	M F U	Y N	- tortoise burrow, mojave green	2		
			A J U	M F U	Y N	inside burrow, 18"x10", turns			
			A J U	M F U	Y N	to left, no scat, possible plastron			
			A J U	M F U	Y N	flattening			
			A J U	M F U	Y N				
RDPSP002	0431326 3938077	DETO	A J U	M F U	Y N	- potential tortoise pallet,	4		
			A J U	M F U	Y N	bottom flattened, 16"x12"x20" deep			
			A J U	M F U	Y N				
RDSSD002	0431172 3938001	DETO	A J U	M F U	Y N	2 pieces of tort scat 1/2"x 2"		4	
			A J U	M F U	Y N	bleached, loose 1/2"x 1.5"			

*See Reverse

Whitetail, jackrabbit, harvester ants, mojave green rattlesnake, bobcat scat, leopard lizard

Howes to south of 0431038/3937920

Site: RIDGECREST

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Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDSGL001	0430889 3937838	DETO	A J U	M F U	Y N	tort scat, 2" x 3/4", bleached (white), fairly tightly packed		4	
			A J U	M F U	Y N				
			A J U	M F U	Y N				
RDSGL002	0430877 3937807	DETO	A J U	M F U	Y N	tort scat, composed ~~mu~~ of grass 1" x 2.5" long		1	
			A J U	M F U	Y N				
			A J U	M F U	Y N				
RDSGL003	0430641 3937475	DETO	A J U	M F U	Y N	dark brown, no glaze, tort scat 1 1/2" x 3/4"		2	
			A J U	M F U	Y N				
			A J U	M F U	Y N				
RDSGL005	0430665 3937464	DETO	A J U	M F U	Y N	active DETO burrow w tracks under creosotebush, likely can't see to end turns to left	1		
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N	24" x 10"			
			A J U	M F U	Y N				
RKBGL004	0430615 3937470	old predated kit fox complex	A J U	M F U	Y N	kit fox complex, 4 burrows, 2 dug out by large predator (canid or badger → can't tell, burrows large enough for tort but unlikely (snow)			
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
RDBGL006	0430591 3937291	DETO	A J U	M F U	Y N	- DETO burrow, correct shape, 15" x 10" x 36" deep flat bottom	2		
			A J U	M F U	Y N				

*See Reverse

Zebratail, desert iguana

3/4 mile → in south direction, (largely in wash

Site: RIDGECREST

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 5/24/05

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDSGL004	0430546	DETO	A J U	M F U	Y N	large DETO scat, black, scaly		4	
	3937199		A J U	M F U	Y N	1" x 4 1/2" tightly packed			
			A J U	M F U	Y N				
RDSGL005	0430519	DETO	A J U	M F U	Y N	black scaly, dry DETO scat		4	
	3936919		A J U	M F U	Y N	3/4" x 1 1/2"			
			A J U	M F U	Y N				
RDSGL006	0430524	DETO	A J U	M F U	Y N	tort scat, 1" x 3/4"		4	
	3936895		A J U	M F U	Y N	black, scaly dry			
			A J U	M F U	Y N				
			A J U	M F U	Y N				
RDSSD003	0430537	DETO	A J U	M F U	Y N	tort scat, 1" x 3/4"		4	
	3936886		A J U	M F U	Y N	grey, scaly dry			
			A J U	M F U	Y N				
RDSGL007	0430542	DETO	A J U	M F U	Y N	old, ~~white~~, 1/2" x 1" long		5	
	3936694		A J U	M F U	Y N	bleached			
			A J U	M F U	Y N				
			A J U	M F U	Y N				
RDSSD004	0430497	DETO	A J U	M F U	Y N	tort scat, 1 1/4" x 3/4"		4	
	3936557		A J U	M F U	Y N	black, scaly dry			
			A J U	M F U	Y N				
RDSSD005	0430483	DETO	A J U	M F U	Y N	tort scat		4/5	
	3936558					bleached, somewhat loose 2 pieces 2" x 3/4", 2" x 1/2"			

*See Reverse

Site: RIDGECREST

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 5/24/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day	3.14PM	94°F	8 to 15 mph	10% CC
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDBSD005	0430130 3936883	DETO	A J U	M F U	Y N	tort burrow, classic shape, good condition, recent digging & active but no definitive sign 18" x 10" x 36" deep	2		
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
RDSGL008	0430905 3938326	DETO	A J U	M F U	Y N	tort scat, medium brown, tightly packed, no gloss, 2 pieces 1/2" x 1" 1 1/2" x 1/2"		3	
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
RDSSD006	0430927 3938329	DETO	A J U	M F U	Y N	tort scat, bleached, ~~tightly~~ loosely packed 3/4" x 2"		4	
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
RDSSD007	0431256 3938493	DETO	A J U	M F U	Y N	tort scat, bleached 1" x 3/4", loosely packed		4	
			A J U	M F U	Y N				
			A J U	M F U	Y N				
RKBHL005	0431526 3938618	kit fox	A J U	M F U	Y N	kit fox complex w 8 burrows kit fox & coyote scat, could be used by tort/BUAU but no sign			
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

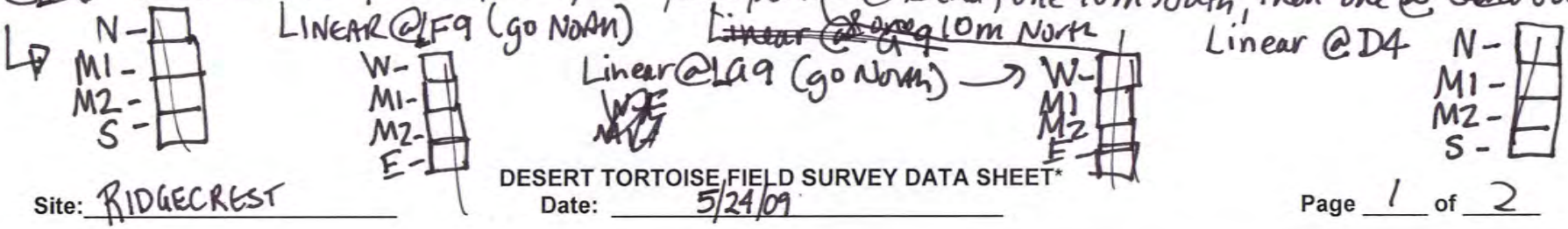
*See Reverse

LINEAR @LE6 – does not run perfectly east/west, one person @ ~~N end~~ North end, one 10m south, then one @ ~~South end~~ South end

LINEAR @LF9 (go North) ~~Linear @ LG9~~ 10m North

Linear @LG9 (go North) → ~~WE NS~~

Linear @D4



DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: RIDGECREST

Date: 5/24/09

Page 1 of 2

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
Focused Linear		Linears	CGE – 12 JLU – ~~12~~	

↑ data here

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	7:22	70°	2 Variable	Clear 0%
Mid-day	2:08	94°	3 South	High Cirrus 2%
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell	Potential Usage Burrow	DETO
RMACG001A	043 4184		A J U	M F U	Y N	Pallet Lizg					X
	393 5728		A J U	M F U	Y N						
RMACG002A	043 4365		A J U	M F U	Y N						X
	393 5374		A J U	M F U	Y N						
RDBJL001A	043 4103		A J U	M F U	Y N	25cm x 17cm	1				
	393 5825		A J U	M F U	Y N	Associated w/ Pallet				X	X
			A J U	M F U	Y N	White wash present					
*RDLCG001	043 4103		A J U	M F U	Y N	In burrow - one foot					
	393 5825		A J U	M F U	Y N	showing - DE					
			A J U	M F U	Y N	Adult - no sheet complete	could not assess				
RDSJL001A	043 4101		A J U	M F U	Y N	Old scat					
	393 5826		A J U	M F U	Y N			3			
			A J U	M F U	Y N						
RNESL001A	043 3920		A J U	M F U	Y N	Old verbin?					
	393 6199		A J U	M F U	Y N	2 stick nests in cholla					
RDSCG001A	043 3921		A J U	M F U	Y N	= 8cm 2 pieces		2			
	393 6152		A J U	M F U	Y N						
RNECG001A	043 3863		A J U	M F U	Y N	Verdin nest					
	393 5874		A J U	M F U	Y N	Stick nest in chulla					
			A J U	M F U	Y N						
			A J U	M F U	Y N						

*See Reverse

Animal - Whiptail

Site: RIDGECREST

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: MAY 24, 2009

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End				

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell	~~Burrow~~ BURROW	DETO
RMACG003A	043 4038		A J U	M F U	Y N	COYOTE NO SIGN					X
	393 5871		A J U	M F U	Y N						
RMACG004A	043 5001		A J U	M F U	Y N	NO SIGN					X
	393 5848		A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						

*See Reverse

431380 ✓
390 ✓
400 ✓
410 ✓

664690
~~When you get to~~
~~372 7070 TUP~~

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: RIDGECREST

Date: 5/24/09

Page 1A of 1A

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
Focused	1,6	C9 - C12	SDA-1 GLL-6	

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start				
Mid-day				
End	5:05pm 7:37pm	80F	10-10/18mph	15% CC

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
~~RRSD003~~	0431379	DETO	A J U	M F U	Y N	9cm x 9cm DETO pallet,	2		
RDPSD003	3933532		A J U	M F U	Y N	near active tort burrow w/			
			A J U	M F U	Y N	tort ↓ 18" deep			
RLGL003	0431387	DETO	(A) J U	M F (U)	Y N (U)	22cm x 13cm burrow	1		
	3933521		A J U	M F U	Y N	DETO in burrow, under			
			A J U	M F U	Y N	ambrosia, tracks in			
			A J U	M F U	Y N	burrow, adult DETO			
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

Do not abbreviate

Data Sheet for Live Desert Tortoises

Write on this side only

Located by Gregg L Weasel
Processed by
Study site name

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
..... meters North ..... meters East

UTM's 0431387 n 3933521 e

Elevation ..... m Accuracy ± ..... m

County ..... State CA

O On Plot O Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLGL003
Year first marked
Verification of ID ☐
Capture type ..... Sex .....
Date (dd/mm/yy) 5/24/2009
Time (PST): Start ..... End .....
Frequency ..... Transmitter # .....
Transmitter type .....
Transmitter attached .....
Transmitter to be replaced on .....
PIT # .....

Tortoise Location

Cover site type:
- ☒ burrow
- ☐ pallet
- ☐ shrub
- ☐ caliche cave
- ☐ rock shelter

At cover site:
- ☐ entering
- ☐ exiting
- ☐ on mound
- ☒ inside

Not at cover site:
- ☐ in open
- ☐ other

Burrow Data

ID #
Orientation
Length ~~22cm~~ ~4' Height 13cm
Width ~~8cm~~ 22cm Soil cover
Location

Survey Type

- O Radio track
- O Burrow search
- O Coverage 1
- O Coverage 2
- O Incidental
- O Other

Tortoise Activity

- ☒ resting
- ☐ basking
- ☐ walking
- ☐ feeding
- ☐ Interacting with other tortoise
- ☐ Interacting with other animals

ID & sex of other tortoise
Species
Describe interaction:

Plants/items eaten (specific):

Color (shell & skin)

	HV	Hue	Value	Chroma	Color
V1 (center)					
V4 (center)					
LC1,2&V2 (seam)					
LM5,6 & LC2 (seam)					
Foreleg					
Hindleg					

Are you color blind? O Yes O No
Type of blindness .....

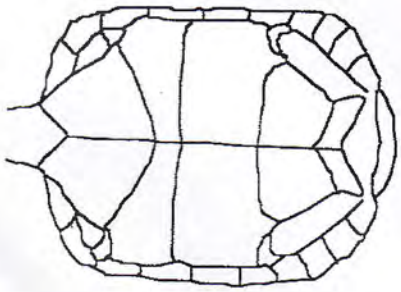
Body Measurements

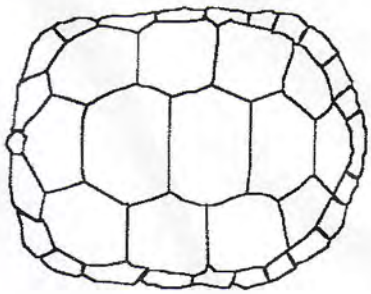
MCL (mm) _____
PLN (mm) _____
Weight (g) _____
Void (g) _____
Total wt (g) _____

New growth
☐ present ☐ absent

Epoxy #
☐ present ☐ legible

Behavior





Other notes

deep in burrow, could see side of shell

Photos; roll ..... frames .....

Draw locations of notches (old and new), chips, and anomalies, etc.
Describe anomalies in numbering of marginals and any identification problems.

Entered by ☐ date ☐ on computer ☐
Modified by ☐ on ☐

© Berry 1997

D8 - North of Brown Rd

432740	X	80	X	820	X	860	X	900	X	940	X	980	X	0030	X
50	X	90	X	830	X	870	X	910	X	950	X	990	X	0040	X
60	X	800	X	840	X	880	X	920	X	960	X	0010	X	0050	X
70	X	810	X	850	X	890	X	930	X	970	X	0020	X	0060	X

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: RIDGECREST Date: 5/25/09 Page 1 of 1

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
FOCUS93		D-8	SM3-EEL 13-CGE	

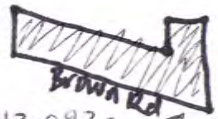
DATA @ GPS 13

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	0700	66°	Ø CALM	NONE / 0%
Mid-day				
End	1720	91°	2-[illegible] N	SOME CUMULUS 2%

	GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell	DETO	BUOW
RDB	EE 014	043 2797/393 5231		A J U	M F U	Y N	SUB ADULT 20cm appears healthy	1	2			
				A J U	M F U	Y N	clear eyes, nostrils (2 BURROWS)					
* RDL	EE 003	043 2799/393 5231	DETO	(A) J U	(M)? F U	(Y) N	VERY ALERT CAME OUT TO CHECK US OUT					
RMA	EE 010	043 2801/393 4992		A J U	M F U	Y N		5			X	
RMA	CG 005	043 2808/393 4910		A J U	M F U	Y N	POSS. KITFOX? TALL BURROW; BUOW? WHITEWASH	5			X	X
RMA	EE 011	043 2808/393 4999		A J U	M F U	Y N		5			X	
RDS	CG 002	043 2831/393 5235		A J U	M F U	Y N			2			
RMA	CG 006	043 2830/393 5100		A J U	M F U	Y N	POTENTIAL PAIRET	4			X	
RMA	EG 012	043 2839/393 5158		A J U	M F U	Y N		5			X	
RKB	CG 004	043 2996/393 5105		A J U	M F U	Y N	ACTIVE!! KIT FOX FOOT PRINTS & SCATS	5			X	X
RNE	EE 001	043 3005/393 5011		A J U	M F U	Y N	VERDIN THIS YEAR.					
RMA	CG 007	043 3011/393 4957		A J U	M F U	Y N		5			X	X
RDPES003		0433062		A J U	M F U	Y N	≈ 200mm	4			X	
		3935280		A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						
				A J U	M F U	Y N						

*See Reverse

B7-C7



0430930
TO
0431900

B8-B11 <2 people>

431140	X 180
150	X 190
160	X ~~200~~
170	X ~~210~~

~~B/C 11~~

~~220~~
~~230~~
~~240~~
~~250~~

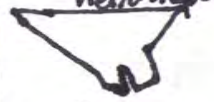
B/C 11-12 missed end, went to 3933490 need to go to END on chart file

431200
210
220
230
240
250

<2 people>

B8-B11 <triangle>
430960
⋮
1060

C13 weird shape



ALL in C13

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridgecrest

Date: May 25, 2009

Page 1 of 1

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
Focus	SM8 SM12	B7 C7	E. Schafhauser	R. Wolfson

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	7:10 am	70°f	1 mph	Calm 0%
Mid-day	1320	91°	2 S	
End	15:55	93°	4 SW	HIGH CLOUD 2%

DATA ON GPS: #13

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell	POTENTIAL USES: Know DETO	
RMARW078	0431146		A J U	M F U	Y N	GOOD COND. MAMMAL HOLE	5			X	X
	3933800		A J U	M F U	Y N						
RCRAW009	0431205	DETO	(A) J (U)	M F (U)	Y (N)	BONE FRAGS. SCATTERED OVER 20m. AREA			5		
	3933443		A J U	M F U	Y N						
RDPCG005	0431193		A J U	M F U	Y N	MEDIUM SIZED SHALLOW BURROW	5			X	
	3933904		A J U	M F U	Y N	15cm X 8cm					
RKBES005	0431174		A J U	M F U	Y N	KIT FOX SCAT. SEVERAL LG. OPENINGS				X	X
	3934231		A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						

*See Reverse

Do not abbreviate

Data Sheet for Live Desert Tortoises

Write on this side only

Located by ROB WOLFSON
Processed by
Study site name RIDGECREST

Township ..... Range .....
Section ..... Quadrat .....

Coordinates (Reference SW corner)
..... meters North ..... meters East

UTM's 0432116 n 3932909 e

Elevation ..... m Accuracy ± ..... m

County ..... State .....

O On Plot O Off Plot

Show location of tortoise in quadrat

Tortoise ID # RDLRW010
Year first marked 2009
Verification of ID ☐
Capture type ..... Sex .....
Date (dd/mm/yy) 5/26/09
Time (PST): Start 1424 End .....
Frequency ..... Transmitter # .....
Transmitter type .....
Transmitter attached .....
Transmitter to be replaced on .....
PIT # .....

Tortoise Location

Cover site type:
- ☒ burrow
- ☐ pallet
- ☐ shrub
- ☐ caliche cave
- ☐ rock shelter

At cover site:
- ☐ entering
- ☐ exiting
- ☐ on mound
- ☒ inside

Not at cover site:
- ☐ in open
- ☐ other

Burrow Data

ID # RDBRW053
Orientation WEST
Length ? Height 150 mm
Width 300 mm Soil cover .....
Location NEAR CREOSOTE
0432115, 3932908

Survey Type

- O Radio track
- ☒ Burrow search
- O Coverage 1
- O Coverage 2
- O Incidental
- O Other

Tortoise Activity

- ☒ resting
- ☐ basking
- ☐ walking
- ☐ feeding
- ☐ Interacting with other tortoise
- ☐ Interacting with other animals

ID & sex of other tortoise .....
Species .....
Describe interaction:

Plants/items eaten (specific):

Color (shell & skin)

	HV	Hue	Value	Chroma	Color
V1 (center)					
V4 (center)					
LC1,2&V2 (seam)					
LM5,6 & LC2 (seam)					
Foreleg					
Hindleg					

Are you color blind? O Yes O No
Type of blindness .....

Body Measurements

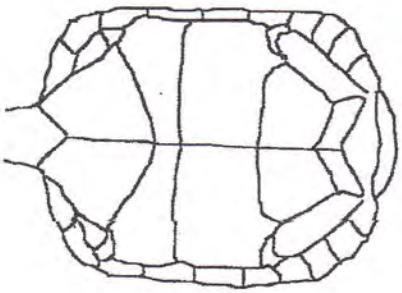
MCL (mm) 290 mm
PLN (mm) _____
Weight (g) _____
Void (g) _____
Total wt (g) _____

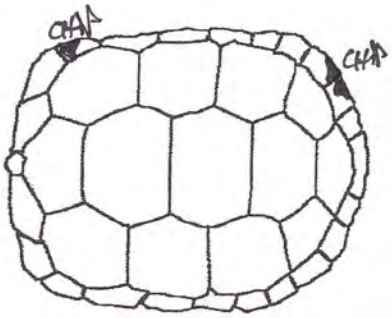
New growth
☐ present ☐ absent

Epoxy #
☐ present ☐ legible

Behavior

RESTING INSIDE BURROW.





Other notes

COULD NOT SEE HEAD. WITHDRAWN INTO SHELL. LEGS APPEARED NORMAL. SHELL APPEARED NORMAL.

Photos; roll ..... frames .....

Draw locations of notches (old and new), chips, and anomalies, etc.
Describe anomalies in numbering of marginals and any identification problems.

Entered by ☐ date ☐ ☐ on computer ☐
Modified by ☐ on ☐

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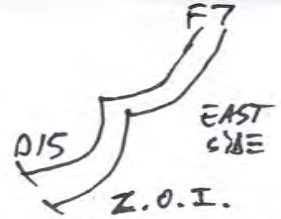


DESERT TORTOISE FIELD SURVEY DATA SHEET*

Site: Ridge Crest

Date: 5/26/09

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
Focused Tortoise	12	13	E. Schafhauser	R. Wolfson

8 GPS DATA on 8, 12

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	0730	76°F	2 MPH (N)	5% High clouds
Mid-day	1115	94°F	5 MPH (E)	5% clouds
End	1545	96°F	2 MPH (S)	40% mid-level clouds

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell	DETO	BLOW
RMAES006	0433758/3931675	—	A J U	M F U	Y N	under Creosote Poss. Tort					
RMAES007	0433988/3931813		A J U	M F U	Y N	under Creosote K. fox					
RDPES008	0434269/3932239		A J U	M F U	Y N	310 mm wide / under Creosote					
RNEES006	0434385/3932588		A J U	M F U	Y N	2 Nests in Choia / Poss. Verdin + Black throat Sparrow					
RDCES003	0434421/3932769		(A) J U	M (E) U	Y N	Fragments / Bolas Small	—	—	5		
RNEES007	0434425/3932917		A J U	M F U	Y N	in choia Cup with droppings this yr.					
RNEES008	0434433/3932929		A J U	M F U	Y N	in Choia / Stick deteriorated					
* RDLRW010	0432116/3932909	DETO	(A) J U	M F (U)	(Y) N	Prob. < 7 yrs 290 mm w - ? Length					
RDBRW053	0432115/3932908		A J U	M F U	Y N						
RDBES010	0432111/3932909		A J U	M F U	Y N	310 mm w					
RMARW081	0431661/3932868		A J U	M F U	Y N	Prob K. fox or unknown				X	
			A J U	M F U	Y N						
RMARW079	0433731/3932170		A J U	M F U	Y N	150 m X 80 m. Sm. shallow hole				X	
			A J U	M F U	Y N						
RMARW080	0433731/3932170		A J U	M F U	Y N	300 m X 350 m. Lg. Cavid hole				X	X
			A J U	M F U	Y N	Single drains. No sign					
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						
			A J U	M F U	Y N						

*See Reverse

Do not abbreviate

Health Profile Form for Desert Tortoises

Write on this side only

Located by: ROB WOLFSON
Processed by:
Study site name: RIDGECREST
Township: Range:
Section: Quadrat:
Coordinates (Reference SW corner)
meters North: meters East:
UTM's: 0432116 n 3932909 e
County: KERN State: CA
O On Plot O Off Plot

Show location of tortoise in quadrat

Tortoise ID #: RDLRW010
Year first marked: 2009
Verification of ID: ☐
Capture type: Sex:
Date (dd/mm/yy): 5/26/09
Time (PST): Start: 1424 End:
Shell wear class:
Process time: hours
Frequency:
Transmitter #:

BEAK & NARES

Beak/nares wet	O Yes	O No	O Unk
Beak/nose damp	O Yes	O No	O Unk
Nasal exudate present	O Yes	O No	O Unk
Exudate color	☐ clear ☐ cloudy ☐ white ☐ yellow ☐ green		
Bubble(s) from nares	O Yes	O No	O Unk
One nare occluded	O Yes	O No	O Unk
Both nares occluded	O Yes	O No	O Unk
Dirt on nose/beak	O Yes	O No	O Unk
Dirt in nares	O Yes	O No	O Unk

FORELEGS (adjacent to face)

Dried dirt on forelegs	O Yes	O No	O Unk
Moisture on forelegs	O Yes	O No	O Unk
Dried exud. on scales	O Yes	O No	O Unk
Scales cracking	O Yes	O No	O Unk

BREATHING

Smooth	O Yes	O No	O Unk
Wheezing	O Yes	O No	O Unk
Rasping, clicking	O Yes	O No	O Unk

EYES, CHIN GLANDS Circle eyes or lids:

Eyes/lids whitened or discolored	O Yes	O No	O Unk
Eyelids swollen	O Yes	O No	O Unk
Eyes/lids wet	O Yes	O No	O Unk
Discharge from eyes	O Yes	O No	O Unk
Eyes sunken	O Yes	O No	O Unk
Eyes clear, bright	O Yes	O No	O Unk
Eyes dull, cloudy	O Yes	O No	O Unk
Chin glands draining	O Yes	O No	O Unk

INTEGUMENT

Integument dull	O Yes	O No	O Unk
Integument glossy	O Yes	O No	O Unk
Normal elasticity	☒ Yes	O No	O Unk
Abnormal skin peeling	O Yes	O No	O Unk

POSTURE/BEHAVIOR

Alert, responsive	O Yes	O No	O Unk
Lethargic	O Yes	O No	O Unk
Can withdraw tightly into shell	O Yes	O No	O Unk
Limbs, head hanging loose	O Yes	O No	O Unk

ORAL CAVITY

Observed	O Yes	O No	O Unk
Discharge present	O Yes	O No	O Unk
Membranes pink	O Yes	O No	O Unk
Membranes pale, white	O Yes	O No	O Unk
Smells/mouth rot	O Yes	O No	O Unk

EVIDENCE OF SHELL DISEASE

Lesions present	O Yes	O No	O Unk
Lesions active	O Yes	O No	O Unk
Lesions healed	O Yes	O No	O Unk
Scute laminae peeling	O Yes	O No	O Unk
Scutes missing/peeling	O Yes	O No	O Unk
Pitting	O Yes	O No	O Unk
Scutes depressed/concave	O Yes	O No	O Unk
Fungal areas	O Yes	O No	O Unk

EVIDENCE OF TRAUMA

Head	O Yes	O No	O Unk
Gular	O Yes	O No	O Unk
Forelimbs	O Yes	O No	O Unk
Hindlimbs	O Yes	O No	O Unk
Shell	O Yes	O No	O Unk
Scute/bone replacement	O Yes	O No	O Unk

Describe:

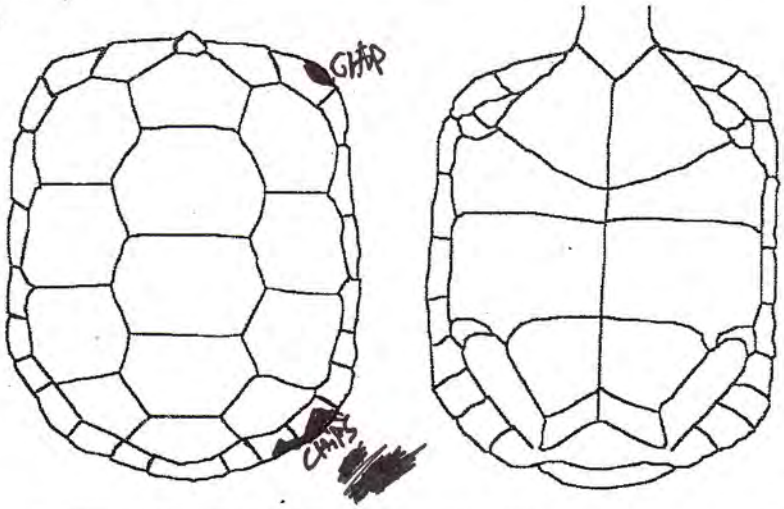
Soil dryness: O wet O damp O dry

Last precipitation (dd/mm/yy):

Urine (vol):
Color:
Viscosity:
Particulates:
Color:
Nasal wash collected:
Amt. blood/lymph taken (cc):
# of needle sticks:
Time (min) of needle sticks:
Location:
PCV%:
Other samples taken:
Describe/draw parasites

DRAW: shape of gulars, location of notches; chips, chews, shell damage, lesions; shell disease; shell abnormalities; scute concavities. Make new drawing at least once per year (spring).

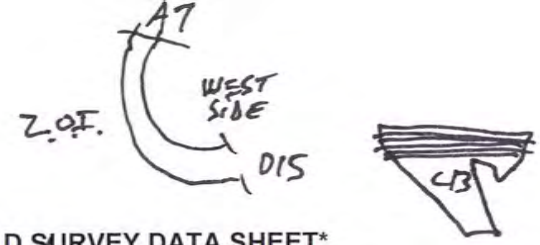
290 w



Other notes

TORTOISE INSIDE BURROW. HEAD WITHDRAWN. LEGS VISIBLE. SIDEWAYS IN BURROW, 2 FEET INSIDE. SHELL NORMAL.

© Berry 1997



Site: RIDGECREST

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 5/27/09

Page 1 of 1

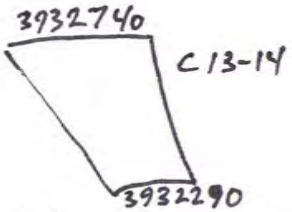
Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
focused tortoise	12 8	C13	E. SCHAFHAUSER R. WOLFSON	

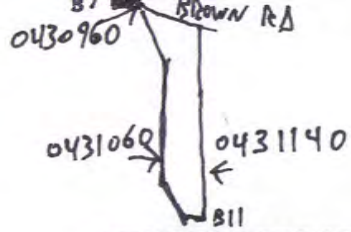
	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	0730	79°F	3 MPH NW	20% HIGH CLOUDS
Mid-day	1230	92°F	3 MPH W	40% CLOUDS
End	1545	94°F	5 MPH W	MOSTLY CLOUDY

GPS DATA ON #12 & 8

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell	Possible DETO Burrow
RDBES011	0430186		A J U	M F U	Y N	170mm WIDE. 1m DEEP. CALICHE	2			X
	3231842		A J U	M F U	Y N					
			A J U	M F U	Y N					
RDCRW011	0431722	DETO	(A) J U	M F U	Y (N)	ADULT DETO CARCASS. SCUTES & BONES.			4	
	3931073		A J U	M F U	Y N					
			A J U	M F U	Y N					
RLSRW001	0432353		A J U	M F U	Y N	SHRIKE FLYING INTO CREOSOTE				
	3931168		A J U	M F U	Y N					
RMARW082	0431601		A J U	M F U	Y N	150mm x 80mm. SHALLOW BURROW.			[redacted]	X
	3932809		A J U	M F U	Y N					
			A J U	M F U	Y N					
			A J U	M F U	Y N					
			A J U	M F U	Y N					
			A J U	M F U	Y N					
			A J U	M F U	Y N					
			A J U	M F U	Y N					
			A J U	M F U	Y N					
			A J U	M F U	Y N					
			A J U	M F U	Y N					
			A J U	M F U	Y N					
			A J U	M F U	Y N					

*See Reverse





Site: RIDGECREST

DESERT TORTOISE FIELD SURVEY DATA SHEET*

Date: 5/28/09

Page _____ of _____

Type of Survey	GPS Unit	Map #	Surveyor	Additional Surveyors
Focus	13 3	C13-14 B8-11	E. Schafhauser	M. Gallagher

	Time	Temp	Wind Sp/Dir	Weather & % Cloud
Start	8:01	82°F	9	20%
Mid-day				
End				

GPS DATA #13

GPS Ident Code*	GPS Coordinates	Species	Age	Sex	Healthy?	Comments	DETO Sign Type* (include comments) Burr	Scat	Shell
RDBES012	0431720		A J U	M F U	Y N	Kit fox			
	3932535		A J U	M F U	Y N				
RKBMG016	0431648		A J U	M F U	Y N	7 entrances, 2 w/DETO			
	3932731		A J U	M F U	Y N	TBUOW potential			
RKBMG017	0431631		A J U	M F U	Y N	11 entrances, potential DETO+BUOW			
	3932673		A J U	M F U	Y N				
RDCMG004	0431043		A J U	M F U	Y N	Disarticulated, app 200cm			4
	3933743		A J U	M F U	Y N				
RDSMG050	0429404		A J U	M F U	Y N				
	3935776		A J U	M F U	Y N	1 small adult piece		2	
			A J U	M F U	Y N				
~~RDB~~			A J U	M F U	Y N				
RDSES011	0433688/3938147		A J U	M F U	Y N	Scat		2	
~~RDDES011~~	~~0381826~~		A J U	M F U	Y N				
RDBES011A	0433806/3938155		A J U	M F U	Y N	Approx 200 mm		1	
~~RDBES011A~~			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				
			A J U	M F U	Y N				

*See Reverse

ATTACHMENT 4

SPREADSHEET OF DATA COLLECTED DURING FOCUSED DESERT TORTOISE SURVEYS

ATTACHMENT 4

Spreadsheet of Data Collected during Focused Desert Tortoise Surveys

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Badger Predation Burrow	RGBSD001	3938149	432407	14-FEB-09 2:19:32PM	Badger dug burrow	
Barrel Cactus	RBCCG001	3935130	433784	23-MAY-09 3:26:51PM	Barrel cactus, multiple cotton top	
Barrel Cactus	RBCCG002	3935092	433836	23-MAY-09 4:03:28PM	Barrel cactus, multiple cotton top	
Barrel Cactus	RBCRW001	3935153	433732	23-MAY-09 3:28:30PM	Barrel cactus, multiple cotton top	
Barrel Cactus	RBCRW002	3935119	433755	23-MAY-09 3:31:33PM	Barrel cactus, multiple cotton top	
Bat Roosting Area	RBASD001	3932999	431274	07-MAR-09 11:08:03AM	Potential bat roosting area in concrete culvert with wooden trusses, no guano observed	
Bat Roosting Area	ROOMG001	3934630	432440	26-MAR-09 11:37:03AM	Large mine shaft, straight down 30', no fence, danger	
Burrow with Burrowing Owl Sign	RBBKD001	3935480	432601	05-APR-09 9:05:05AM	White wash and old burrowing owl pellets, near creosote	
Burrow with Burrowing Owl Sign	RBBMG002	3935576	433592	17-APR-09 4:34:22PM	190 mm x 200 mm, feather, pellets, very little white wash	
Burrow with Burrowing Owl Sign	RMAEE007	3934905	433652	23-MAY-09 12:16:52PM	White wash present, potential for tortoise and burrowing owl	5
Burrow with Burrowing Owl Sign	RMAES004	3935179	433365	23-MAY-09 7:34:04AM	White wash and pellet (?), apron, potential for tortoise and burrowing owl	5
Burrow with Burrowing Owl Sign	RMARW011	3934728	432297	25-MAR-09 3:55:15PM	Owl pellets at entrance, mammal burrow	
Burrow with Burrowing Owl Sign	RMARW013	3934626	432335	26-MAR-09 8:30:57AM	Mammal burrow with owl pellets and white wash	
Burrow with Burrowing Owl Sign	RMARW020	3934696	432538	26-MAR-09 4:28:46PM	Mammal burrow, white wash	
Burrow with Burrowing Owl Sign/Tortoise Burrow	RDBJJ001	3935225	432453	26-MAR-09 1:45:04PM	Possible tortoise burrow, owl sign, pellets and white wash at entrance	?
Burrowing Owl	RBBJH001	3934818	431941	24-MAR-09 10:41:12AM	Active, 6 openings, one opening has a large collection of tortoise scat, live burrowing owl seen flying from location, feathers, whitewash and pellets present	
Burrowing Owl	RBLES001	3935485	433713	23-MAY-09 12:45:21PM	Two burrowing owls seen at 12:45 - flushed from RBBJL001	

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Burrowing Owl Pellet	RBPRW001	3935565	433530	17-APR-09 1:22:08PM	Bones and bug parts, white wash, 12 pieces	
Burrowing with Burrowing Owl Sign/Tortoise Burrow	RBBJL001	3935486	433713	23-MAY-09 2:08:30PM	Footprints/tracks all over apron, with white wash and pellet, suitable for tortoise and burrowing owl, two burrowing owls flushed from this location (RBLES001)	
California Horned Lark	RCASD001	3933121	431465	08-MAR-09 10:20:23AM	California horned lark flock	
California Horned Lark Nest	RCNAD001	3934504	431487	08-MAR-09 11:45:29AM	California horned lark nest, four eggs in nest under dead creosote bush	
California Horned Lark Nest	RNEJH001	3933410	431885	24-MAR-09 9:16:59AM	Possible horned lark nest, low to the ground	
California Horned Lark Nest	RNEJJ001	3933321	432244	25-MAR-09 2:51:17PM	Possible horned lark nest, 4 eggs, cup shaped, on ground	
Coyote Den	ROORW002	3935246	433395	16-APR-09 11:58:28AM	Coyote den	
Kit Fox Burrow	RKBCG002	3934430	432764	08-MAR-09 1:17:01PM	Kit fox burrow, may be used by tortoise	5
Kit Fox Burrow	RKBCG003	3934327	433047	07-MAR-09 3:34:27PM		
Kit Fox Burrow	RKBES001	3936913	431866	21-MAY-09 9:26:28AM	Kit fox scat, potential for tortoise and burrowing owl	
Kit Fox Burrow	RKBGL001	3933435	431474	08-MAR-09 10:56:34AM	Kit fox burrow, old and collapsed	
Kit Fox Burrow	RKBGL002	3934358	431588	09-MAR-09 9:07:58AM	Mammal burrow under creosote bush, difficult to see into, turns left, no sign observed, check for owl and tortoise	
Kit Fox Burrow	RKBJJ001	3934428	431852	24-MAR-09 8:36:06AM	Scat with fur at burrow, could be used by burrowing owl	
Kit Fox Burrow	RKBKD001	3933607	431757	23-MAR-09 1:43:04PM	5 openings, one could be kit fox, others are larger and flatter	
Kit Fox Burrow	RKBKH001	3934510	431567	09-MAR-09 8:56:23AM	Kit fox burrow, can see to end, new, no scat, no tortoise sign	
Kit Fox Burrow	RKBMG001	3934002	431730	23-MAR-09 11:14:36AM	Old fox scat under creosote	
Kit Fox Burrow	RKBMG002	3933684	431815	23-MAR-09 2:46:43PM	Partially collapsed	
Kit Fox Burrow	RKBMG003	3935214	432026	24-MAR-09 2:40:56PM		
Kit Fox Burrow	RKBMG004	3932995	432184	25-MAR-09 12:38:02PM	One opening under creosote	
Kit Fox Burrow	RKBMG007	3935272	432675	30-MAR-09 10:35:58AM	Old, degraded	
Kit Fox Burrow	RKBSD002	3934171	431434	07-MAR-09 4:50:30PM	Kit fox burrow, under creosote, difficult to see,	

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
					can't see into, possibly tortoise	
Kit Fox Burrow	RKFGL003	3933876	431601	09-MAR-09 10:04:40AM	Mammal burrow under creosote, possible kit fox, could be used by tortoise and burrowing owl, no sign observed	
Kit Fox Burrow	RMAES003	3935475	431937	21-MAY-09 12:24:00PM	Possible kit fox, potential for tortoise and burrowing owl	
Kit Fox Burrow	RMAES007	3931813	433938	26-MAY-09 8:14:07	Under creosote, kit fox	
Kit Fox Burrow	RMAJJ003	3932977	431999	24-MAR-09 1:37:29PM	Kit fox scat	
Kit Fox Burrow	RMARW069	3936874	431890	21-MAY-09 9:31:21AM	Kit fox like, no scat, potential for tortoise and burrowing owl	
Kit Fox Burrow	RMARW081	3932868	431663	26-MAY-09 3:22:08PM	Probably kit fox or unknown, potential for tortoise	
Kit Fox Burrow/Burrow with Burrowing Owl Sign	RBBKH001	3934022	431709	23-MAR-09 11:18:01AM	Pellets and whitewash and kit fox scat	
Kit Fox Burrow/Burrow with Burrowing Owl Sign	RKBEE001	3935571	432036	21-MAY-09 4:30:37PM	white wash, possible burrowing owl burrow	
Kit Fox Burrow/Burrow with Burrowing Owl Sign	RKBJH004	3935258	432142	25-MAR-09 10:48:02AM	Kit fox scat, burrowing owl pellets, one entrance	
Kit Fox Burrow/Burrow with Burrowing Owl Sign	RKBMG006	3933052	432689	30-MAR-09 9:28:02AM	Kit fox scat, small bit of white wash	
Kit Fox Burrow/Burrow with Burrowing Owl Sign	RMACG005	3934910	432839	25-MAY-09 8:27:25AM	Possibly kit fox (?), tall burrow, burrowing owl (?) white wash, potential for tortoise and burrowing owl	5
Kit Fox Burrow/Tortoise Burrow	RKBCG004	3935105	432997	25-MAY-09 10:40:25AM	Active kit fox burrow (kit fox footprints and scat), potential for tortoise and burrowing owl	5
Kit Fox Burrow/Tortoise Burrow	RKBES002	3935441	431939	21-MAY-09 12:27:20PM	Kit fox scat, potential for tortoise and burrowing owl	5
Kit Fox Burrow/Tortoise Burrow	RKBES004	3935992	432179	22-MAY-09 11:42:14AM	potential for tortoise and burrowing owl	5
Kit Fox Complex	KFBURROWCOML	3934500	433392	14-FEB-09 6:17:54PM	Kit fox complex	
Kit Fox Complex	RKBAD001	3932934	432243	14-FEB-09 4:29:29PM	Kit fox complex, 12 entrances	
Kit Fox Complex	RKBCG001	3933938	434999	14-FEB-09 2:28:05PM	Kit fox burrows (2), possible tortoise and burrowing owl use	

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Kit Fox Complex	RKBGL003	3938248	432215	24-MAY-09 11:09:11AM	Kit fox complex, potential for tortoise and burrowing owl, 8+ burrows, kit fox scat	
Kit Fox Complex	RKBGL004	3937470	430616	24-MAY-09 12:48:41PM	Species = old predated kit fox complex, 4 burrows, 2 dug out by large predator, canid or badger (can't tell), burrows large enough for tortoise and burrowing owl but unlikely	
Kit Fox Complex	RKBGL005	3938617	431527	24-MAY-09 2:53:17PM	Kit fox complex, about 8 burrows, kit fox and coyote scat, could be used by tortoise and burrowing owl, but no sign	
Kit Fox Complex	RKBJH001	3934556	431683	23-MAR-09 9:29:17AM	Kit fox complex, 6 openings, some scat	
Kit Fox Complex	RKBJH002	3934579	431931	24-MAR-09 10:29:52AM	Large holes with 3 entrances	
Kit Fox Complex	RKBJH003	3933192	432085	25-MAR-09 9:11:46AM	2 entrances, kit fox scat	
Kit Fox Complex	RKBJH005	3932999	432426	26-MAR-09 12:30:41PM	Kit fox complex, no owl sign but possible owl burrow	
Kit Fox Complex	RKBKD002	3933246	431858	24-MAR-09 9:23:54AM	3 large entrances, some kit fox scat	
Kit Fox Complex	RKBKD004	3935791	432571	04-APR-09 2:23:59PM	Kit fox complex, 3 entrances, kit fox scat present	
Kit Fox Complex	RKBKD005	3935418	432629	05-APR-09 12:29:41PM	Three open entrances, old scat (kit fox?)	
Kit Fox Complex	RKBKD006	3935477	432759	06-APR-09 12:13:28PM	Four entrances, spread out	
Kit Fox Complex	RKBKD007	3936878	432877	07-APR-09 12:48:59PM	Three openings, lots of kit fox scat	
Kit Fox Complex	RKBKD008	3936507	433335	15-APR-09 9:37:07AM	3 openings, around creosote shrub, kit fox scat, no sign of burrowing owl	
Kit Fox Complex	RKBKD009	3936369	433462	16-APR-09 10:42:17AM	3 entrances, 2 collapsed, one could be modified by tortoise, no sign of burrowing owl	
Kit Fox Complex	RKBMG009	3935716	432866	07-APR-09 11:05:21AM	Kit fox complex, 4 entrances, 2 very large, kit fox scat present	
Kit Fox Complex	RKBMG010	3935546	432993	13-APR-09 8:41:36AM	Complex of burrows, 15 openings, old kit fox scat present	
Kit Fox Complex	RKBMG012	3936714	433063	13-APR-09 11:49:27AM	4 openings, around creosote shrub	
Kit Fox Complex	RKBMG013	3936779	433224	14-APR-09 11:33:57AM	9 openings, lots of kit fox scat and fresh digging	

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Kit Fox Complex	RKBMG014	3936139	433346	15-APR-09 9:14:41AM	One opening on north side of creosote, kit fox scat, but hole large enough for coyote	
Kit Fox Complex	RKBMG015	3936588	433413	15-APR-09 1:57:50PM	(illegible) down quick to small hole, on east large hole, kit fox and coyote scat	
Kit Fox Complex	RKBMG016	3932731	431649	28-MAY-09 9:36:35AM	7 entrances, 2 with tortoise and burrowing owl potential	
Kit Fox Complex	RKBMG017	3932673	431633	28-MAY-09 9:45:29AM	11 entrances, potential for tortoise and burrowing owl	
Kit Fox Complex	RKBRW001	3936072	432201	31-MAR-09 10:20:57AM	Kit fox burrow, multiple entrances, recent use	
Kit Fox Complex	RKBRW002	3936283	432200	31-MAR-09 10:39:57AM	Large complex, with scat, possible tortoise	
Kit Fox Complex	RKBRW003	3934493	431816	23-MAR-09 3:19:37PM	Four openings under and adjacent to creosote	
Kit Fox Complex	RKBRW005	3936572	433145	14-APR-09 8:45:42AM	Two openings, one large, lots of kit fox scat	
Kit Fox Complex	RKBRW006	3936568	433176	14-APR-09 9:33:13AM	5 openings around small creosote (tall openings)	
Kit Fox Complex	RKBRW007	3936085	433205	14-APR-09 11:06:21AM	About 3 openings, within 30' radius, kit fox scat	
Kit Fox Complex	RKBRW008	3935396	433299	14-APR-09 4:05:32PM	Two openings, one large	
Kit Fox Complex	RKBRW009	3936828	433352	15-APR-09 10:04:16AM	4 openings, kit fox scat, no sign of burrowing owl	
Kit Fox Complex	RKBRW010	3935577	433352	15-APR-09 11:05:32AM	3 entrances in 30' radius, kit fox scat	
Kit Fox Complex	RKBRW011	3936801	433504	16-APR-09 2:11:25PM	Nine openings in 30' radius, kit fox scat, no sign of burrowing owl, but may be modified	
Kit Fox Complex	RKBRW012	3936476	433566	17-APR-09 3:31:51PM	Kit fox complex, in open, no sign, 9 holes, one hold could be used by tortoise, coyote scat present	
Kit Fox Complex	RKBRW013	3935401	433565	17-APR-09 5:00:15PM	Two holes in open, old kit fox scat	
Kit Fox Complex	RKBRW021	3935078	432540	26-MAR-09 4:43:25PM	Burrow complex, possible tortoise use, no owl sign	
Kit Fox Complex	RKBSD001	3933601	431254	07-MAR-09 10:37:05AM	Possible kit fox burrows, 2 burrows in drainage	
Kit Fox Complex	RMARW002	3934981	431764	23-MAR-09 12:55:15PM	5 collapsed burrows, could be modified	
Kit Fox Complex/Burrow with Burrowing Owl Sign	RBBMG001	3933633	431829	23-MAR-09 2:41:09PM	Old owl pellets, kit fox scat, two openings, 3 collapsed	
Kit Fox Complex/Burrow with Burrowing Owl Sign	RKBAD002	3933042	432539	14-FEB-09 5:13:48PM	Kit fox complex, 13 entrances, collapsing, white wash present	

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Kit Fox Complex/Burrow with Burrowing Owl Sign	RKBES003	3935736	432116	22-MAY-09 9:05:57AM	Probably coyote system, 4 holes, coyote scat and white wash	
Kit Fox Complex/Burrow with Burrowing Owl Sign	RKBKD003	3934027	431959	24-MAR-09 12:35:28PM	Six openings under creosote shrub, white wash	
Kit Fox Complex/Burrow with Burrowing Owl Sign	RKBKD010	3935603	433528	16-APR-09 3:36:35PM	Three openings, one very large (coyote size), one with white wash, lots of kit fox scat	
Kit Fox Complex/Burrow with Burrowing Owl Sign	RKBMG005	3935195	432480	26-MAR-09 1:39:36PM	Burrow complex with owl sign, one of the burrows has been dug out, large enough for coyote	
Kit Fox Complex/Burrow with Burrowing Owl Sign	RKBMG008	3936669	432721	06-APR-09 10:00:17AM	Four entrances, kit fox complex, some kit fox scat, white wash, burrowing owl pellet	
Kit Fox Complex/Burrow with Burrowing Owl Sign	RKBRW004	3936980	432966	13-APR-09 9:33:14AM	7 openings, old owl whitewash and kit fox scat	
Kit Fox Complex/Tortoise Burrow	RKBES005	3934233	431175	25-MAY-09 3:23:04PM	Kit fox scat, several large openings, potential for burrowing owl and tortoise	
Kit Fox Complex/Tortoise Burrow	RKBMG011	3935802	433013	13-APR-09 10:26:01AM	4 openings, one tortoise shaped, kit fox scat around	
Le Conte's Thrasher	RLTJL001	3935072	433184	22-MAY-09 3:03:19PM	No comments	
Loggerhead Shrike	RLSCG001	3935277	433483	23-MAY-09 8:27:05AM	Heard, then seen	
Loggerhead Shrike	RLSRW001	3931167	432354	27-MAY-09 11:32:47AM	Shrike flying into creosote	
Mammal Burrow	RMACG001A	3935728	434185	24-MAY-09 10:26:17AM	Pallet like, potential for tortoise	
Mammal Burrow	RMACG002A	3935373	434366	24-MAY-09 11:33:44AM	Potential for tortoise	
Mammal Burrow	RMACG003A	3935870	434039	24-MAY-09 2:32:15PM	Coyote, no sign, potential for tortoise	
Mammal Burrow	RMACG004A	3935848	435002	24-MAY-09 3:17:19PM	No sign, potential for tortoise	
Mammal Burrow	RMACG007	3934956	433012	25-MAY-09 11:00:23AM	potential for tortoise and burrowing owl	5
Mammal Burrow	RMAEE001	3936886	431803	21-MAY-09 10:19:42AM	potential for tortoise	
Mammal Burrow	RMAEE002	3935898	431962	21-MAY-09 11:53:00AM	potential for tortoise	
Mammal Burrow	RMAEE003	3935829	432077	22-MAY-09 7:13:13AM	potential for tortoise and burrowing owl	4

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Mammal Burrow	RMAEE004	3936689	432081	22-MAY-09 7:52:16AM	roof bumpy, large, 350 mm x 150 mm, potential for tortoise	5
Mammal Burrow	RMAEE005	3935691	432164	22-MAY-09 9:59:50AM	Tortoise shaped, but big rocks at apron	4
Mammal Burrow	RMAEE006	3935223	433544	23-MAY-09 9:45:23AM	Base of creosote, potential for tortoise	4
Mammal Burrow	RMAEE008	3935846	433760	23-MAY-09 2:50:58PM	Canid scat present	5
Mammal Burrow	RMAEE009	3934656	432852	24-MAY-09 11:48:10AM	Under bush, potential for tortoise	5
Mammal Burrow	RMAEE010	3934992	432802	25-MAY-09 8:18:31AM	Potential for tortoise	5
Mammal Burrow	RMAEE012	3935158	432941	25-MAY-09 10:04:59AM	Potential for tortoise	5
Mammal Burrow	RMAEEO11	3934998	432810	25-MAY-09 8:32:54AM	Potential for tortoise	5
Mammal Burrow	RMAES001	3936792	431949	21-MAY-09 10:59:07AM	No comments (?), comments may be on wrong lines, difficult to decipher	
Mammal Burrow	RMAES005	3935059	433374	23-MAY-09 7:45:16AM	Potential for tortoise	4
Mammal Burrow	RMAES006	3931674	433759	26-MAY-09 7:56:27	Under creosote, possible tortoise	
Mammal Burrow	RMAJH001	3932994	431675	23-MAR-09 10:17:26AM	Under shrub	
Mammal Burrow	RMAJH002	3934322	431842	23-MAR-09 3:14:15PM	Large burrow under creosote	
Mammal Burrow	RMAJH003	3933125	432136	25-MAR-09 9:27:14AM	Large hole under creosote	
Mammal Burrow	RMAJH004	3933158	432242	25-MAR-09 12:55:19PM	One opening under creosote, near dirt road	
Mammal Burrow	RMAJH005	3934916	432238	25-MAR-09 1:37:27PM	One opening	
Mammal Burrow	RMAJH006	3935152	432470	26-MAR-09 1:34:42PM	Mammal burrow, no owl sign, not likely for burrowing owl	
Mammal Burrow	RMAJH007	3935132	432546	26-MAR-09 4:48:31PM	Mammal burrow, possible tortoise use	
Mammal Burrow	RMAJJ001	3933924	431748	23-MAR-09 1:28:49PM	Could be modified	
Mammal Burrow	RMAJJ002	3935166	431899	24-MAR-09 10:59:03AM	Under creosote, some kit fox scat	
Mammal Burrow	RMAJJ004	3933154	432199	25-MAR-09 12:52:21PM	One opening under creosote	
Mammal Burrow	RMAJJ005	3934219	432448	26-MAR-09 1:07:05PM	No owl sign, not likely suitable for burrowing owl	
Mammal Burrow	RMAJL001	3936741	431998	21-MAY-09 3:19:09PM	potential for tortoise and burrowing owl	
Mammal Burrow	RMAJL002	3935973	432104	22-MAY-09 8:49:14AM	potential for tortoise	
Mammal Burrow	RMAJL003	3934957	433071	22-MAY-09 2:11:49PM	potential for tortoise and burrowing owl	

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Mammal Burrow	RMAJL004	3935227	433553	23-MAY-09 9:42:00AM	Potential for tortoise	4
Mammal Burrow	RMAJL005	3935278	433661	23-MAY-09 12:04:47PM	Potential for tortoise	5
Mammal Burrow	RMAKD001	3934208	431650	23-MAR-09 9:42:26AM	Mammal burrow, could be modified	
Mammal Burrow	RMAKD002	3935017	431712	23-MAR-09 11:43:56AM	Under creosote	
Mammal Burrow	RMAKD003	3934571	431755	23-MAR-09 1:11:47PM	Under creosote	
Mammal Burrow	RMAKD004	3933631	431809	23-MAR-09 2:44:21PM	Large hole	
Mammal Burrow	RMAKD005	3933641	431906	24-MAR-09 10:00:34AM	Under creosote	
Mammal Burrow	RMAKD006	3935235	431955	24-MAR-09 2:50:49PM	Under shrub	
Mammal Burrow	RMAKD007	3936904	432543	04-APR-09 12:31:38PM	Under creosote, only 2' deep	
Mammal Burrow	RMAKD008	3935474	432674	06-APR-09 9:13:28AM	Hole out in open	
Mammal Burrow	RMAKD009	3935597	432702	06-APR-09 9:29:02AM	Two entrances under west side of creosote	
Mammal Burrow	RMAKD010	3935892	432788	07-APR-09 9:01:06AM	Hole under creosote, end is visible	
Mammal Burrow	RMAKD011	3936611	432822	07-APR-09 9:49:36AM	2 openings under creosote shrub	
Mammal Burrow	RMAKD012	3936229	432816	07-APR-09 10:01:34AM	One hole under creosote, facing north	
Mammal Burrow	RMAKD013	3935632	432822	07-APR-09 10:18:46AM	Hole on north side of creosote	
Mammal Burrow	RMAKD014	3935912	432858	07-APR-09 11:13:14AM	Narrows as it goes in, adjacent to creosote	
Mammal Burrow	RMAKD015	3936673	432856	07-APR-09 12:08:08PM	Under creosote, adjacent to narrow wash	
Mammal Burrow	RMAKD016	3936747	432849	07-APR-09 12:11:18PM	Under creosote	
Mammal Burrow	RMAKD017	3937023	432887	07-APR-09 12:44:12PM	At edge of wash	
Mammal Burrow	RMAKD018	3936737	432914	08-APR-09 10:02:27AM	Collapsed, partially, in the open	
Mammal Burrow	RMAKD019	3937177	432917	08-APR-09 10:16:04AM	Hole on east side of creosote	
Mammal Burrow	RMAKD020	3936669	432936	08-APR-09 10:40:13AM	No comments	
Mammal Burrow	RMAKD021	3935680	432940	08-APR-09 11:30:29AM	Under center of creosote	
Mammal Burrow	RMAKD022	3937117	432998	13-APR-09 9:41:39AM	Under creosote bush	
Mammal Burrow	RMAKD023	3936457	433002	13-APR-09 10:00:33AM	Under senna shrub	
Mammal Burrow	RMAKD024	3936324	433007	13-APR-09 10:13:17AM	In the open	

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Mammal Burrow	RMAKD025	3936818	433036	13-APR-09 11:26:28AM	Collapsed hole	
Mammal Burrow	RMAKD026	3936599	433058	13-APR-09 11:58:28AM	Under small shrub, partially collapsed	
Mammal Burrow	RMAKD027	3936925	433119	13-APR-09 2:45:34PM	Hole under north side of creosote	
Mammal Burrow	RMAKD028	3936875	433124	13-APR-09 2:48:19PM	Hole under west side of creosote	
Mammal Burrow	RMAKD029	3936624	433116	13-APR-09 2:55:20PM	North side of creosote, narrows fairly quick	
Mammal Burrow	RMAKD030	3935806	433119	13-APR-09 3:23:36PM	Under northwest side of creosote shrub	
Mammal Burrow	RMAKD031	3935722	433118	13-APR-09 3:27:48PM	2 openings around creosote, both have visible end	
Mammal Burrow	RMAKD032	3937006	433152	14-APR-09 9:05:48AM	Hole under small creosote	
Mammal Burrow	RMAKD033	3936538	433186	14-APR-09 9:35:34AM	On northwest side of creosote	
Mammal Burrow	RMAKD034	3936458	433178	14-APR-09 9:41:09AM	No comments	
Mammal Burrow	RMAKD035	3936294	433181	14-APR-09 9:46:13AM	No comments	
Mammal Burrow	RMAKD036	3935548	433177	14-APR-09 10:05:10AM	In creosote shrub	
Mammal Burrow	RMAKD037	3935386	433151	14-APR-09 10:16:40AM	Under north side of creosote shrub	
Mammal Burrow	RMAKD038	3935453	433149	14-APR-09 10:19:15AM	Under north side of shrub	
Mammal Burrow	RMAKD039	3936057	433212	14-APR-09 11:04:07AM	Two openings, about 10' apart	
Mammal Burrow	RMAKD040	3936173	433205	14-APR-09 11:11:17AM	Under south side of creosote	
Mammal Burrow	RMAKD041	3935945	433243	14-APR-09 12:17:47PM	On west side of creosote	
Mammal Burrow	RMAKD042	3936344	433327	15-APR-09 9:25:05AM	Hole under senna shrub, too tall for tortoise	
Mammal Burrow	RMAKD043	3936948	433332	15-APR-09 9:50:50AM	Under senna shrub, goes back about 1'	
Mammal Burrow	RMAKD044	3936402	433359	15-APR-09 10:17:22AM	Under senna shrub, ends about 8" back	
Mammal Burrow	RMAKD045	3935454	433358	15-APR-09 11:10:54AM	Would need to be modified by tortoise	
Mammal Burrow	RMAKD046	3935448	433430	16-APR-09 12:05:18PM	Under northwest side of creosote, would need to be modified for use by tortoise	
Mammal Burrow	RMAKD047	3935734	433438	16-APR-09 12:27:39PM	Under east side of creosote, facing west, would need to be modified for use by tortoise	
Mammal Burrow	RMAKD048	3936567	433498	16-APR-09 1:56:28PM	Under creosote on west side, would need to be modified by tortoise	

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Mammal Burrow	RMAMG001	3933957	431664	23-MAR-09 9:51:25AM	no description	
Mammal Burrow	RMAMG002	3933726	431784	23-MAR-09 1:36:09PM	Under creosote	
Mammal Burrow	RMAMG003	3934486	432580	27-MAR-09 8:43:14AM	Under creosote	
Mammal Burrow	RMAMG004	3935262	431972	24-MAR-09 2:49:00PM	Under shrub	
Mammal Burrow	RMAMG005	3935200	432360	26-MAR-09 10:35:05AM	Shallow, not suitable for burrowing owl	
Mammal Burrow	RMAMG006	3934706	432439	26-MAR-09 11:24:46AM	Mammal burrow, shallow, not suitable for burrowing owl	
Mammal Burrow	RMAMG007	3934825	432472	26-MAR-09 1:25:01PM	Mammal burrow, no owl sign	
Mammal Burrow	RMAMG008	3935118	432432	26-MAR-09 2:00:14PM	Mammal burrow, no sign associated with it	
Mammal Burrow	RMAMG010	3934525	432556	26-MAR-09 4:21:52PM	Large mammal burrow	
Mammal Burrow	RMAMG011	3933590	432568	27-MAR-09 9:05:29AM	Under creosote shrub	
Mammal Burrow	RMAMG012	3934646	432603	27-MAR-09 10:39:15AM	Under creosote shrub	
Mammal Burrow	RMAMG013	3935027	432572	27-MAR-09 11:08:02AM	Under creosote shrub	
Mammal Burrow	RMAMG014	3933176	432617	27-MAR-09 12:47:30PM	Under creosote shrub	
Mammal Burrow	RMAMG015	3934798	432635	27-MAR-09 1:57:38PM	Under shrub, goes back toward dry wash	
Mammal Burrow	RMAMG016	3935225	432622	27-MAR-09 2:10:10PM	Under creosote shrub, hole goes east	
Mammal Burrow	RMAMG017	3934565	432694	30-MAR-09 11:34:48AM	Less than 1 meter, fresh	
Mammal Burrow	RMAMG018	3934509	432694	30-MAR-09 11:40:43AM	Old and small	
Mammal Burrow	RMAMG019	3934779	432722	30-MAR-09 1:10:45PM	Deteriorated, no sign	
Mammal Burrow	RMAMG020	3934362	432726	30-MAR-09 2:56:08PM	Deteriorated, mammal digging	
Mammal Burrow	RMAMG022	3936340	432209	31-MAR-09 10:44:05AM	No comments	
Mammal Burrow	RMAMG023	3935323	432234	31-MAR-09 12:37:06PM	No comments	
Mammal Burrow	RMAMG024	3935465	432336	01-APR-09 11:57:36AM	No comments	
Mammal Burrow	RMAMG025	3936724	432835	07-APR-09 9:46:17AM	Hole under creosote, facing north	
Mammal Burrow	RMAMG026	3935929	432830	07-APR-09 10:08:10AM	North side of creosote, facing east	
Mammal Burrow	RMAMG027	3936565	432897	07-APR-09 1:02:36PM	No comments	
Mammal Burrow	RMAMG030	3936359	432950	08-APR-09 11:07:44AM	Old burrow, partially collapsed	

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Mammal Burrow	RMAMG031	3935704	432950	08-APR-09 11:28:44AM	Hole	
Mammal Burrow	RMAMG032	3935586	432982	13-APR-09 8:46:50AM	Opening on east side of creosote	
Mammal Burrow	RMAMG033	3936922	433016	13-APR-09 9:47:12AM	Hole, partially collapsed	
Mammal Burrow	RMAMG034	3936356	433017	13-APR-09 10:10:18AM	On north side of creosote	
Mammal Burrow	RMAMG035	3936347	433017	13-APR-09 10:11:20AM	Can't see the end	
Mammal Burrow	RMAMG036	3935281	433007	13-APR-09 10:40:14AM	Openings under creosote, east side	
Mammal Burrow	RMAMG037	3936832	433050	13-APR-09 11:28:26AM	Under creosote shrub, west side	
Mammal Burrow	RMAMG038	3936547	433070	13-APR-09 12:00:52PM	Under senna shrub	
Mammal Burrow	RMAMG039	3935731	433106	13-APR-09 1:56:18PM	Under north side of creosote shrub	
Mammal Burrow	RMAMG040	3936030	433098	13-APR-09 2:06:21PM	Under small shrub	
Mammal Burrow	RMAMG041	3935839	433136	13-APR-09 3:21:01PM	Under south side of creosote shrub	
Mammal Burrow	RMAMG042	3937055	433169	14-APR-09 9:10:20AM	Under south side of creosote	
Mammal Burrow	RMAMG043	3936960	433193	14-APR-09 9:21:06AM	Caved in hole on north side of creosote	
Mammal Burrow	RMAMG044	3936875	433193	14-APR-09 9:24:36AM	In the open, mostly collapsed	
Mammal Burrow	RMAMG045	3936122	433195	14-APR-09 9:51:34AM	On north side of creosote	
Mammal Burrow	RMAMG046	3936181	433229	14-APR-09 11:12:20AM	Under north side of small shrub	
Mammal Burrow	RMAMG047	3937167	433222	14-APR-09 11:45:14AM	North side of creosote shrub, narrows	
Mammal Burrow	RMAMG048	3936390	433255	14-APR-09 12:07:15PM	In the open, facing north, ends at ~1'	
Mammal Burrow	RMAMG049	3935483	433216	14-APR-09 12:42:45PM	Under small creosote	
Mammal Burrow	RMAMG050	3935372	433306	14-APR-09 4:09:12PM	No comments	
Mammal Burrow	RMAMG051	3936299	433340	15-APR-09 9:22:06AM	Hole in the open, mostly filled, would need to be modified to be used by tortoise	
Mammal Burrow	RMAMG052	3935303	433418	15-APR-09 3:07:02PM	Under bush, tall hole	
Mammal Burrow	RMAMG053	3935508	433383	15-APR-09 3:18:54PM	Recently dug, but older tortoise shape	
Mammal Burrow	RMAMG054	3936379	433445	16-APR-09 9:46:13AM	Mostly collapsed, facing SW under shrub	
Mammal Burrow	RMAMG055	3936887	433473	16-APR-09 10:13:50AM	Could be modified by tortoise, under senna shrub	

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Mammal Burrow	RMAMG056	3936775	433474	16-APR-09 10:18:21AM	Under senna shrub, could be modified by tortoise	
Mammal Burrow	RMAMG057	3935720	433448	16-APR-09 12:29:15PM	Under creosote, facing west	
Mammal Burrow	RMAMG058	3936519	433527	17-APR-09 11:52:37AM	Under creosote, no sign	
Mammal Burrow	RMAMG059	3936208	433570	17-APR-09 3:03:13PM	In open, no sign	
Mammal Burrow	RMARW001	3934080	431661	23-MAR-09 9:47:11AM	Mammal burrow, could be modified	
Mammal Burrow	RMARW003	3934727	431771	23-MAR-09 1:05:44PM	Under creosote	
Mammal Burrow	RMARW004	3934310	431817	23-MAR-09 3:11:14PM	Under creosote	
Mammal Burrow	RMARW005	3934546	431807	23-MAR-09 3:22:56PM	Ends at 2', some old kit fox scat	
Mammal Burrow	RMARW006	3934665	431874	24-MAR-09 8:29:00AM	Under creosote	
Mammal Burrow	RMARW007	3933118	432171	25-MAR-09 12:33:41PM	One opening under creosote	
Mammal Burrow	RMARW008	3935119	432218	25-MAR-09 1:44:38PM	One opening under ?	
Mammal Burrow	RMARW009	3934062	432255	25-MAR-09 2:35:06PM	Mammal burrow	
Mammal Burrow	RMARW010	3933776	432287	25-MAR-09 3:28:28PM	Mammal burrow	
Mammal Burrow	RMARW012	3935202	432295	25-MAR-09 4:10:40PM	Mammal burrow	
Mammal Burrow	RMARW014	3934606	432372	26-MAR-09 9:58:00AM	Mammal burrow	
Mammal Burrow	RMARW015	3934770	432374	26-MAR-09 10:04:03AM	Mammal burrow	
Mammal Burrow	RMARW016	3935283	432366	26-MAR-09 10:27:42AM	No owl sign, but could be used by burrowing owl	
Mammal Burrow	RMARW017	3934174	432448	26-MAR-09 1:04:32PM	Mammal burrow, no owl sign, not likely for burrowing owl	
Mammal Burrow	RMARW018	3935190	432414	26-MAR-09 1:56:02PM	Mammal burrow, degraded	
Mammal Burrow	RMARW019	3934995	432413	26-MAR-09 2:07:19PM	Mammal burrow, no sign	
Mammal Burrow	RMARW021	3934590	432659	30-MAR-09 8:38:55AM	Shallow hole, no sign	
Mammal Burrow	RMARW023	3935587	432239	31-MAR-09 3:09:38PM	no comments	
Mammal Burrow	RMARW024	3935629	432236	31-MAR-09 3:13:31PM	no comments	
Mammal Burrow	RMARW025	3935710	432372	01-APR-09 3:12:23PM	No comments	
Mammal Burrow	RMARW026	3935694	432361	01-APR-09 3:16:31PM	No comments	
Mammal Burrow	RMARW027	3935643	432365	01-APR-09 3:19:42PM	No comments	

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Mammal Burrow	RMARW028	3936769	432407	02-APR-09 1:10:47PM	Collapsed, two depressions	
Mammal Burrow	RMARW029	3936342	432559	04-APR-09 1:10:52PM	Under creosote, in wash	
Mammal Burrow	RMARW030	3936128	432551	04-APR-09 1:18:56PM	Under creosote, near wash	
Mammal Burrow	RMARW031	3935502	432569	04-APR-09 2:15:07PM	Under shrub	
Mammal Burrow	RMARW032	3935848	432607	05-APR-09 9:26:50AM	Small hole on north side of creosote	
Mammal Burrow	RMARW033	3936341	432601	05-APR-09 9:40:54AM	Collapsed hole between small creosote shrubs	
Mammal Burrow	RMARW034	3936366	432581	05-APR-09 11:04:01AM	Facing southwest under creosote shrub	
Mammal Burrow	RMARW035	3935749	432624	05-APR-09 12:21:23PM	Hole faces northwest under creosote shrub	
Mammal Burrow	RMARW036	3935307	432694	06-APR-09 9:20:04AM	Hole out in open, stops quickly	
Mammal Burrow	RMARW037	3935415	432687	06-APR-09 9:24:08AM	Hole near creosote shrub	
Mammal Burrow	RMARW038	3935681	432690	06-APR-09 9:32:27AM	Hole under east side of creosote	
Mammal Burrow	RMARW039	3935990	432753	06-APR-09 12:38:24PM	Hole under small shrub	
Mammal Burrow	RMARW040	3936811	432872	07-APR-09 12:53:30PM	Collapsed, tortoise shaped, in wash	
Mammal Burrow	RMARW041	3935909	432906	08-APR-09 9:29:28AM	Under north side of creosote	
Mammal Burrow	RMARW042	3936305	432905	08-APR-09 9:41:59AM	In creosote shrub, at base	
Mammal Burrow	RMARW044	3936756	432932	08-APR-09 10:33:47AM	Hole near senna bush, hole goes in a ways	
Mammal Burrow	RMARW045	3936479	432966	13-APR-09 9:17:45AM	Under small shrub	
Mammal Burrow	RMARW046	3936583	432996	13-APR-09 9:56:18AM	Under senna shrub	
Mammal Burrow	RMARW047	3935625	433105	13-APR-09 3:30:55PM	Under shrub	
Mammal Burrow	RMARW048	3935838	433138	14-APR-09 8:15:41AM	South side of creosote	
Mammal Burrow	RMARW049	3936273	433147	14-APR-09 8:33:26AM	Under creosote, partially collapsed	
Mammal Burrow	RMARW050	3936921	433146	14-APR-09 9:01:32AM	Dig out under senna shrub	
Mammal Burrow	RMARW051	3936938	433142	14-APR-09 9:03:14AM	Hole under creosote	
Mammal Burrow	RMARW052	3936467	433171	14-APR-09 9:40:17AM	No comments	
Mammal Burrow	RMARW053	3937097	433237	14-APR-09 11:49:07AM	Northwest side of creosote	
Mammal Burrow	RMARW054	3935324	433232	14-APR-09 12:32:21PM	Hole on northeast side of creosote, narrows down	

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Mammal Burrow	RMARW055	3935334	433196	14-APR-09 12:36:48PM	2 openings around creosote	
Mammal Burrow	RMARW056	3936816	433258	14-APR-09 2:41:28PM	Under small shrub	
Mammal Burrow	RMARW057	3936919	433265	14-APR-09 2:44:29PM	No comments	
Mammal Burrow	RMARW058	3936971	433294	14-APR-09 3:03:06PM	Under creosote	
Mammal Burrow	RMARW059	3935474	433298	14-APR-09 4:02:08PM	Under north side of creosote	
Mammal Burrow	RMARW060	3936488	433328	15-APR-09 9:34:58AM	Under senna shrub, would need to be modified by tortoise	
Mammal Burrow	RMARW061	3936658	433326	15-APR-09 9:42:57AM	In the open, would need to be modified, mostly collapsed	
Mammal Burrow	RMARW062	3936530	433383	15-APR-09 1:12:41PM	In the open, shallow, no sign	
Mammal Burrow	RMARW063	3936897	433395	15-APR-09 1:43:47PM	In creosote bush, no potential for burrowing owl	
Mammal Burrow	RMARW064	3935675	433488	16-APR-09 4:10:45PM	On southwest side of creosote, collapsed	
Mammal Burrow	RMARW065	3935873	433561	17-APR-09 12:41:14PM	Under creosote, no sign	
Mammal Burrow	RMARW066	3935488	433582	17-APR-09 4:42:14PM	Under creosote, no sign	
Mammal Burrow	RMARW067	3936075	431929	21-MAY-09 8:23:06AM	Possible tortoise, no sign	
Mammal Burrow	RMARW070	3935461	432016	21-MAY-09 2:03:05PM	potential for tortoise	5
Mammal Burrow	RMARW071	3936521	432054	21-MAY-09 3:46:09PM	potential for tortoise	
Mammal Burrow	RMARW072	3936251	432083	22-MAY-09 7:32:48AM	Under shrub, at edge of wash, potential for tortoise	5
Mammal Burrow	RMARW073	3936409	432091	22-MAY-09 7:39:13AM	Potential for tortoise	5
Mammal Burrow	RMARW074	3935071	433133	22-MAY-09 2:47:16PM	Potential for tortoise	
Mammal Burrow	RMARW075	3935515	433633	23-MAY-09 11:51:12AM	Under creosote, potential for tortoise	4
Mammal Burrow	RMARW076	3934775	433958	24-MAY-09 7:46:33AM	Potential for tortoise	5
Mammal Burrow	RMARW077	3935038	433950	24-MAY-09 7:58:03AM	Potential for tortoise	5
Mammal Burrow	RMARW078	3933799	431147	25-MAY-09 2:14:47PM	Good condition, mammal hole, potential for tortoise and burrowing owl	5
Mammal Burrow	RMARW079	3932169	433732	26-MAY-09 8:10:36AM	150 mm x 80 mm, 0.5 m shallow hole, potential for tortoise	

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Mammal Burrow	RMARW080	3932379	433872	26-MAY-09 8:18:10AM	300 mm x 350 mm, large canid hole, single opening, no sign, potential for tortoise and burrowing owl	
Mammal Burrow	RMARW082	3932808	431602	27-MAY-09 2:29:59PM	150 mm x 80 mm, shallow burrow, potential for tortoise	
Mammal Burrow	RMARW043	3936890	432906	08-APR-09 10:08:07AM	Depression	
Tortoise - Adult	Botany 2	3936902	431796		Adult tortoise, observed by botany crew	
Tortoise - Adult	Botany 3	3936641	433625		Adult tortoise, observed by botany crew	
Tortoise - Adult	RDLEE002	3936077	432155	22-MAY-09 10:32:41AM	Adult, unknown sex, inside burrow above RDBEE010, could only see foot and part of shell, appeared healthy and alive	
Tortoise - Adult	RDLEE003	3935231	432800	25-MAY-09 8:10:46AM	Subadult, 20 cm, appears healthy, clear eyes and nostrils (two burrows), burrow Class 1, scat Class 2, exited burrow to investigate surveyors (likely male), associated with burrows at RDBEE014	
Tortoise - Adult	RDLES001	3935912	431992	21-MAY-09 2:25:50PM	Adult, sex unknown, healthy, inside burrow, resting, burrow (RDBES005) dimensions = 600 mm long x 150 mm height x 320 mm width, SW orientation, saw quarter left rear of animal, 1/4" v chunk removed on rear marginal	
Tortoise - Adult	RDLGL001	3933901	431270	07-MAR-09 12:08:12PM	Adult tortoise, gular split into two, small tail, long rear toenails, burrow is RDBSD001	
Tortoise - Adult	RDLGL003	3933520	431388	24-MAY-09 6:07:43PM	Adult tortoise, unknown sex, unknown health status, 22 cm x 13 cm burrow, tortoise in burrow (RDBGLXXX), under ambrosia, tracks in burrow	1
Tortoise - Adult	RDLJL002	3936233	431987	21-MAY-09 2:49:12PM	adult, sex unknown, healthy, resting inside burrow, burrow (RDBJL008) dimensions = 600 mm long x 130 mm high x 310 mm wide,	
Tortoise - Adult	RDLJR001	3935359	433857	5/11/2009	Live Desert Tortoise on dirt road to west of rocky outcrops on east side of project area. DETO burrow	

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
					found nearby ~ 5 meters NW of detection	
Tortoise - Adult	RDLKD001	3935325	432768	02-APR-09 11:53:17AM	Adult female, healthy, MCL = 200 mm, out earlier, then entered burrow at noon (RDBKD004), scutes peeling, observed out at 3:30PM 30 m south of burrow	
Tortoise - Adult	RDLKD004	3935840	432759	06-APR-09 2:23:23PM	Adult female, healthy, resting in shade of creosote, 200 to 210 mm MCL, see health sheet, observed later at burrow RDBMG027	
Tortoise - Adult	RDLKD005	3936128	432853	07-APR-09 11:37:52AM	Adult male, healthy, observed in the open, MCL = 230 to 240 mm	
Tortoise - Adult	RDLMG003	3934179	431976	24-MAR-09 12:11:37PM	Adult female, healthy, 200 to 220 mm, soil temp 90.5 F	
Tortoise - Adult	RDLMG004	3935659	432250	31-MAR-09 12:07:56PM	Tortoise, adult male, healthy, under creosote, some chipped scutes	
Tortoise - Adult	RDLMG005	3936856	432482	02-APR-09 2:42:18PM	Adult tortoise, unknown sex, healthy, found in burrow, chip end of back left side, ~210 mm MCL, found in RDBMG025, may have been observed foraging 60 m east of RDBMG025 in wash, soil 99 F	
Tortoise - Adult	RDLMG006	3936393	433511	17-APR-09 10:36:42AM	Adult, male, healthy, in open 100 yards from RDLRW009, on 4/16/2009	
Tortoise - Adult	RDLRW001	3933604	432110	25-MAR-09 9:44:44AM	Adult female, healthy, 210 to 220 mm, soil temp 62.6	
Tortoise - Adult	RDLRW002	3935486	432228	31-MAR-09 9:18:43AM	Both animals on apron of burrow (associated with RDLRW003, RDBRW004), male and female, likely about to mate, class 1 scat	
Tortoise - Adult	RDLRW003	3935485	432224	31-MAR-09 9:23:26AM	Both animals on apron of burrow (associated with RDLRW002, RDBRW004), male and female, likely about to mate, class 1 scat	
Tortoise - Adult	RDLRW005	3935386	432411	01-APR-09 3:36:34PM	Adult, sex unknown, healthy, 180 mm MCL, under creosote, possible female	
Tortoise - Adult	RDLRW006	3935569	432380	02-APR-09 11:05:11AM	Adult female, healthy, walking towards creosote and burrow	
Tortoise - Adult	RDLRW007	3935259	432749	02-APR-09 3:33:51PM	Adult, possibly male, healthy, MCL = 160 mm,	

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
					see health sheet, walking in the open, soil temp = 100 F,	
Tortoise - Adult	RDLRW009	3936508	433501	16-APR-09 2:34:37PM	In burrow (RDBRW040), about 1500' south of Hwy 395, see health sheet	
Tortoise - Adult	RDLRW010	3932908	432117	26-MAY-09 2:24:00PM	Adult, sex unknown, healthy, probably less than 7 years old, resting inside burrow, MCL = 290 mm, could not see head, withdrawn into shell, legs and shell appeared normal, chips on marginals on right side, burrow ID = RDBRW053	
Tortoise - Adult	RDLYY004	3936997	431675	4/30/2009	Desert tortoise in burrow (RDBAH010). Faces NW, approach from any direction (in open). Carapace approximately 12 inches in length and 8 inches eide. Appeared to be in good shape, could not see head.	
Tortoise - Adult	RDLYY005	3932603	431971	4/20/2009	Tortoise in entrance of burrow RDBAH004. Approximately 11 inches long by 8 inches wide. Clear eyes, good health.	
Tortoise - Adult	RDLYY006	3932995	432184	4/17/2009	Live Desert tortoise in burrow; cobwebs cover top 1/2 of burrow entrance (faces west). Big adult tortoise (carapace ~ 8 inches by 5 inches). Photos JR 030 (DETO in burrow), observed at RKBMG004, could be same tortoise as RDLRW010	
Tortoise - Adult	RDLYY008	3935364	433348	4/29/2009	Large DETO exiting burrow RDBRW029 and resting at entrance at 8:10am. Photos 135-0047 through 0050. Resting at burrow entrance, facing out. Carapace ~ 15 inches long x 12 inches wide (estimated at distance). Clear eyes, blinking.	
Tortoise - Adult	RDLYY009	3936828	433298	5/13/2009	Live DETO observed inside RDBJR010. ~ 8 x 5 inch carapace.	
Tortoise - Adult	RDLYY010	3932799	432314	4/20/2009	Main burrow of kit fox complex (RKBAH003) with DETO inside, observed	

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
					again inside burrow on 5/12/09	
Tortoise - Juvenile	Botany 1	3936555	432044		Juvenile tortoise, observed by botanical crew	
Tortoise - Juvenile	RDLARH001	3933456	431501	4/16/2009	Small live desert tortoise head first in K-rat burrow mostly stickling out; carapace 3 inches wide by 4.5 inches long. Hiding	
Tortoise - Juvenile	RDLEE001	3935790	431924	21-MAY-09 8:01:09AM	Juvenile tortoise, sex unknown, healthy, some dirt on back, near shrub, walking, MCL = 150 mm, sitting on ground under bush, walked a little, no marks, no chips, new growth absent, alert and responsive, breathing smooth	
Tortoise - Juvenile	RDLGL002	3934041	431320	23-MAY-09 9:55:25AM	Juvenile, sex unknown, healthy, popcorn flower in mouth, walking to east, 5" MCL x 4" wide, likely male, large gular (split), burrow not observed, vertebral scutes beginning to become concave, shell fairly worn for size class,	
Tortoise - Juvenile	RDLKD002	3933741	431810	23-MAR-09 2:50:37PM	MCL=4 1/4" x 3 1/2", no damage noticed on carapace, limbs intact, juvenile, (burrow is RDBKD002)	
Tortoise - Juvenile	RDLKD003	3935253	432656	02-APR-09 12:07:19PM	150 mm MCL x 60 mm wide (?), subadult female, healthy	
Tortoise - Juvenile	RDLKH001	3934465	432752	08-MAR-09 1:03:25PM	Juvenile tortoise, appears healthy, female	
Tortoise - Juvenile	RDLMG001	3933420	431728	23-MAR-09 10:50:39AM	MCL=110 mm, possible male, damage on shell, exposed bone on last 4 marginals, bone exposed in many areas on rear of animal, immature/sub adult, 68.9 F ground temp	
Tortoise - Juvenile	RDLMG002	3934619	431817	23-MAR-09 3:31:25PM	Out in open near shrub, 4 1/4" x 3 1/2", immature, no marks on shell, healthy, entered burrow RDBMG004	
Tortoise - Juvenile	RDLRW008	3935713	433384	15-APR-09 3:30:30PM	Adult tortoise, no marks or chips on rear, unknown sex, class 3 scat (in burrow RDBRW032), saw outside of burrow on 4/16/09 at 9AM, adult, healthy female, withdrew into shell, nares	

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
					open, MCL = 120 mm, crease on 3rd right costal, notch in gular	
Tortoise - Juvenile	RDLYY007	3933684	431815	4/16/2009	Cobwebs/collapsed; one burrow in RKBMG002 complex occupied by juvenile DETO (small burrow) too small for BUOW.	
Tortoise (Unknown Age)	RDLCG001	3935826	434105	24-MAY-09 11:54:53AM	Tortoise, in burrow (RDBJL001A), 1 foot showing, no tortoise sheet completed, could not assess	
Tortoise (Unknown Age)	RDLJL001	3935958	431906	21-MAY-09 8:15:34AM	Tortoise, healthy, class 1 burrow (RDBJL001) length = 1000 mm x 240 mm width, 110 mm high, resting in burrow, sitting in burrow, head toward opening, class 2 scat	
Tortoise (Unknown Age)	RDLXX001	3936843	432560		Desert tortoise, observed in burrow (RDBKD007), 101.3 F, burrow facing east near small shrub	
Tortoise (Unknown Age)	RDLXX002	3935945	432168		Tortoise inside burrow (RDBRW052)	
Tortoise (Unknown Age)	RDLXX003	3936099	432362		Tortoise, observed in RDBMG014	
Tortoise (Unknown Age)	RDLYY001	3934163	432025	4/17/2009	3 collapsed DETO burrows. One occupied by DETO (photo #1 and 2), in RDBJH002	
Tortoise (Unknown Age)	RDLYY002	3935261	432075	4/17/2009	Tortoise observed in entrance of RDBMG008, old pellet near entrance; currently (today) has tortoise inside (could see very fresh tracks heading in), tortoise observed in entrance again on 5/12/09	
Tortoise (Unknown Age)	RDLYY003	3937146	432605	4/30/2009	Active DETO burrow (RDBKD009). Live DETO inside. Can't tell size. Faces West.	
Tortoise Bone Fragments	RDCEE001	3934915	433179	22-MAY-09 3:11:33PM	Scattered 15 meters to east	4
Tortoise Bone Fragments	RDCEE002	3935096	433999	24-MAY-09 8:28:28AM	9 small carapace fragments	5
Tortoise Bone Fragments	RDCES002	3935172	433732	23-MAY-09 3:21:49PM	Tortoise carcass parts in bird nest (RNEES003)	5
Tortoise Bone Fragments	RDCES003	3932769	434422	26-MAY-09 9:05:43	fragments, gular small	5
Tortoise Bone Fragments	RDCKD001	3933156	431956	24-MAR-09 1:04:57PM	3 pieces of plastron, mixed pieces	5

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Tortoise Bone Fragments	RDCKD002	3935603	432545	04-APR-09 1:40:24PM	Six pieces of tortoise bone fragments, found around RDBKD006, another piece found 20 meters west	5
Tortoise Bone Fragments	RDCKD006	3936281	433213	14-APR-09 11:16:22AM	Piece of plastron, tortoise, 9 pieces, more pieces 30' to north	5
Tortoise Bone Fragments	RDCMG003	3936365	432953	08-APR-09 11:04:22AM	Found 4 scutes, no shell or bones	5
Tortoise Bone Fragments	RDCMG004	3933742	431044	28-MAY-09 1:30:02PM	Disarticulated, approximately 200 cm	4
Tortoise Bone Fragments	RDCRW001	3933686	431864	24-MAR-09 8:59:01AM	Pieces of plastron (~30% of plastron)	5
Tortoise Bone Fragments	RDCRW003	3936369	432997	13-APR-09 10:04:38AM	3 pieces of tortoise shell	5
Tortoise Bone Fragments	RDCRW006	3935000	434008	24-MAY-09 8:59:00AM	2 small tortoise bone fragments	5
Tortoise Bone Fragments	RDCRW008	3933383	432832	24-MAY-09 12:46:27PM	9 very small square bits of shell	5
Tortoise Bone Fragments	RDCRW009	3933442	431206	25-MAY-09 2:51:03PM	Adult bone fragments, scattered over 20 m area	5
Tortoise Bone Fragments	RDCRW011	3931072	431723	27-MAY-09 11:11:57AM	Adult carcass, scutes and bones	4
Tortoise Burrow	BDBSD005	3936882	430131	24-MAY-09 1:52:54PM	Tortoise burrow, classic shape, good condition, recent digging, active but no definitive sign, 18" x 10" x 36" deep	2
Tortoise Burrow	RDBAD001	3931240	433867	14-FEB-09 2:22:11PM	Desert tortoise burrow	2
Tortoise Burrow	RDBAD002	3934151	433076	07-MAR-09 10:04:21AM	Short burrow	
Tortoise Burrow	RDBAD007	3934450	433038	07-MAR-09 3:26:11PM	Old tortoise burrow, adult	4
Tortoise Burrow	RDBAD008	3934822	432912	07-MAR-09 4:58:41PM		4
Tortoise Burrow	RDBAD009	3933479	431500	08-MAR-09 3:18:58PM	Large burrow 12" x 10", can't see to end, occupied by gopher snake, possibly tortoise, potential tortoise scat, one burrow to west dug out by kit fox	4
Tortoise Burrow	RDBCG 001	3934452	433037	14-FEB-09 6:32:41PM	Desert tortoise burrow	3
Tortoise Burrow	RDBCG002	3934411	433008	07-MAR-09 4:08:14PM	Old burrow, adult	4
Tortoise Burrow	RDBCG003	3935706	433683	23-MAY-09 11:43:21AM	25 cm x 16 cm, potential for tortoise	4
Tortoise Burrow	RDBEE002	3936551	431920	21-MAY-09 8:51:54AM	200 mm wide x 110 mm high, 2'+ deep, potential for burrowing owl	4

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Tortoise Burrow	RDBEE003	3936370	431958	21-MAY-09 11:24:27AM	190 mm wide x 100 mm tall, class 2 burrow, potential for burrowing owl	2
Tortoise Burrow	RDBEE004	3936646	431996	21-MAY-09 3:10:19PM	no comments	5
Tortoise Burrow	RDBEE011	3935258	433543	23-MAY-09 9:33:37AM	25 cm x 15 cm, potential for tortoise	2
Tortoise Burrow	RDBEE013	3934778	432847	24-MAY-09 11:42:02AM	With Mojave green rattlesnake, potential for tortoise	5
Tortoise Burrow	RDBES001	3935666	431891	21-MAY-09 7:36:41AM	200 mm wide x 100 mm high x 6" deep	4
Tortoise Burrow	RDBES003	3936916	431744	21-MAY-09 10:27:20AM	220 mm x 130 mm tall	5
Tortoise Burrow	RDBES008	3935409	432106	22-MAY-09 9:18:59AM	100 mm x 50 mm	5
Tortoise Burrow	RDBES009	3935301	432142	22-MAY-09 9:32:51AM	200 mm x 100 mm	5
Tortoise Burrow	RDBES010	3932909	432112	26-MAY-09 2:27:53PM	310 mm wide	
Tortoise Burrow	RDBES011	3931842	430186	27-MAY-09 10:00:43	120 mm wide x 1 m deep, caliche, potential tortoise	2
Tortoise Burrow	RDBES012	3932534	431721	28-MAY-09 9:15:42AM	Kit fox (???)	
Tortoise Burrow	RDBGL001	3933385	431535	08-MAR-09 4:03:07PM	Possible tortoise burrow under creosote bush, difficult to see into, no tortoise sign, observed vegetation in entrance	4
Tortoise Burrow	RDBGL002	3933883	431358	23-MAY-09 2:07:25PM	Tortoise burrow, root blocks burrow further burrow, likely used by juvenile and as tortoise grew, may have used front area of burrow 5" wide x 4" high, 18" deep, burrow/pallet, no potential for burrowing owl or kit fox	2
Tortoise Burrow	RDBGL003	3938250	432394	24-MAY-09 11:01:19AM	potential tortoise burrow, under creosote, 12 " x 8", can't see to end, low potential for burrowing owl, no potential for kit fox	5
Tortoise Burrow	RDBGL006	3937290	430592	24-MAY-09 12:58:05PM	Tortoise burrow, correct shape, 15" x 10" x 36" deep, flat bottom	2
Tortoise Burrow	RDBJH001	3933092	431731	23-MAR-09 10:32:02AM	1' deep, 200 mm x 130 mm, under creosote	5
Tortoise Burrow	RDBJL001	3935959	431908	21-MAY-09 8:13:52AM	240 mm x 110 mm high, 3'+ deep	none
Tortoise Burrow	RDBJL003	3936900	431791	21-MAY-09 10:15:10AM	280 mm x 190 mm tall	5
Tortoise Burrow	RDBJL004	3936683	431957	21-MAY-09 11:07:22AM	160 mm wide x 100 mm tall,	5

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Tortoise Burrow	RDBJL005	3935978	431987	21-MAY-09 11:43:38AM	180 mm wide x 90 mm tall	5
Tortoise Burrow	RDBJL007	3935668	431999	21-MAY-09 2:13:30PM	300 mm x 150 mm high	2
Tortoise Burrow	RDBJL009	3936329	431988	21-MAY-09 2:57:13PM	300 mm x 170 mm, potential for tortoise and burrowing owl	
Tortoise Burrow	RDBJL010	3935768	432115	22-MAY-09 8:59:11AM	Kit fox scat, potential for tortoise and burrowing owl	
Tortoise Burrow	RDBJL011	3935586	433644	23-MAY-09 10:42:46AM	25 cm x 12 cm, potential for tortoise	3
Tortoise Burrow	RDBJR001	3936729	431795	4/19/2009	Looks like active burrow. Possibly DETO tracks inside burrow entrance. Vegetation leading up to burrow short and matted.	
Tortoise Burrow	RDBKD003	3933975	432100	25-MAR-09 10:07:47AM	220 mm wide, under creosote bush	2
Tortoise Burrow	RDBKD005	3935847	432498	03-APR-09 10:10:47AM	Partially filled in, between creosote shrub	4
Tortoise Burrow	RDBKD006	3935597	432540	04-APR-09 1:38:25PM	No sign of recent use, good size and depth	3
Tortoise Burrow	RDBKD009	3937146	432605	05-APR-09 10:22:25AM	Tortoise shape, under creosote shrub, facing west	5
Tortoise Burrow	RDBKD010	3937163	432766	06-APR-09 1:18:19PM	In the open, facing north, 150 mm x 90 mm	5
Tortoise Burrow	RDBKD011	3935851	432908	08-APR-09 9:23:02AM	Burrow west of creosote, ~250 mm	3
Tortoise Burrow	RDBKD012	3936673	432910	08-APR-09 9:57:23AM	In the open, collapsed	4
Tortoise Burrow	RDBKD013	3935747	432970	13-APR-09 8:52:15AM	Possible tortoise burrow, collapsed	4
Tortoise Burrow	RDBKD014	3936827	432974	13-APR-09 9:27:44AM	Possibly tortoise, collapsed	4
Tortoise Burrow	RDBKD015	3936336	433094	13-APR-09 2:13:41PM	Partially filled in	4
Tortoise Burrow	RDBKD016	3935494	433308	14-APR-09 3:59:10PM	Good condition, possibly tortoise, about 125 mm wide, under creosote facing west	5
Tortoise Burrow	RDBKD017	3936304	433434	16-APR-09 9:36:00AM	Under small creosote, facing NE, would need to be modified by tortoise, 110 mm	4
Tortoise Burrow	RDBKD018	3936351	433430	16-APR-09 9:44:02AM	Needs modification	4
Tortoise Burrow	RDBKD019	3936724	433433	16-APR-09 9:59:31AM	Partially collapsed, about 130 mm wide, in the open	4
Tortoise Burrow	RDBKD020	3935917	433498	16-APR-09 1:32:21PM	Next to cholla, tortoise shaped, collapsed, about 150 mm	4

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Tortoise Burrow	RDBKD021	3936025	433488	16-APR-09 1:37:31PM	Under northeast side of creosote, facing west, about 120 mm wide	5
Tortoise Burrow	RDBKD023	3935299	433517	16-APR-09 3:45:15PM	Tortoise shape, about 150 mm wide, can't see the end, partially collapsed	3
Tortoise Burrow	RDBMG002	3933697	431730	23-MAR-09 11:05:39AM		5
Tortoise Burrow	RDBMG003	3933404	431819	23-MAR-09 2:32:31PM	Under creosote bush	5
Tortoise Burrow	RDBMG007	3935266	432074	25-MAR-09 10:53:20AM	Under senna shrub	4
Tortoise Burrow	RDBMG009	3935245	432316	25-MAR-09 4:17:19PM	Shallow burrow, 200 mm wide, 150 mm tall	2
Tortoise Burrow	RDBMG011	3935543	432249	31-MAR-09 3:03:10PM	Deteriorated, but re-usable	4
Tortoise Burrow	RDBMG013	3935795	432273	31-MAR-09 5:03:57PM	Next to collapsed kit fox burrow complex	2
Tortoise Burrow	RDBMG015	3935951	432293	01-APR-09 9:33:05AM	Overgrown	4
Tortoise Burrow	RDBMG016	3935453	432292	01-APR-09 9:48:01AM	No comments	2
Tortoise Burrow	RDBMG018	3935290	432352	01-APR-09 12:08:40PM	No scat, cobwebs	2
Tortoise Burrow	RDBMG019	3936077	432359	01-APR-09 12:31:21PM	Recently cleaned, but shallow	5
Tortoise Burrow	RDBMG020	3935734	432378	01-APR-09 3:05:55PM	Approximately 350 mm wide	1
Tortoise Burrow	RDBMG026	3935512	432746	06-APR-09 11:57:02AM	Hole under creosote, tortoise shaped, 200 x 110 mm	5
Tortoise Burrow	RDBMG028	3935686	432808	07-APR-09 8:54:04AM	Burrow under creosote shrub, north side, facing east, 250 mm wide	5
Tortoise Burrow	RDBMG029	3935944	432870	07-APR-09 11:16:14AM	North side of creosote, facing west, 250 mm wide	4
Tortoise Burrow	RDBMG030	3936401	432915	08-APR-09 9:45:56AM	Northeast side of creosote, facing NE	4
Tortoise Burrow	RDBMG031	3935766	432950	08-APR-09 11:25:09AM	Burrow, possibly tortoise, illegible	4
Tortoise Burrow	RDBMG033	3935766	433039	13-APR-09 10:55:19AM	Mostly filled hole	4
Tortoise Burrow	RDBMG034	3936400	433037	13-APR-09 11:12:23AM	Under senna shrub	5
Tortoise Burrow	RDBMG035	3936618	433070	13-APR-09 11:55:45AM	Hole in the open, grass pressed down at entrance	5
Tortoise Burrow	RDBMG036	3936556	433226	14-APR-09 11:26:25AM	Under shrub, facing southeast, partially collapsed	4
Tortoise Burrow	RDBMG038	3936207	433286	14-APR-09 2:25:30PM	Burrow in open, facing SW, about 250 mm, collapsed	4
Tortoise Burrow	RDBMG039	3936128	433311	14-APR-09 3:22:54PM	Under northwest side of creosote, about 250 mm wide	4

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Tortoise Burrow	RDBMG044	3935553	433342	15-APR-09 11:32:23AM	On north side of creosote, facing face, about 100 mm wide	5
Tortoise Burrow	RDBMG045	3936215	433400	15-APR-09 12:53:08PM	Under bush, tall entrance, no burrowing owl	5
Tortoise Burrow	RDBMG047	3936414	433472	16-APR-09 10:35:54AM	Under small shrub, facing NE, would need to be modified for use by tortoise	4
Tortoise Burrow	RDBMG048	3936290	433479	16-APR-09 10:50:26AM	Narrows down about 1' back, 175 mm wide	3
Tortoise Burrow	RDBMG050	3936123	433467	16-APR-09 11:03:08AM	Mostly collapsed, would need modification to be used by tortoise	3
Tortoise Burrow	RDBMG052	3935840	433469	16-APR-09 11:27:34AM	In the open, facing west, mostly collapsed about 120 mm	3
Tortoise Burrow	RDBMG055	3936040	433539	17-APR-09 12:31:21PM	Under bush, approximately 120 mm	4
Tortoise Burrow	RDBMG056	3935907	433585	17-APR-09 4:17:57PM	Hidden by bush, 130 mm	5
Tortoise Burrow	RDBMR 001	3935358	432197	14-FEB-09 7:17:44PM		
Tortoise Burrow	RDBRW004	3933287	431920	24-MAR-09 9:48:54AM	Under creosote bush, old scat present (tortoise, class 5)	2
Tortoise Burrow	RDBRW005	3934455	431919	24-MAR-09 10:22:17AM	220 mm x 116 mm, mammal scat around	4
Tortoise Burrow	RDBRW008	3934332	432730	30-MAR-09 2:59:53PM	Possible tortoise use, under bush	4
Tortoise Burrow	RDBRW010	3936004	432203	31-MAR-09 10:15:53AM	Deteriorated, under creosote	4
Tortoise Burrow	RDBRW011	3936290	432199	31-MAR-09 10:38:18AM	no comments	5?
Tortoise Burrow	RDBRW012	3935640	432220	31-MAR-09 12:19:20PM	no comments	
Tortoise Burrow	RDBRW014	3935391	432303	01-APR-09 9:58:55AM	No comments	2
Tortoise Burrow	RDBRW015	3935583	432323	01-APR-09 11:48:43AM	Collapsed	4
Tortoise Burrow	RDBRW016	3935903	432361	01-APR-09 2:59:09PM	Deteriorated, grown over	4
Tortoise Burrow	RDBRW017	3935407	432383	01-APR-09 4:00:43PM	Next to old kit fox burrow	5
Tortoise Burrow	RDBRW019	3935951	432547	04-APR-09 10:30:24AM	Facing southeast under shrub	5
Tortoise Burrow	RDBRW021	3935495	432749	06-APR-09 12:18:31PM	West side of creosote, facing west, 270 mm x 140 mm	5
Tortoise Burrow	RDBRW022	3936611	432746	06-APR-09 12:55:21PM	Collapsed on south side of creosote shrub	4
Tortoise Burrow	RDBRW023	3936639	432753	06-APR-09 1:04:52PM	Directly under creosote on north side, possible tortoise scat inside	5

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Tortoise Burrow	RDBRW024	3936644	432752	06-APR-09 1:07:48PM	Deteriorated, collapsed	4
Tortoise Burrow	RDBRW025	3937037	432933	08-APR-09 10:20:32AM	Facing NW, partially collapsed	3
Tortoise Burrow	RDBRW026	3935391	433254	14-APR-09 4:16:56PM	Facing south, under creosote, about 200 mm wide	5
Tortoise Burrow	RDBRW028	3935647	433351	15-APR-09 11:00:27AM	On south side of creosote, facing west, about 170 mm	2
Tortoise Burrow	RDBRW029	3935364	433348	15-APR-09 11:14:52AM	Under creosote facing northeast, about 180 mm wide	2
Tortoise Burrow	RDBRW03	3936560	433424	16-APR-09 9:53:25AM	Under small shrubs, facing west, about 120 mm, full of debris	4
Tortoise Burrow	RDBRW030	3935462	433320	15-APR-09 11:28:08AM	In the open, facing east, about 100 mm wide	5
Tortoise Burrow	RDBRW031	3935633	433407	15-APR-09 2:50:32PM	Under creosote, 180 mm, no sign	5
Tortoise Burrow	RDBRW033	3936355	433416	16-APR-09 9:41:26AM	Tortoise shaped, partially collapsed and would need modification, in the open, facing NE	4
Tortoise Burrow	RDBRW034	3936359	433417	16-APR-09 9:42:19AM	Under shrub, facing south, would need modification to be used by tortoise, tortoise shaped, partially collapsed	4
Tortoise Burrow	RDBRW039	3936306	433482	16-APR-09 1:48:15PM	Keeps tortoise shape back, can't see end, about 150 mm	2
Tortoise Burrow	RDBRW041	3936503	433495	16-APR-09 2:40:03PM	Under creosote, on west side, about 100 mm wide, deteriorated, ends ~1' back	4
Tortoise Burrow	RDBRW043	3935795	433553	17-APR-09 12:45:16PM	Under creosote, no sign, 140 mm	5
Tortoise Burrow	RDBRW045	3936045	433574	17-APR-09 4:07:51PM	Under bush, no sign, 110 mm	5
Tortoise Burrow	RDBRW049	3935654	432019	21-MAY-09 2:10:20PM	130 mm x 70 mm,	2
Tortoise Burrow	RDBRW050	3936713	432011	21-MAY-09 3:15:14PM	115 mm x 50 mm	5
Tortoise Burrow	RDBRW051	3935474	432056	21-MAY-09 4:37:00PM	No comments	5
Tortoise Burrow	RDBSD003	3933565	431395	07-MAR-09 3:44:29PM	Overgrown with vegetation, under creosote bush, shape indiscernible, possible tortoise	4
Tortoise Burrow	RDBSD004	3933846	431267	08-MAR-09 9:13:33AM	Tortoise pallet, 18 cm x 9 cm x 30 cm	5
Tortoise Burrow	RDBSH001	3936973	431808	4/19/2009	DETO burrow- good condition. No sign, but indistinguishable tracks at entrance. Rabbit scat.	

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Tortoise Burrow	RMARW022	3936180	432202	31-MAR-09 10:28:27AM	Near kit fox burrow, but good shape/angle	5
Tortoise Burrow	RDBKD008	3937104	432617	05-APR-09 10:05:27AM	Tortoise shape, open on both ends, near creosote	4
Tortoise Burrow	RDBRW020	3936960	432572	04-APR-09 3:25:06PM	Facing east under creosote	2
Tortoise Burrow (Active)	RDBAH010	3936998	431673	4/19/2009	Apparently active desert tortoise with tortoise inside (RDLYY004) and tortoise tracks, burrow with BUOW sign (whitewash and old pellets)	
Tortoise Burrow (Active)	RDBAH012	3937187	432530	4/20/2009	recently used Desert tortoise burrow, tracks and soil disturbance at entrance, faces south	
Tortoise Burrow (Active)	RDBEE005	3936187	432033	21-MAY-09 3:59:22PM	200 x 100 mm	1
Tortoise Burrow (Active)	RDBEE007	3935399	432086	22-MAY-09 6:55:08AM	100 mm x 50 mm	1
Tortoise Burrow (Active)	RDBEE008	3936450	432085	22-MAY-09 7:42:22AM	60 mm x 90 mm	1
Tortoise Burrow (Active)	RDBES002	3936808	431821	21-MAY-09 10:00:34AM	270 mm wide x 40 mm tall, pallet 2 m away	1
Tortoise Burrow (Active)	RDBES005	3935913	431991	21-MAY-09 2:24:27PM	320 mm x 150 mm	1
Tortoise Burrow (Active)	RDBES006	3936008	431977	21-MAY-09 2:36:23PM	220 mm x 120 mm	1
Tortoise Burrow (Active)	RDBES007	3935739	432020	21-MAY-09 4:22:56PM	300 x 160 mm	1
Tortoise Burrow (Active)	RDBGL004	3938114	431335	24-MAY-09 11:35:39AM	Tortoise burrow, Mojave green rattlesnake inside burrow, 18" x 10", turns to left, no scat, possible plastron flattening	2
Tortoise Burrow (Active)	RDBGL005	3937464	430667	24-MAY-09 12:40:29PM	Active tortoise burrow with tracks, under cheesebush, likely can't see to end, turns to left, 24" x 10"	1
Tortoise Burrow (Active)	RDBGLXXX	3933520	431388	24-MAY-09 6:07:43PM	Tortoise in burrow (RDLGL003)	1
Tortoise Burrow (Active)	RDBJL002	3936659	431873	21-MAY-09 9:44:09AM	300 mm x 170 mm, tamped down grass	1
Tortoise Burrow (Active)	RDBKD022	3935955	433512	16-APR-09 3:07:21PM	On east side of creosote, facing SW, about 150 mm	1
Tortoise Burrow (Active)	RDBMG001	3933417	431728	23-MAR-09 10:53:13AM	Tortoise burrow, 180 mm wide x 70 mm high	1
Tortoise Burrow (Active)	RDBMG005	3934126	432021	24-MAR-09 2:07:48PM	No scat, tracks present	1
Tortoise Burrow (Active)	RDBMG008	3935261	432075	25-MAR-09 10:55:30AM	Under creosote shrub, 240 mm x 150 mm, scat class 2, 3, 4 and 5	1

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Tortoise Burrow (Active)	RDBMG012	3936136	432253	31-MAR-09 3:45:10PM	no comments	1
Tortoise Burrow (Active)	RDBMG017	3935424	432315	01-APR-09 10:04:03AM	Deep with possible tortoise tracks, no scat	1
Tortoise Burrow (Active)	RDBMG041	3935507	433320	14-APR-09 3:55:21PM	Fresh tracks, about 300 mm wide, ends at about 0.5 meter	1
Tortoise Burrow (Active)	RDBRW013	3935311	432219	31-MAR-09 12:40:01PM		1
Tortoise Burrow (Active)	RDBRW037	3935652	433456	16-APR-09 11:36:51AM	Under north side of creosote, facing north, about 200 mm wide, looks freshly used	1
Tortoise Burrow (Active)	RDBRW038	3935505	433418	16-APR-09 12:08:07PM	Under small shrub, facing SE, about 190 mm wide, looks freshly used, tracks on front	1
Tortoise Burrow (Active)	RDBRW048	3936673	431850	21-MAY-09 9:53:07AM	270 mm wide x 150 mm tall	1
Tortoise Burrow (Active)	RDBSH002	3936808	431784	4/19/2009	Active DETO burrow. Abundant scat inside and outside burrow. Large scats. Fresh tracks. (photos)	
Tortoise Burrow (Active)	RKBKD007	3936878	432877	4/30/2009	Appears to be active tortoise burrow. Entrance faces W.	
Tortoise Burrow (Active)/Kit Fox Complex	RKBJJ002	3933513	431956	24-MAR-09 12:50:48PM	8 openings, lots of fox scat, one entrance with tortoise scat	1
Tortoise Burrow (Active)/Tortoise Scat	RDBAD004	3934132	433077	07-MAR-09 10:16:45AM	Deep adult burrow, used by kit fox, tortoise scat	1
Tortoise Burrow (Active)/Tortoise Scat	RDBEE001	3936287	431923	21-MAY-09 8:37:40AM	230 mm x 190 mm high, 3'+ deep, scat deep in burrow, class 1 burrow, class 2 scat	1
Tortoise Burrow (Active)/Tortoise Scat	RDBEE006	3935906	432036	21-MAY-09 4:15:05PM	200 x 100 mm, two scats	1
Tortoise Burrow (Active)/Tortoise Scat	RDBEE010	3936080	432154	22-MAY-09 10:18:34AM	Lots of scat, 300 mm x 120 mm, potential for burrowing owl	1
Tortoise Burrow (Active)/Tortoise Scat	RDBEE012	3934354	432820	24-MAY-09 11:17:30AM	Scat 2 m away, potential for burrowing owl and tortoise	1
Tortoise Burrow (Active)/Tortoise Scat	RDBES004	3936546	431946	21-MAY-09 11:14:57AM	200 mm wide x 120 mm tall, class 1 burrow, class 2 scat	1
Tortoise Burrow (Active)/Tortoise Scat	RDBES011A	3938122	433803	28-MAY-09 2:42:26PM	Approximately 200 mm scat	1
Tortoise Burrow (Active)/Tortoise Scat	RDBJL006	3935831	431954	21-MAY-09 11:56:46AM	310 mm wide x 150 mm tall, class 1 burrow, class 2 scat	1

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Tortoise Burrow (Active)/Tortoise Scat	RDBJL008	3936234	431987	21-MAY-09 2:48:06PM	310 mm x 130 mm, 6 scats, Class 1 burrow, Class 2 scat	1
Tortoise Burrow (Active)/Tortoise Scat	RDBMG021	3936838	432423	02-APR-09 10:16:38AM	West side of creosote, tortoise scat at entrance and dark tortoise scat inside, scat class 3	1
Tortoise Burrow (Active)/Tortoise Scat	RDBMG022	3935671	432451	02-APR-09 12:34:47PM	Burrow facing southwest with scat at entrance, 180 mm, scat class 3	1
Tortoise Burrow (Active)/Tortoise Scat	RDBMG024	3935808	432464	02-APR-09 12:45:18PM	Scat (class 2) and good burrow, looks recently used	1
Tortoise Burrow (Active)/Tortoise Scat	RDBMG040	3935803	433335	14-APR-09 3:38:02PM	Tortoise burrow, under creosote, west side about 350 mm wide, scat observed at entrance, class 1 burrow, class 1 scat	1
Tortoise Burrow (Active)/Tortoise Scat	RDBMG043	3936098	433377	15-APR-09 10:32:50AM	In the open, facing south, ends at about 0.5 meter in, 180 mm wide, 2 scats, freshly dried, class 1 burrow, class 1 scat	1
Tortoise Burrow (Active)/Tortoise Scat	RDBMG046	3936132	433414	15-APR-09 2:27:06PM	Recently cleaned, 4 scats, 200 mm, (illegible - class 2 scat?)	1
Tortoise Burrow (Active)/Tortoise Scat	RDBMG051	3935973	433472	16-APR-09 11:13:55AM	180 to 190 mm wide, on east side of creosote, facing north, tortoise scat around entrance, class 2 to 3 scat, class 1 burrow	1
Tortoise Burrow (Active)/Tortoise Scat	RDBRW018	3935567	432380	01-APR-09 4:13:40PM	Recent tortoise tracks and scat inside	1
Tortoise Burrow (Active)/Tortoise Scat	RDBRW027	3935734	433358	15-APR-09 10:52:22AM	In the open, facing east, both tortoise scat and kit fox scat, steep entrance with dome shape, about 150 mm wide, class 1 burrow, class 2 scat	1
Tortoise Burrow (Active)/Tortoise Scat	RDBRW036	3936091	433454	16-APR-09 11:06:15AM	In creosote, dig facing east, freshly flattened vegetation, tortoise scat, about 150 to 170 mm wide, class 3 scat, class 1 burrow	1
Tortoise Burrow (Active)/Tortoise Scat	RDBRW042	3935531	433488	16-APR-09 4:04:39PM	In the open, facing east, about 100 mm wide, looks like tortoise scat inside burrow	1
Tortoise Burrow (Active)/Tortoise Scat	RDBRW047	3935663	431926	21-MAY-09 7:31:29AM	300 mm x 150 mm high x 3' deep (class 1), scat (class 3) mostly sand (illegible?)	1
Tortoise Burrow (Occupied)	RDBAD006	3934490	432818	07-MAR-09 12:26:32PM	Tortoise and other species using burrow	1

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Tortoise Burrow (Occupied)	RDBEE014	3935230	432799	25-MAY-09 8:09:20AM	Two burrows, one with subadult live tortoise present (RDLEE003), exited burrow	1
Tortoise Burrow (Occupied)	RDBJR010	3936828	433298	5/13/2009	Live DETO (RDLYY009) observed inside RDBJR010. Probably too shallow for BUOW.	
Tortoise Burrow (Occupied)	RDBKD001	3933424	431753	23-MAR-09 1:53:33PM	Tortoise in burrow, under creosote, appears to be tortoise identified at RDLMG001 and RDBMG001, 170 mm x 80 mm	1
Tortoise Burrow (Occupied)	RDBKD002	3933740	431811	23-MAR-09 2:51:45PM	Under creosote, 10" from tortoise (RDLKD002)	1
Tortoise Burrow (Occupied)	RDBKD004	3935326	432768	02-APR-09 11:56:22AM	Inhabited by RDLKD001 tortoise, faces east	1
Tortoise Burrow (Occupied)	RDBKD007	3936843	432561	04-APR-09 3:05:10PM	Live tortoise observed in burrow, could be RDLMG005 or RDLXX001, burrow facing east near small shrub	1
Tortoise Burrow (Occupied)	RDBMG004	3934615	431819	23-MAR-09 3:35:15PM	Tortoise RDLMG002 entered burrow, at base of shrub, 180 mm x 70 mm	1
Tortoise Burrow (Occupied)	RDBMG014	3936099	432362	01-APR-09 8:14:48AM	Clean, inhabited by tortoise in morning, shallow	1
Tortoise Burrow (Occupied)	RDBMG025	3936857	432480	02-APR-09 2:43:55PM	Facing northeast near creosote, 250 mm x ?, live tortoise observed in this burrow the next day, possibly RDLMG005	1
Tortoise Burrow (Occupied)	RDBMG027	3935852	432743	06-APR-09 2:06:42PM	Burrow on north side of creosote, 300 x 120 mm, possibly fresh tortoise tracks, no tortoise observed, next day observed RDLKD004 at this burrow	1
Tortoise Burrow (Occupied)	RDBRW009	3935483	432225	31-MAR-09 9:24:09AM	Occupied tortoise burrow, two tortoises present (RDLRW002 and RDLRW003), good shape, class 1 scat present, revisited on 5/22/2009, still occupied with tortoise (RDLRW002 and RDLRW003)	1
Tortoise Burrow (Occupied)	RDBRW032	3935713	433385	15-APR-09 3:29:02PM	140 mm, under bush, with tortoise present (RDLRW008)	1
Tortoise Burrow (Occupied)	RDBRW040	3936506	433501	16-APR-09 2:35:03PM	Burrow with tortoise inside (RDLRW009), in the open, facing southwest, about 150 mm wide	1

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Tortoise Burrow (Occupied)	RDBRW052	3935945	432168	22-MAY-09 10:10:11AM	240 mm x 120 mm, tortoise inside burrow	5
Tortoise Burrow (Occupied)	RDBRW053	3932907	432116	26-MAY-09 2:25:59PM	Adult tortoise (RDLRW010) inside burrow, west facing, 300 mm width, 150 mm height, depth unknown	1
Tortoise Burrow (Occupied)	RDBSD001	3933903	431269	07-MAR-09 12:09:35PM	Occupied tortoise burrow (tortoise = RDLGL001), tortoise observed 1 meter from burrow, active burrow with tracks, several scat pieces	1
Tortoise Burrow (Occupied)/Burrow with Burrowing Owl Sign	RDBJL001A	3935825	434104	24-MAY-09 11:51:17AM	25 cm x 12 cm, associated with pallet, white wash present, potential for burrowing owl, tortoise in burrow (RDLCG001)	1
Tortoise Burrow/Burrow with Burrowing Owl Sign	RDBMG053	3935579	433435	16-APR-09 12:16:21PM	Near a small shrub, facing NW, 200 mm wide, sparrow feather and white wash at entrance, entrance is collapsed but reopened	5
Tortoise Burrow/Burrow with Burrowing Owl Sign	RDBRW044	3935564	433528	17-APR-09 1:19:15PM	190 mm, next to creosote, owl pellets	2
Tortoise Burrow/Kit Fox Complex	RDBAD003	3934155	431474	08-MAR-09 11:29:39AM	Three old burrow entrances, two possibly used by tortoise, kit fox scat	5
Tortoise Burrow/Tortoise Scat	RDBJH002	3934163	432025	24-MAR-09 2:12:12PM	Scat present (class 3), burrow doesn't go back far	3
Tortoise Burrow/Tortoise Scat	RDBMG006	3933286	432126	25-MAR-09 9:33:53AM	Under shrub, old scat (class 3 scat)	3
Tortoise Burrow/Tortoise Scat	RDBMG010	3936193	432235	31-MAR-09 11:34:17AM	Next to kit fox complex, tortoise scat in burrow	2
Tortoise Burrow/Tortoise Scat	RDBMG023	3935740	432450	02-APR-09 12:40:08PM	Scat (class 3), at small creosote shrub	3
Tortoise Burrow/Tortoise Scat	RDBMG042	3936320	433379	15-APR-09 10:21:28AM	Under creosote, facing south, mostly collapsed, about 160 mm wide, 7 pieces of tortoise scat, class 3 burrow, class 3 scat	3
Tortoise Burrow/Tortoise Scat	RDBMG049	3936159	433468	16-APR-09 10:57:55AM	110 mm wide, collapsed back ~ 1', one tortoise scat at opening, class 3 burrow, class 3 scat	3
Tortoise Burrow/Tortoise Scat	RDBMG054	3935601	433443	16-APR-09 12:19:51PM	Under southwest side of creosote, facing southwest, 120 mm wide, tortoise scat at entrance, class 3 burrow, class 3 scat	3

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Tortoise Burrow/Tortoise Scat	RDBRW003	3934732	431814	23-MAR-09 3:42:06PM	In open area, going back 3', 5" x 9", tortoise scat (class 3) present	2
Tortoise Burrow/Tortoise Scat	RDBMG037	3936186	433282	14-APR-09 2:20:59PM	Large burrow, facing east, also scat present, about 300 mm, scat class 3	2
Tortoise Burrow/Tortoise Scat/Kit Fox Complex	RDBMG032	3935804	432993	13-APR-09 8:58:38AM	Old kit fox complex, one opening, old tortoise scat found, class 2 scat, class 2 burrow	2
Tortoise Carcass	RDCAD001	3932905	432191	14-FEB-09 4:32:31PM	Adult tortoise carcass, half carapace, delaminated scutes, 120 mm MCL	
Tortoise Carcass	RDCCG001	3935416	432578	14-FEB-09 7:36:31PM	shell intact, scutes peeling off center, flesh present on bones inside shell	3
Tortoise Carcass	RDCCG002	3932796	432775	08-MAR-09 9:55:54AM	Male carcass, mostly intact, dead 1 to 3 years	
Tortoise Carcass	RDCES001	3936653	431862	21-MAY-09 9:47:51AM	75 mm MCL x 60 mm wide, juvenile tortoise carcass	2
Tortoise Carcass	RDCJL001	3935779	433611	23-MAY-09 11:04:20AM	estimated about 120 x 50 mm	2
Tortoise Carcass	RDCKD003	3936871	432594	05-APR-09 10:39:01AM	Tortoise carcass, MCL = 270 mm, plastron 210 mm, adult male	2
Tortoise Carcass	RDCMG001	3932971	432326	25-MAR-09 3:05:54PM	Plastron and marginal scutes, carapace is missing, scutes have signs of shotgun wounds, MCL = 170 to 180 mm,	2
Tortoise Carcass	RDCMG002	3933262	432646	27-MAR-09 1:04:21PM	Scutes peeling off of bone, 250 mm MCL x 200 mm wide, 20% of carcass missing	3
Tortoise Carcass	RDCRW002	3933522	431865	24-MAR-09 9:08:25AM	Tortoise shell, mostly intact, missing front half, 70 mm	2
Tortoise Carcass	RDCRW004	3936178	432174	22-MAY-09 10:43:16AM	Adult female carcass, most of plastron and part of carapace remaining	4
Tortoise Carcass	RDCRW005	3935080	432042	22-MAY-09 12:19:53PM	Road kill, 7" long, empty	2
Tortoise Carcass	RDCRW007	3933764	432850	24-MAY-09 12:13:52PM	Plastron of juvenile, 3" long	5
Tortoise Pallet	DDPEE002	3935619	431974	21-MAY-09 12:15:19PM	No comments	5
Tortoise Pallet	RDBRW006	3934443	432375	26-MAR-09 9:51:48AM	Old burrow, filled in, no sign in area	
Tortoise Pallet	RDBRW007	3935288	432366	26-MAR-09 10:25:13AM	Possible tortoise burrow, caved in	
Tortoise Pallet	RDBSD002	3933713	431397	07-MAR-09 3:30:30PM	Potential tortoise burrow, very degraded, possible tortoise nest site	4

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Tortoise Pallet	RDPCG001	3934336	432731	08-MAR-09 2:56:17PM	Caving in pallet, tortoise	4
Tortoise Pallet	RDPCG002	3934903	433478	23-MAY-09 8:41:32AM	Deteriorated, possibly tortoise, 15 cm x 8 cm, potential for tortoise	4
Tortoise Pallet	RDPCG003	3935000	433725	23-MAY-09 1:39:58PM	potential for tortoise	4
Tortoise Pallet	RDPCG004	3935693	433788	23-MAY-09 2:57:35PM	Potential for tortoise	4
Tortoise Pallet	RDPCG005	3933904	431194	25-MAY-09 3:11:18PM	Medium sized shallow burrow, 15 cm x 8 cm, potential for burrowing owl	5
Tortoise Pallet	RDPEE001	3936725	431921	21-MAY-09 9:05:19AM	No comments	4
Tortoise Pallet	RDPES001	3936032	433629	23-MAY-09 11:17:38AM	25 cm x 10 cm, potential for tortoise	4
Tortoise Pallet	RDPES002	3935667	433751	23-MAY-09 3:01:14PM	Potential for tortoise	3
Tortoise Pallet	RDPES003	3935279	433063	25-MAY-09 11:39:00AM	~200 mm, potential for tortoise	4
Tortoise Pallet	RDPES008	3932238	434270	26-MAY-09 8:32:51	310 mm wide, under creosote	?
Tortoise Pallet	RDPKD001	3933907	431861	24-MAR-09 8:51:34AM	Pallet under senna bush	
Tortoise Pallet	RDPRW002	3936104	433143	14-APR-09 8:25:24AM	Tortoise pallet, under small shrub	
Tortoise Pallet	RDPRW003	3936953	431826	21-MAY-09 10:10:22AM	No comments	4
Tortoise Pallet	RDPRW004	3936535	432050	21-MAY-09 3:43:50PM	200 x 100 mm, inside shrub	4
Tortoise Pallet	RDPRW005	3934965	433958	24-MAY-09 7:53:17AM	Potential for tortoise	5
Tortoise Pallet	RDPSD001	3933534	431460	08-MAR-09 9:34:47AM	Pallet, very narrow, 18 cm x 9 cm x 30 cm, possible rodent burrow	4
Tortoise Pallet	RDPSD002	3938076	431328	24-MAY-09 11:33:40AM	Potential tortoise pallet, bottom flattened, 16" x 12" x 20" deep	4
Tortoise Pallet	RDPSD003	3933531	431381	24-MAY-09 6:12:49PM	19 cm x 9 cm x 18" deep, tortoise pallet, near active tortoise burrow with tortoise (RDLGL003)	2
Tortoise Pallet	RMACG006	3935099	432932	25-MAY-09 9:42:31AM	Potential for pallet, suitable for tortoise	4
Tortoise Pallet	RMAES002	3936049	431936	21-MAY-09 11:38:57AM	possible pallet	5
Tortoise Pallet	RMAMG021	3935717	432219	31-MAR-09 10:06:45AM	Collapsed but good pallet	4
Tortoise Pallet	RMARW068	3936304	431925	21-MAY-09 8:41:56AM	No sign, possible tortoise pallet	5
Tortoise Pallet	RMAMG009	3933933	432512	26-MAR-09 3:17:45PM	Mammal burrow, shallow, possible tortoise pallet	

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Tortoise Pallet (Active)	RDBAD005	3934099	433074	07-MAR-09 10:24:06AM	Pallet, collapsed burrow, adult	1
Tortoise Pallet (Active)	RDBRW046	3935785	433487	17-APR-09 5:18:48PMR	Short, pallet like, with tracks	1
Tortoise Pallet (Active)	RDPMG002	3935994	432901	07-APR-09 1:18:22PM	Tortoise pallet, freshly used with tracks	1
Tortoise Pallet (Active)	RDPRW001	3936099	433147	14-APR-09 8:23:51AM	Tortoise pallet, under creosote, looks recently used	1
Tortoise Pallet (Active)/Tortoise Scat	RDPKD002	3935645	433303	14-APR-09 3:48:02PM	Tortoise pallet in wash, 3 pieces of scat, scat class 1 to 3, pallet would be Class 1	1
Tortoise Pallet/Tortoise Scat	RDPMG001	3935567	432832	07-APR-09 10:23:23AM	Several scats, north side of creosote facing NW	3
Tortoise Scat	RDSCG001	3935059	433713	23-MAY-09 1:46:13PM	No comments	3
Tortoise Scat	RDSCG001A	3936152	433922	24-MAY-09 1:55:15PM	Two pieces of tortoise scat, about 8 cm	2
Tortoise Scat	RDSCG002	3935234	432833	25-MAY-09 8:41:58AM	Tortoise scat	2
Tortoise Scat	RDSEE001	3936695	431915	21-MAY-09 8:58:48AM	Possible tortoise scat, possible burro scat, 15 mm in diameter, with 10 mm long coarse fibers	2
Tortoise Scat	RDSEE002	3936940	431841	21-MAY-09 10:07:33AM	No comments	3
Tortoise Scat	RDSEE003	3935718	431969	21-MAY-09 12:11:06PM	No comments	2
Tortoise Scat	RDSEE004	3936188	431999	21-MAY-09 2:45:03PM	No comments	5
Tortoise Scat	RDSEE005	3936482	432042	21-MAY-09 3:49:10PM	no comments	5
Tortoise Scat	RDSEE006	3936635	432123	22-MAY-09 8:23:28AM	very deteriorated	5
Tortoise Scat	RDSEE007	3936339	432120	22-MAY-09 8:33:25AM	very sandy	3
Tortoise Scat	RDSEE008	3936286	432124	22-MAY-09 8:39:33AM	No comments	5
Tortoise Scat	RDSEE009	3935261	432170	22-MAY-09 9:29:11AM	No comments	2
Tortoise Scat	RDSEE010	3935315	432163	22-MAY-09 9:46:13AM	No comments	5
Tortoise Scat	RDSEE011	3935265	433552	23-MAY-09 9:39:18AM	With gloss	2
Tortoise Scat	RDSEE012	3935622	433603	23-MAY-09 10:56:25AM	1 piece, about 8 cm	2
Tortoise Scat	RDSEE013	3935512	433707	23-MAY-09 2:17:32PM	Three pieces	3
Tortoise Scat	RDSES001	3935917	431987	21-MAY-09 2:30:17PM	No comments	2
Tortoise Scat	RDSES002	3935312	432137	22-MAY-09 9:34:37AM	No comments	2
Tortoise Scat	RDSES003	3935281	433548	23-MAY-09 9:36:12AM	With gloss	2

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Tortoise Scat	RDSES004	3935573	433661	23-MAY-09 10:46:34AM	2 pieces, about 8 cm	2
Tortoise Scat	RDSES005	3935596	433622	23-MAY-09 10:53:57AM	2 pieces, about 6 cm	2
Tortoise Scat	RDSES011	3938146	433690	28-MAY-09 2:45:31PM	Tortoise scat	2
Tortoise Scat	RDSGL001	3937837	430889	24-MAY-09 12:12:07PM	Tortoise scat, 2" x 3/4", bleached (white), fairly tightly packed	4
Tortoise Scat	RDSGL002	3937806	430879	24-MAY-09 12:20:33PM	Tortoise scat, composed of grass, 1" x 2.5" long	1
Tortoise Scat	RDSGL003	3937475	430642	24-MAY-09 12:34:56PM	Tortoise scat, dark brown, no glaze, 1 1/2" x 3/4"	2
Tortoise Scat	RDSGL004	3937178	430547	24-MAY-09 1:05:48PM	Large tortoise scat, black, scaly, 1" x 4 1/2", tightly packed	4
Tortoise Scat	RDSGL005	3936918	430519	24-MAY-09 1:17:07PM	Black scaly, dry, tortoise scat, 3/4" x 1 1/2"	4
Tortoise Scat	RDSGL006	3936895	430525	24-MAY-09 1:20:44PM	Tortoise scat, 1" x 3/4", black scaly, dry	4
Tortoise Scat	RDSGL007	3936693	430543	24-MAY-09 1:30:14PM	Tortoise scat, old 1/2" x 1' long, bleached	5
Tortoise Scat	RDSGL008	3938325	430905	24-MAY-09 2:31:33PM	Tortoise scat, medium brown, tightly packed, no glaze, 2 pieces 1/2" x 1, 1 1/2" x 1/2"	2 or 3
Tortoise Scat	RDSJJ001	3933517	431957	24-MAR-09 12:52:36PM	Scat at entrance of burrow in kit fox complex (RKBJJ002)	3
Tortoise Scat	RDSJL001	3936970	431790	21-MAY-09 10:39:02AM	Possible tortoise scat, right size, coarse, comments may be on wrong lines, difficult to decipher	2
Tortoise Scat	RDSJL001A	3935825	434102	24-MAY-09 12:03:33PM	Old tortoise scat	3
Tortoise Scat	RDSJL002	3935776	431958	21-MAY-09 12:06:47PM	No comments	2
Tortoise Scat	RDSJL003	3935498	431952	21-MAY-09 12:20:50PM	4 pieces, within 30 meters	2
Tortoise Scat	RDSJL004	3936654	431997	21-MAY-09 3:12:10PM	no comments	3
Tortoise Scat	RDSJL005	3935707	432155	22-MAY-09 10:02:03AM	No comments	2
Tortoise Scat	RDSJL006	3935258	432196	22-MAY-09 12:12:24PM	No comments	2
Tortoise Scat	RDSKD001	3935759	432882	07-APR-09 1:25:45PM	Tortoise scat, 2 pieces, 10 meters apart	5
Tortoise Scat	RDSKD002	3935766	433359	15-APR-09 10:49:04AM	Two tortoise scats	3
Tortoise Scat	RDSKD003	3935746	433441	16-APR-09 9:07:46AM	Tortoise scat, freshly dried	1
Tortoise Scat	RDSKD004	3936320	433463	16-APR-09 10:46:15AM	One tortoise scat	4

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Tortoise Scat	RDSKD005	3935897	433464	16-APR-09 11:20:38AM	Tortoise scat	1
Tortoise Scat	RDSKD006	3935591	433463	16-APR-09 11:44:50AM	Scaly appearance	4
Tortoise Scat	RDSKD007	3935542	433464	16-APR-09 11:47:30AM	Two scat, freshly dried	1
Tortoise Scat	RDSKD008	3936040	433494	16-APR-09 1:39:18PM	Two pieces of tortoise scat	2
Tortoise Scat	RDSKD009	3936031	433503	16-APR-09 3:00:05PM	Tortoise scat, old	4
Tortoise Scat	RDSMG001	3935210	432722	30-MAR-09 1:25:47PM	Not near burrow	2
Tortoise Scat	RDSMG002	3936141	432247	31-MAR-09 3:50:41PM	no comments	2
Tortoise Scat	RDSMG003	3936818	432448	02-APR-09 1:14:20PM	One piece of scat in open area	3
Tortoise Scat	RDSMG004	3935948	432769	06-APR-09 12:34:20PM	Scat in the open	5
Tortoise Scat	RDSMG005	3935820	432741	06-APR-09 2:34:41PM	2 pieces of scat	2
Tortoise Scat	RDSMG006	3935816	432831	07-APR-09 10:13:43AM	One piece	3
Tortoise Scat	RDSMG007	3935525	432830	07-APR-09 10:28:18AM	No comments	5
Tortoise Scat	RDSMG008	3936023	432856	07-APR-09 11:21:37AM	Four pieces of scat, spread out	3
Tortoise Scat	RDSMG009	3936029	432921	08-APR-09 9:34:16AM	One scat	2
Tortoise Scat	RDSMG011	3936251	433128	13-APR-09 3:07:52PM	6 scat, tortoise	5
Tortoise Scat	RDSMG012	3936107	433144	14-APR-09 8:26:35AM	Tortoise scat, freshly dried	1
Tortoise Scat	RDSMG013	3936305	433158	14-APR-09 8:37:17AM	Tortoise scat, old and white	5
Tortoise Scat	RDSMG014	3936179	433283	14-APR-09 2:19:09PM	Tortoise scat	3
Tortoise Scat	RDSMG015	3935947	433310	14-APR-09 3:29:24PM	One scat	3
Tortoise Scat	RDSMG016	3935811	433309	14-APR-09 3:35:01PM	Two scat, freshly dried	1
Tortoise Scat	RDSMG017	3935897	433340	15-APR-09 8:49:47AM	Tortoise scat, 2 pieces	3
Tortoise Scat	RDSMG018	3936083	433333	15-APR-09 9:07:18AM	One scat	3
Tortoise Scat	RDSMG019	3936113	433341	15-APR-09 9:11:21AM	One scat	3
Tortoise Scat	RDSMG020	3936156	433342	15-APR-09 9:17:17AM	Two pieces of scat	3
Tortoise Scat	RDSMG021	3936420	433343	15-APR-09 9:32:14AM	One tortoise scat	3
Tortoise Scat	RDSMG022	3936300	433372	15-APR-09 10:25:45AM	One tortoise scat	3

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Tortoise Scat	RDSMG023	3936074	433373	15-APR-09 10:35:43AM	One tortoise scat	2
Tortoise Scat	RDSMG024	3935774	433372	15-APR-09 10:47:46AM	Two tortoise scats	3
Tortoise Scat	RDSMG025	3935804	433340	15-APR-09 11:39:41AM	One tortoise scat, in road (? Illegible)	?
Tortoise Scat	RDSMG026	3936169	433383	15-APR-09 12:43:53PM	One tortoise scat	3
Tortoise Scat	RDSMG027	3936176	433390	15-APR-09 12:46:51PM	Three tortoise scat	4
Tortoise Scat	RDSMG028	3936350	433390	15-APR-09 1:05:04PM	One tortoise scat	3
Tortoise Scat	RDSMG029	3936240	433410	15-APR-09 2:18:48PM	One large piece in open	5
Tortoise Scat	RDSMG030	3936124	433412	15-APR-09 2:32:51PM	Two pieces, medium size, 10 meters from burrow	3
Tortoise Scat	RDSMG031	3935691	433390	15-APR-09 3:25:21PM	Two pieces in wash, medium size	5
Tortoise Scat	RDSMG032	3935737	433448	16-APR-09 9:09:22AM	Two tortoise scats	3
Tortoise Scat	RDSMG033	3935908	433434	16-APR-09 9:17:39AM	One tortoise scat	1
Tortoise Scat	RDSMG034	3936132	433447	16-APR-09 9:24:17AM	Four tortoise scats	4
Tortoise Scat	RDSMG035	3935982	433471	16-APR-09 11:12:38AM	Tortoise scat	3
Tortoise Scat	RDSMG036	3935862	433472	16-APR-09 11:23:58AM	Tortoise scat	3
Tortoise Scat	RDSMG037	3935648	433469	16-APR-09 11:38:27AM	6 tortoise scats in 30' radius	3 to 4
Tortoise Scat	RDSMG038	3935517	433445	16-APR-09 12:12:28PM	Tortoise scat, still wet	1
Tortoise Scat	RDSMG039	3935652	433438	16-APR-09 12:23:22PM	Tortoise Scat	2
Tortoise Scat	RDSMG040	3935765	433478	17-APR-09 9:10:57AM	On dirt road	2
Tortoise Scat	RDSMG041	3936038	433517	17-APR-09 9:27:59AM	Two pieces, within 1 meter	4
Tortoise Scat	RDSMG042	3935906	433537	17-APR-09 12:38:08PM	One piece, very old	5
Tortoise Scat	RDSMG043	3935600	433531	17-APR-09 12:54:56PM	Near kit fox burrow, two pieces	2
Tortoise Scat	RDSMG044	3935620	433525	17-APR-09 1:25:27PM	Two large pieces in open	3
Tortoise Scat	RDSMG045	3935712	433526	17-APR-09 1:30:17PM	One medium sized, in middle of road	2
Tortoise Scat	RDSMG046	3936444	433510	17-APR-09 3:21:33PM	Single, large piece, fresh!	1
Tortoise Scat	RDSMG047	3935837	433591	17-APR-09 4:22:46PM	Very large, very old	5
Tortoise Scat	RDSMG048	3935666	433593	17-APR-09 4:29:43PM	Very large, fresh, next to road	1

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Tortoise Scat	RDSMG049	3935443	433590	17-APR-09 4:47:33PM	One small piece	5
Tortoise Scat	RDSMG050	3935776	429406	28-MAY-09 2:36:36PM	1 small adult scat	2
Tortoise Scat	RDSRW001	3936035	432304	01-APR-09 10:28:53AM	No comments	5
Tortoise Scat	RDSRW002	3936108	433323	15-APR-09 9:09:19AM	One scat	3
Tortoise Scat	RDSRW003	3936386	433326	15-APR-09 9:29:07AM	One tortoise scat	4
Tortoise Scat	RDSRW004	3935416	433323	15-APR-09 11:25:18AM	One tortoise scat	2
Tortoise Scat	RDSRW005	3936236	433408	15-APR-09 2:21:05PM	One small piece in open	1
Tortoise Scat	RDSRW006	3935985	433404	15-APR-09 2:38:35PM	One piece, in open, medium sized	5
Tortoise Scat	RDSRW007	3936190	433423	16-APR-09 9:27:19AM	One tortoise scat	3
Tortoise Scat	RDSRW008	3935922	433457	16-APR-09 11:18:29AM	Tortoise scat	2
Tortoise Scat	RDSRW009	3935650	433420	16-APR-09 12:22:15PM	Tortoise Scat	4
Tortoise Scat	RDSRW010	3936429	433509	17-APR-09 10:41:53AM	Still wet, approximately 40 meters from tortoise (RDLMG006)	1
Tortoise Scat	RDSRW011	3935526	433529	17-APR-09 1:14:42PM	One piece, in small wash	3
Tortoise Scat	RDSRW012	3935759	433520	17-APR-09 1:32:48PM	One piece, in open	4
Tortoise Scat	RDSRW013	3936408	433521	17-APR-09 3:25:27PM	Single piece	4
Tortoise Scat	RDSRW014	3935476	433583	17-APR-09 4:44:26PM	One large piece, very old	5
Tortoise Scat	RDSRW015	3935735	433565	17-APR-09 5:13:00PM	One large piece, very old	5
Tortoise Scat	RDSRW016	3936914	431766	21-MAY-09 10:29:57AM	No comments	3
Tortoise Scat	RDSRW017	3935514	433634	23-MAY-09 11:54:37AM	Dried, 8 cm	2
Tortoise Scat	RDSRW018	3934400	432856	24-MAY-09 11:55:41AM	One scat	2
Tortoise Scat	RDSSD001	3934857	431520	08-MAR-09 2:13:28PM	Bleached old scat, no glaze	3
Tortoise Scat	RDSSD002	3938000	431173	24-MAY-09 11:50:29AM	2 pieces of tortoise scat, bleached, loose, 1/2" x 2", 1/2" x 1.5"	4
Tortoise Scat	RDSSD003	3936886	430538	24-MAY-09 1:22:50PM	Tortoise scat, 1" x 3/4", grey, scaly, dry	4
Tortoise Scat	RDSSD004	3936557	430499	24-MAY-09 1:38:07PM	Tortoise scat, 1 1/4" x 3/4", black, scaly, dry	4
Tortoise Scat	RDSSD005	3936558	430484	24-MAY-09 1:40:20PM	tortoise scat, bleached, somewhat loose, 2 pieces, 2" x 3/4", 2" x 1/2"	4 or 5

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Tortoise Scat	RDSSD006	3938329	430929	24-MAY-09 2:33:51PM	Tortoise scat, bleached, loosely packed, 3/4" x 2"	4
Tortoise Scat	RDSSD007	3938493	431258	24-MAY-09 2:43:42PM	Tortoise scat, bleached, 1" x 3/4", loosely packed	4
Tortoise Scat (Fresh)	RDSMG010	3935774	433097	13-APR-09 1:58:48PM	Tortoise scat, freshly dried with odor	1
Tortoise Tracks	RDTES001	3935781	431897	21-MAY-09 7:47:40AM	Juvenile tortoise tracks, in sand, 70 mm wide, likely same tracks as seen 7 meters north, crossing same sandy channel to wash	
Unknown Bird Nest	RNECG001A	3935874	433865	24-MAY-09 2:24:41PM	Verdin nest, stick nest in cholla	
Unknown Bird Nest	RNEEE001	3935010	433006	25-MAY-09 10:57:10AM	Verdin nest, this year	
Unknown Bird Nest	RNEES003	3935172	433732	23-MAY-09 3:21:10PM	In rocks, nest contains tortoise carcass parts (RCDES002)	
Unknown Bird Nest	RNEES004	3934862	433839	23-MAY-09 4:16:51PM	Vacated verdin nest	
Unknown Bird Nest	RNEES005	3934989	431201	24-MAY-09 3:11:47PM	Unknown bird nest	
Unknown Bird Nest	RNEES006	3932588	434386	26-MAY-09 8:50:36	two nests in cholla, possible verdin and black throated sparrow	
Unknown Bird Nest	RNEES007	3932916	434426	26-MAY-09 9:15:03	In cholla, cup with droppings, this year	
Unknown Bird Nest	RNEES008	3932929	434435	26-MAY-09 9:18:53	In cholla, stick, deteriorated	
Unknown Bird Nest	RNEJL001	3936247	432077	22-MAY-09 7:30:30AM	Unidentifiable, open, 1 meter up shrub	
Unknown Bird Nest	RNEJL001A	3936198	433921	24-MAY-09 1:20:58PM	Old verdin?	
Unknown Bird Nest	RNEJL002	3935006	433114	22-MAY-09 2:27:43PM	No comments	
Unknown Bird Nest	RNEJL003	3935061	433436	23-MAY-09 8:09:44AM	Possible shrike, other nests in cholla	
Unknown Bird Nest	RNEJL004	3935207	433553	23-MAY-09 9:43:43AM	No comments	
Unknown Bird Nest	RNEKD001	3934478	432009	24-MAR-09 2:23:14PM	Bird nest in ground with 4 eggs	
Unknown Bird Nest	RNEKD002	3934349	432054	25-MAR-09 8:42:58AM	Unknown bird nest on ground, 4 eggs	
Unknown Bird Nest	RNEKD003	3935376	432405	02-APR-09 11:28:22AM	Nest in cholla, unknown species	
Unknown Bird Nest	RNEMG001	3935155	432127	25-MAR-09 10:42:48AM	Small nest on ground under shrub, 5 eggs	
Unknown Bird Nest	RNEMG002	3936012	432424	02-APR-09 10:44:25AM	Two nests in cholla	
Unknown Bird Nest	RNEMG003	3936485	433045	13-APR-09 11:16:18AM	Small ground nest under shrub, no eggs	
Unknown Bird Nest	RNERW001	3933506	432069	25-MAR-09 9:02:04AM	Unknown bird nest, on ground, 5 eggs	

Map Label	IDENT	Y_PROJ	X_PROJ	COMMENT	Description	Class
Unknown Bird Nest	RNERW002	3936908	432606	05-APR-09 9:57:33AM	Creosote stick nest in cholla, deteriorated	
Unknown Bird Nest	RNERW003	3936942	432626	05-APR-09 2:10:04PM	Deteriorated nest in cholla	
Unknown Bird Nest	RNERW004	3936280	432725	06-APR-09 1:50:06PM	Old stick nest in cholla	

ATTACHMENT 5

WILDLIFE SPECIES DETECTED WITHIN THE BIOLOGICAL RESOURCES SURVEY AREA

ATTACHMENT 5
Wildlife Species Detected within the Biological Resources Survey Area

	Scientific Name	Common Name
INVERTEBRATES		
Order Hymenoptera		Ants, Bees, Wasps and Sawflies
	Family Formicidae	
	Subfamily Myrmicinae	
	Pogonomyrmex spp.	harvester ants
Order Isoptera		Subterranean termites
Order Lepidoptera		Insects and Butterflies
	Family Nymphalidae	
	Vanessa cardui	painted lady
	Vanessa virginiensis	Virginia lady
REPTILES		
Order Squamata		Lizards and Snakes
	Family Crotaphytidae	
	Gambelia wislizenii	long-nosed leopard lizard
	Family Iguanidae	
	Dipsosaurus dorsalis	desert iguana
	Sauromalus ater	Chuckwalla (found scat)
	Family Phrynosomatidae	
	Uta stansburiana	side-blotched lizard
	Callisaurus draconoides	zebra-tailed lizard
	Phrynosoma platyrhinos	desert horned lizard
	Family Teiidae	
	Cnemidophorus tigris	western whiptail
	Family Colubridae	
	Trimorphodon biscutatus	western lyre snake
	Pituophis catenifer	gopher snake
	Masticophis flagellum	coachwhip
	Family Viperidae	
	Crotalus scutulatus	Mojave rattlesnake
Order Testundines		Turtles
	Family Testudinidae	
	Gopherus agassizii[1 2]	desert tortoise
BIRDS		
Order Ciconiiformes		Herons, Storks, Ibises, and Relatives
	Cathartes aura	turkey vulture
Order Falconiformes		Diurnal Birds of Prey
	Family Accipitridae	
	Buteo jamaicensis	red-tailed hawk
Order Galliformes		Pheasants, Grouse, Quail and Relatives
	Family Odontophoridae	
	Callipepla gambelii	Gambel's quail
Order Columbiformes		Pigeons and Doves
	Family Columbidae	
	Zenaida macroura	mourning dove
Order Caprimulgiformes		Goatsuckers and Relatives
	Family Caprimulgidae	
	Chordeiles acutipennis	lesser nighthawk
Order Charadriiformes		Shorebirds, Gulls and Relatives
	Family Charadriidae	
	Charadrius vociferus	killdeer

	Scientific Name	Common Name
Order Strigiformes		Owls
	Family Strigidae	
	*Athene cunicularia hypugaea**	western burrowing owl
Order Passeriformes		Song birds
	Family Corvidae	
	Corvus corax	common raven
	Family Laniidae	
	*Lanus ludovicianus**	loggerhead shrike
	Family Alaudidae	
	Eremophila alpestris	horned lark
	Family Remizidae	
	Auriparus flaviceps	verdin
	Family Troglodytidae	
	Salpinctes obsoletus	rock wren
	Family Mimidae	
	Mimus polyglottos	northern mockingbird
	Toxostoma lecontei	Le Conte's thrasher
	Family Parulidae	
	Wilsonia pusilla	Wilson's warbler
	Family Thraupidae	
	Piranga ludoviciana	western tanager
	Family Emberizidae	
	Amphispiza bilineata	black-throated sparrow
	Amphispiza belli	sage sparrow
MAMMALS		
Order Lagomorpha		Rabbits, Hares, and Pikas
	Family Leporidae	
	Sylvilagus audubonii	desert cottontail
	Lepus californica	black-tailed jackrabbit
Order Rodentia		Rodents
	Family Heteromyidae	
	Dipodomys spp.	unidentified kangaroo rat
	Family Scuiridae	
	Ammospermophilus leucurcus	White-tailed antelope ground squirrel
Order Carnivora		Carnivores
	Family Canidae	
	Vulpes macroti arsipus[4]	desert kit fox
	Canis latrans	coyote
	Family Mustelidae	
	*Taxidea taxus**	American badger
	Family Felidae	
	Lynx rufus	bobcat
Order Perissodactyla		Horses, Tapirs and Relatives
	Family Equidae	
	Equus asinus	feral ass

[1]Federally threatened or endangered species
[2]State threatened or endangered species
[3]State fully protected species
[4]State Code of Regulations protected fur-bearing mammal
*State species of special concern

ATTACHMENT K

BURROWING OWL TECHNICAL REPORT

RIDGECREST SOLAR POWER PROJECT
WESTERN BURROWING OWL
TECHNICAL REPORT

Prepared for:

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I. SUMMARY

Solar Millennium, LLC (Solar Millennium) proposes to develop the 250-megawatt (MW) Ridgecrest Solar Power Project (RSPP or Project) that would be located in northeastern Kern County approximately 5 miles southwest of the City of Ridgecrest, California (Figure 1 [All figures referred to herein are included in Attachment 1]). The primary solar energy facilities and associated construction and operations footprint are located within an approximate 1,440-acre facility footprint (Figure 2).

EDAW AECOM (EDAW) was contracted by Solar Millennium to perform environmental services in support of preparation of an Application for Certification (AFC), which is required by the California Energy Commission (CEC) for power-generating plants that produce greater than 50 MW of energy. As a component of environmental services, protocol surveys for western burrowing owl (*Athene cunicularia*), which is designated as a species of special concern by the California Department of Fish and Game (CDFG), were conducted to determine presence/absence, distribution and abundance, and breeding status of the species on the Project site.

The purpose of this technical report is to summarize the methods and results of the 2009 western burrowing owl survey, and support the biological resources analysis in the AFC. Seven active owl burrows were located in three separate regions of the site, including five main or nest burrows and two satellite burrows. A minimum of eight burrowing owls were detected, including at least two nesting pairs with juveniles.

II. INTRODUCTION

A. Description of Project

Solar Millennium, LLC (the Applicant) is proposing to construct a commercial solar thermal electric power generating project, herein referred to as the Ridgecrest Solar Power Project (RSPP or Project). The RSPP would be located in the high northern Mojave Desert in northeastern Kern County, California, approximately 5 miles southwest of the city of Ridgecrest, California. The Project would be located on a 3,920-acre right-of-way (ROW) owned by the Federal government and leased by the Applicant from the Bureau of Land Management (BLM). The Project facilities would occupy approximately 1,440 acres of the ROW (referred to as the facility footprint). In addition to solar fields and a main power generating facility (power block), the site would

include a main office building and parking lot, a main warehouse with laydown area, onsite access roads, a tie-in switchyard, and a bioremediation area.

The Project would have a nominal output of 250 MW. The Project would use solar parabolic trough technology to generate electricity. With this technology, arrays of parabolic mirrors collect heat energy from the sun and refocus the radiation on to a receiver tube located at the focal point of the parabola. A heat transfer fluid (HTF) is heated to high temperature (750° F) as it circulates through the receiver tubes. The heated HTF is then piped through a series of heat exchangers where it releases its stored heat to generate high pressure steam. The steam is then fed to a traditional steam turbine generator where electricity is produced.

The Project would include two solar fields, each occupying roughly 700 acres and comprised of piping loops arranged in parallel groups connected to supply and return header piping. The power block would be located south of Brown Road, just north of the southern solar field. The power block would be comprised of its own administration, control, warehouse, maintenance, and lab buildings; an HTF pumping and freeze protection system; steam generator; propane-fired auxiliary boiler; one steam turbine generator; an air-cooled condenser (ACC); generator step-up transformer, transmission lines and related electrical system; and auxiliary equipment (i.e., water treatment system, diesel-powered emergency generator, and firewater system). A new 12-inch diameter, approximately 5-mile long water pipeline would be installed within the Brown Road and China Lake Boulevard ROWs to connect the Project with the Indian Wells Valley Water District (IWVWD) supply. A new 230 kV transmission line from the turbine generator to a new nearby switchyard would interconnect with Southern California Edison's (SCE) existing 230 kV Inyokern/Kramer Junction transmission line passing west of the Project site. The transmission line would be approximately 0.5 mile long and located within the facility footprint.

Access to the site would be provided by a new 700-foot long, 24-foot wide paved access road from Brown Road, located approximately 2.25 miles west of the intersection of Brown Road with U.S. Highway 395. Only a small portion of the overall facility footprint would be paved, primarily the site access road, the service road to the power block, and portions of the power block. The remaining portions of the power block would be gravel surfaced. The area of the power block would be approximately 18 acres, with approximately 6 acres of paved area. The solar field would remain unpaved and without a gravel surface to prevent rock damage from mirror wash vehicle traffic. A dust suppression coating would be used on the dirt roadways within and around the solar field. The Project solar field and support facilities perimeter would be secured with chain link metal-fabric security fencing. Along the north and south sides of the facility, the fence would be 8 feet tall, with 1-foot barbed wire or razor wire on top. Thirty-foot-

tall wind fencing, comprised of A-frames and wire mesh, would be installed along the east and west sides of each solar field. Controlled access gates would be located at the site entrance.

Following completion of spring 2009 surveys, several changes were made to the disturbance area limits. First, a conceptual footprint of a possible water line was identified (Figure 2). The final Project water line route has not yet been selected. The possible water line route would be approximately five miles long outside the current disturbance area. The possible water line footprint has not yet been surveyed and, therefore, is not discussed in this report. Surveys for the possible water line will be conducted following selection of the final water line route (anticipated spring 2010).

In addition, several portions of the previous disturbance area, totaling approximately 288 acres, are no longer a part of the proposed Project and have been removed from the current disturbance area (Figure 2). However, because these 288 acres were included in the spring 2009 surveys, in the interest of contributing to the body of scientific information, survey results for these areas are included in this document. Also, as a result of the changes to the proposed disturbance area, approximately 15 acres have not yet been surveyed. Surveys for the additional 15 acres will be completed following final Project design (anticipated spring 2010).

Project construction is scheduled to begin in late 2010 and continue into 2013.

B. Project Location and Setting

The proposed RSPP site is located approximately 5 miles southwest of Ridgecrest in northeastern Kern County, California. The site is comprised of a large, contiguous area consisting of approximately 3,920 acres (BLM right-of-way) of Federal land administered by BLM. The site is located on Federal BLM land that is entirely within the West Mojave Plan (BLM 2005) area, and is designated as BLM Multiple Use Class L (Limited Use) and BLM unclassified land. The El Paso Mountains Wilderness Area is located to the southwest of the RSPP site. U.S. Highway 395 borders the site to the northwest. The China Lake Naval Air Weapons Station occurs approximately 6 miles to the north and more than 15 miles to the east.

The RSPP site is located on an alluvial fan that slopes northward from the El Paso Mountains in the southwest; it consists primarily of undeveloped open space. Topography in the RSPP site is generally flat, with elevations ranging from approximately 2,580 feet in the north to approximately 2,800 feet in the south. The most notable topographic features include an ephemeral drainage passing from southeast to northwest, and a series of rock outcrops located in

the eastern portion of the site near the intersection of Brown Road and U.S. Highway 395. The site is dominated by Mojave creosote bush scrub, and also includes Mojave Desert wash scrub, unvegetated ephemeral dry wash, and developed land.

C. Purpose of Survey

The purpose of the western burrowing owl survey was to 1) determine the presence or absence, distribution and abundance, and breeding status of the species on the Project site during the 2009 survey period; and 2) support preparation of the biological resources analysis in the Project AFC, which includes quantifying potential impacts on burrowing owl and identifying appropriate avoidance, minimization, and mitigation measures, if needed.

III. BACKGROUND INFORMATION

A. Regulatory Status

Western burrowing owl is designated as a species of special concern (Priority 2 Bird Species of Special Concern) by CDFG due to rapid habitat loss and degradation from urbanization; it is also designated as sensitive by BLM.

B. Habitat Associations

Western burrowing owl habitat consists of annual and perennial grasslands, deserts, and scrublands characterized by low-growing vegetation (Zarn 1974; California Burrowing Owl Consortium [CBOC] 1993; Haug et al. 1993). Suitable owl habitat may also include trees and shrubs if the canopy covers less than 30 percent of the ground surface (DeSante et al. 1996). Burrows are the essential component of burrowing owl habitat, and both natural and artificial burrows provide protection, shelter, and nests for burrowing owls. Burrowing owls typically use burrows made by mammals, such as ground squirrels, kit foxes, or badgers, but also may use human-made structures, such as cement culverts, cement asphalt or wood debris piles, or openings beneath cement or asphalt pavement (Collins and Landry 1977; Trulio 1994). Where the ranges of burrowing owl and desert tortoise (*Gopherus agassizii*) overlap, burrowing owls also use tortoise burrows.

C. Population Status

Burrowing owls in California are generally nonmigratory and are most abundant in the Central and Imperial Valleys, primarily in agricultural areas (Center for Biological Diversity et al. 2003). Small, scattered populations occur in the Mojave Desert. Although the burrowing owl population in the California desert region is primarily resident (i.e., present year-round), some migration from northern populations to this area occurs during winter (Center for Biological Diversity et al. 2003 citing Garrett and Dunn 1981). Seasonal nonmigration movements and shifts in burrow use by juveniles and adults within a region can also occur. Population density seems to be correlated with prey availability, particularly small mammals (Klute et al. 2003).

The West Mojave Plan documents 53 records of burrowing owl in the west Mojave Desert (Campbell 2004), only five of which are confirmed or probable breeding pairs. The California Natural Diversity Database (CNDDB; CDFG 2009) reports 136 occurrences of western burrowing owl in Kern County, primarily concentrated in the western portions of the County. Three burrowing owl occurrences located within 10 miles of the RSPP site are reported in the CNDDB: 1) near Indian Wells, approximately 10 miles northwest of the project site and 1 mile west of the intersection of Highway 14 and Highway 178 (observed in 1977); 2) approximately 3 miles northwest of the site and 1.4 miles southwest of the intersection of Brown Road and Bowman Road (observed in 2006); and 3) near Ridgecrest, approximately 4 miles northeast of the project site and 0.2 mile southwest of the intersection of South China Lake Boulevard and Bowman Road. The next closest CNDDB records of the western burrowing owl to the RSPP site are approximately 30 miles to the west in Kern County and 30 miles to the east in San Bernardino County.

Several other sources report burrowing owl occurrences in the Ridgecrest area. CDFG's CESA-listing petition evaluation for western burrowing owl (CDFG 2003) indicated that burrowing owls were observed on a "fairly regular basis" in desert habitats around Ridgecrest, but did not specify locations or dates. Burrowing owl occurrences have also been reported from the Western Rand Mountains Area of Critical Environmental Concern (ACEC) (BLM 2005), approximately 13 miles south of the site; the Desert Tortoise Natural Area (Center for Biological Diversity et al. 2003), approximately 17 miles southwest of the site; and within and adjacent to Edwards Air Force Base (Center for Biological Diversity et al. 2003; Campbell 2004), approximately 40 miles south of the site.

IV. SURVEY METHODOLOGY

Burrowing owl surveys were performed according to the protocol established by the California Burrowing Owl Consortium (CBOC 1993) and accepted by CDFG. CBOC requires that the disturbance area, as well as a 492-foot buffer surrounding the disturbance area, be surveyed according to CBOC protocol. Additionally, CEC requires a habitat evaluation within a 1-mile buffer surrounding the disturbance area. CBOC protocol involves three phases of surveys: Phase I is a habitat assessment to determine if suitable habitat for burrowing owl exists on site; Phase II involves mapping all potential burrowing owl burrows; Phase III involves four repeat presence/absence focused surveys during the breeding season (if there are no detections, surveys are required during the wintering season as well).

On February 14, 2009, Project biologists Arthur Davenport, Shelly Dayman, Charles German, Katie Hall, Gregg Lukasek, and Milo Rivera assessed the proposed project site for burrowing owl habitat (Phase I of CBOC protocol). A burrow survey (Phase II of CBOC protocol) was conducted in conjunction with focused surveys for desert tortoise from March through May 2009, during which the entire disturbance area was surveyed by walking linear transects spaced 32.8 feet apart. Additional Phase II burrow surveys were conducted within the 492-foot buffer by surveying along line transects spaced at 98-foot intervals. Two additional CEC-recommended transects within the 1-mile buffer were also surveyed for suitable burrowing owl burrows in conjunction with desert tortoise protocol surveys. These transects were located at 3,960-foot (3/4-mile) and 5,280-foot (1-mile) intervals from and parallel to the edge of the disturbance area. Phase II burrow surveys were conducted by surveyors walking slowly and systematically along transects and, when visibility was limited, between transects, while visually searching for burrowing owls, their sign, and potentially suitable burrows. All burrowing owl observations, sign, and potentially suitable burrows (regardless of sign presence) were mapped using Global Positioning System (GPS) units and recorded on datasheets. Phase II burrow data also included the type of burrow, if known (e.g., kit fox [*Vulpes macrotis*], desert tortoise), a GPS identity code, and the type of burrowing owl sign observed.

Project biologists Wendy Broadhead, Andy Hatch, Steve Henderson, Julie Roth, and Heather Valentine conducted Phase III surveys (burrowing owl presence/absence surveys, census, and mapping) during the peak breeding season (April 15 through July 15, as defined in CBOC protocol). Phase III surveys were initiated on April 16, 2009, and were completed on June 15, 2009. Phase III surveys consisted of a minimum of four site visits completed on separate days. During the initial Phase III site visit, all burrows mapped during the Phase II survey were carefully examined for burrowing owl sign. The disturbance area and 492-foot buffer were

surveyed three additional times during the breeding season to determine burrowing owl presence, focusing on burrows and burrow complexes with burrowing owl sign. Where possible, biologists scanned for owls using binoculars or spotting scopes at a distance from burrows. However, due to the terrain and long distance of most burrows from roads or other fixed observation locations, surveyors typically approached the burrows on foot, carefully verifying the presence or absence of burrowing owls on their approach. All Phase III survey data were recorded on data forms (Attachment 2). Data recorded included survey visit number, weather conditions (i.e., temperature, wind, precipitation, cloud cover), dimensions and characteristics of all burrows surveyed (i.e., height, width, estimated depth, single burrow or complex), presence or absence of owl sign (e.g., feathers, prey remains, pellets, whitewash, etc.), burrow occupancy status (active, inactive), notes on any burrowing owl detections (e.g., abundance, age, sex, behavior), and other wildlife species observed.

All burrowing owl observations and old or fresh burrowing owl sign were recorded on datasheets and mapped with GPS units. Old sign primarily included pellets that were bleached, desiccated, or disintegrated; and whitewash remnants that were sparse and partially eroded. In several cases, whether old whitewash remnants were from burrowing owls or other bird species was unknown; those signs were recorded as potential burrowing owl sign.

As discussed in "Description of Project," changes to the proposed disturbance area were made after the 2009 burrowing owl surveys were completed. In this report, "survey area" refers to the area where CBOC protocol surveys were completed before the proposed disturbance area changed.

Survey Limitations

As a result of changes that were made to the proposed Project after the 2009 burrowing owl surveys were completed, approximately 15 acres of the current disturbance area have not been surveyed according to the CBOC protocol. Surveys for the additional 15 acres will be completed following final Project design (anticipated spring 2010). Also, the possible water line footprint has not yet been surveyed. Surveys for the possible water line will be conducted following selection of the final water line route (anticipated spring 2010).

Protocol surveys for western burrowing owl were conducted in the previous disturbance area and 492-foot buffer during the 2009 breeding season only. Although the presence of nesting burrowing owl pairs has been confirmed (see Results), and the specific burrows used during the 2009 breeding season were identified, owl abundance and patterns of use in the disturbance area

during the non-breeding season cannot be determined from these survey results. The results of the 2009 protocol survey (see Results) suggest considerable variability in burrowing owl use and abundance on the RSPP site between years and possibly seasons. Also, as recommended in the CBOC protocol and by CDFG, Phase III surveys were initiated in mid-April. However, burrowing owl breeding can be initiated as early as February, particularly in desert populations. Therefore, burrowing owl nesting attempts could have been initiated in 2009 before Phase III surveys were initiated and not detected.

V. RESULTS

Nearly all of the Mojave creosote bush scrub, Mojave Desert wash scrub, and unvegetated ephemeral dry wash communities on the RSPP site are considered suitable burrowing owl foraging and nesting habitat. Areas within these communities that do not provide suitable nesting conditions for burrowing owl are a large volcanic outcrop on the western edge and large granite boulder outcrops in the central-eastern portion of the site. However, evidence of burrowing owl perching (e.g., pellets, whitewash) on rocks along the eastern edges of the granite outcrops was observed during surveys. Numerous burrows potentially suitable for use by burrowing owls (272 burrows) were detected and mapped throughout the survey area. Potentially suitable burrows consisted of abandoned kit fox burrows, desert tortoise burrows, and burrows of other unidentified fossorial mammals. Numerous small mammal burrows and a relatively abundant arthropod population were noted during surveys, indicating that a prey base for burrowing owl is also present.

Figure 3 displays the locations of burrowing owls observed, active burrows (i.e., occupied by burrowing owl), and other locations where sign was observed during surveys. During Phase II and Phase III of the CBOC protocol surveys, seven active burrows were located in three separate regions of the survey area, including five main or nest burrows and two satellite burrows; all of these except one main burrow are located in the current disturbance area. A minimum of eight burrowing owls were detected, including at least two nesting pairs with juveniles. The following summarizes the burrowing owl occupancy and abundance documented for these three areas of the survey area.

1. At the eastern edge of the disturbance area north of Brown Road, three main or nest burrows were located within 500 feet of each other (burrows A, B, and C on Figure 3). A pair of owls was observed at each of burrows A, B, and C; fledged juveniles were also observed at burrow B. However, the total number of pairs in this area is uncertain because pairs were never observed at these burrows simultaneously. At burrow A, one

adult owl was observed first on April 29, 2009, and regularly throughout the remaining survey period, and a pair was observed there on June 12. At burrow B, a pair was observed and flushed on June 12. On June 14, four burrowing owls, including at least two fledglings, flushed from burrow B and flew toward satellite burrows to the west (see Figure 3). During this event, at least one adult burrowing owl was observed and remained at burrow A; it did not appear to be associated with the group at burrow B. At burrow C, a pair was flushed on May 23 during desert tortoise and Phase II burrowing owl surveys. Although owls were not observed at burrow C later during Phase III surveys, abundant burrowing owl sign and a well-maintained burrow entrance indicate concentrated and regular use by owls. It is likely that at least two pairs occupied this area during the survey period, with one pair confirmed to nest successfully and fledge at least two juveniles at burrow B.

2. In the central portion of the disturbance area south of Brown Road, one burrowing owl was first documented at burrow D (Figure 3) during Phase II surveys on March 24, 2009, and observed again on April 17 and 18 during Phase III surveys. This location is a burrow complex composed of six burrow entrances. No burrowing owls were found at burrow D during follow-up surveys conducted on April 30, May 12, May 14, May 15, June 12, and June 14; and, on June 12, a kit fox family was observed occupying this complex. The kit foxes appeared to be the same family of two adults and four pups that occupied a burrow complex approximately 500 feet south of burrow D as recently as May 14. On June 14, burrow D was inspected to document its condition and search for any burrowing owl sign or remains. The entrances had been excavated by the kit foxes and burrowing owl feathers were observed within and outside one entrance.

3. In the northwest corner of the survey area, a burrowing owl pair and at least one juvenile were located at burrow E, approximately 175 feet outside the previous 492-foot CBOC survey buffer and 675 feet beyond the previous disturbance area; this location is approximately 1,200 feet beyond the current disturbance area. The pair was first observed in this area on June 13, 2009. On June 14, the nest burrow (burrow E, Figure 3) was located and mapped. The female flushed from the burrow while the male was perching on a creosote shrub nearby. Although juvenile burrowing owls were not observed, at least one owl was heard inside the burrow while both adults were away.

A total of 78 burrows with various levels of burrowing owl sign (29 percent of the 272 suitable burrows) were detected during the Phase II and Phase III surveys (Figure 3), including the seven active burrows; 55 of these occur in the current disturbance area. Sign observed at the 71 inactive

burrows (i.e., burrows not occupied by burrowing owl during the surveys) was old and consisted primarily of pellets that were bleached, desiccated, and disintegrated; or whitewash remnants that were partially eroded. Of these 71 inactive burrows, 15 had relatively abundant old sign and evidence of past regular use (e.g., multiple pellets and whitewash spots) (Figure 3); sign at the other 56 burrows was sparse and did not indicate regular use in recent years (e.g., one degraded pellet, single spot of whitewash, etc.).

The number of inactive burrows with burrowing owl sign, particularly those with abundant old sign, suggests that other areas of the disturbance area may have been used previously by burrowing owls for breeding. Also, western burrowing owls may use a range of different satellite burrows irregularly during the breeding and non-breeding seasons. Many of the suitable burrows appeared to have sign from previous seasons, which may indicate that the 78 burrows with sign represent multiple years of burrowing owl use across the RSPP site. The length of time that burrowing owl sign can remain visible on the landscape is not known and is expected to vary with local precipitation, wind patterns, soil moisture, and other abiotic and biotic factors. Due to the generally dry conditions at the site, burrowing owl sign may persist for multiple seasons. Many of these burrows also had relatively small amounts of burrowing owl sign, indicating that either 1) owls only used them for a brief period before vacating, or 2) previous use was more extended or regular but much of the original sign has disappeared. If the small amount of sign at those burrows is a function of only temporary or infrequent use by burrowing owls, the RSPP site may be used more during migration or other seasonal movements, or during winter. A low nesting density of western burrowing owl on the RSPP site is consistent with the documented general abundance of burrowing owls in the surrounding region.

Based on observations made during the burrowing owl surveys, the distribution and local abundance of burrowing owl and other fossorial vertebrate species on the RSPP site appear dynamic. Turnover in burrow use and shifts in the distribution of suitable and occupied owl burrows on the site are expected to be frequent. Also, interspecific competition for burrows and predation on owls within burrows probably occur and affect local abundance and distribution. Fossorial mammals and reptiles that create and abandon burrows suitable for burrowing owls are abundant, and levels of ongoing burrow creation appear high (e.g., several new or recently excavated burrows were observed). Conversely, mammalian predators (kit foxes and coyotes) that displace or potentially kill burrowing owls and other fossorial species are well-distributed, shift their den locations on the site, and alter the physical structure and suitability of burrows. For example, several burrow complexes on the site showed a temporal progression of use by different animal species, based on the presence of desert tortoise, burrowing owl, kit fox, and

coyote sign at the same complex. Also, burrow E (Figure 3) was occupied by burrowing owls in April 2009 but later occupied by a kit fox family that relocated from a nearby complex.

Table 1 includes a list of wildlife species detected during the Phase III protocol surveys. In addition to western burrowing owl, six other special status wildlife species were detected: desert tortoise, a federally and State-threatened species; loggerhead shrike (*Lanius ludovicianus*), vaux's swift (*Chaetura vauxi*), yellow warbler (*Dendroica petechia*), and yellow-headed blackbird (*Xanthocephalus xanthocephalus*), which are designated as species of special concern by CDFG; and desert kit fox (*V. m. arsipus*), which is a State-protected furbearing mammal (California Code of Regulations). However, three of these species—yellow warbler, yellow-headed blackbird, and Vaux's swift—were migrating individuals and not expected to occur regularly on the RSPP site.

Table 1
Wildlife Species Detected During Phase III Burrowing Owl Surveys

Common Name	Scientific Name
Reptiles	
Desert tortoise	*Gopherus agassizii*
Western whiptail	*Aspidoscelis tigris*
Desert horned lizard	*Phrynosoma platyrhinos*
Desert iguana	*Dipsosaurus dorsalis*
Western fence lizard	*Sceloporus occidentalis*
Zebra-tailed lizard	*Callisaurus draconoides*
Common side-blotched lizard	*Uta stansburiana*
Sagebrush lizard	*Sceloporus graciosus*
Gopher snake	*Pituophis catenifer*
Common kingsnake	*Lampropeltis getula*
Long-nosed snake	*Rhinocheilus lecontei*
Mojave rattlesnake	*Crotalus scutulatus*
Sidewinder	*Crotalus cerastes*
Birds	
Barn owl	*Tyto alba*
Black-throated Sparrow	*Amphispiza bilineata*
Blue-gray gnatcatcher	*Polioptila caerulea*
Brewer's sparrow	*Spizella breweri*
Western burrowing owl	*Athena cunicularia*
Cactus wren (old nests)	*Campylorhynchus brunneicapillus*
Chipping sparrow	*Spizella passerina*
Common raven	*Corvus corax*
Horned lark	*Eremophila alpestris*

Common Name	Scientific Name
House finch	*Carpodacus mexicanus*
Western kingbird	*Tyrannus verticalis*
Lark sparrow	*Chondestes grammacus*
Lesser nighthawk	*Chordeiles acutipennis*
Loggerhead shrike	*Lanius ludovicianus*
Mourning dove	*Zenaida macroura*
Red-tailed hawk	*Buteo jamaicensis*
Rock wren	*Salpinctes obsoletus*
Sage sparrow	*Amphispiza belli*
Townsend's warbler	*Dendroica townsendi*
Turkey vulture	*Cathartes aura*
Vaux's swift	*Chaetura vauxi*
Verdin	*Auriparus flaviceps*
Western tanager	*Piranga ludoviciana*
White-crowned sparrow	*Zonotrichia leucophrys*
Wilsons warbler	*Wilsonia pusilla*
Yellow Warbler	*Dendroica petechia*
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*
Mammals	
Coyote	*Canis latrans*
Desert kit fox	*Vulpes macrotis arsipus*
Coyote	*Canis latrans*
Kangaroo rat	*Dipodomys* spp.
Pocket mouse	*Perognathus* spp.
Black-tailed jack rabbit	*Lepus californicus*
White-tailed antelope squirrel	*Ammospermophilus leucurus*
Desert cottontail	*Sylvilagus audubonii*
Woodrat (sign)	*Neotoma* spp.

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ATTACHMENT 1

FIGURES

Map Location

1 inch = 40 miles

0 40 80 Miles

Ridgecrest Solar Power Project Western Burrowing Owl Technical Report

Figure 1 Regional Map

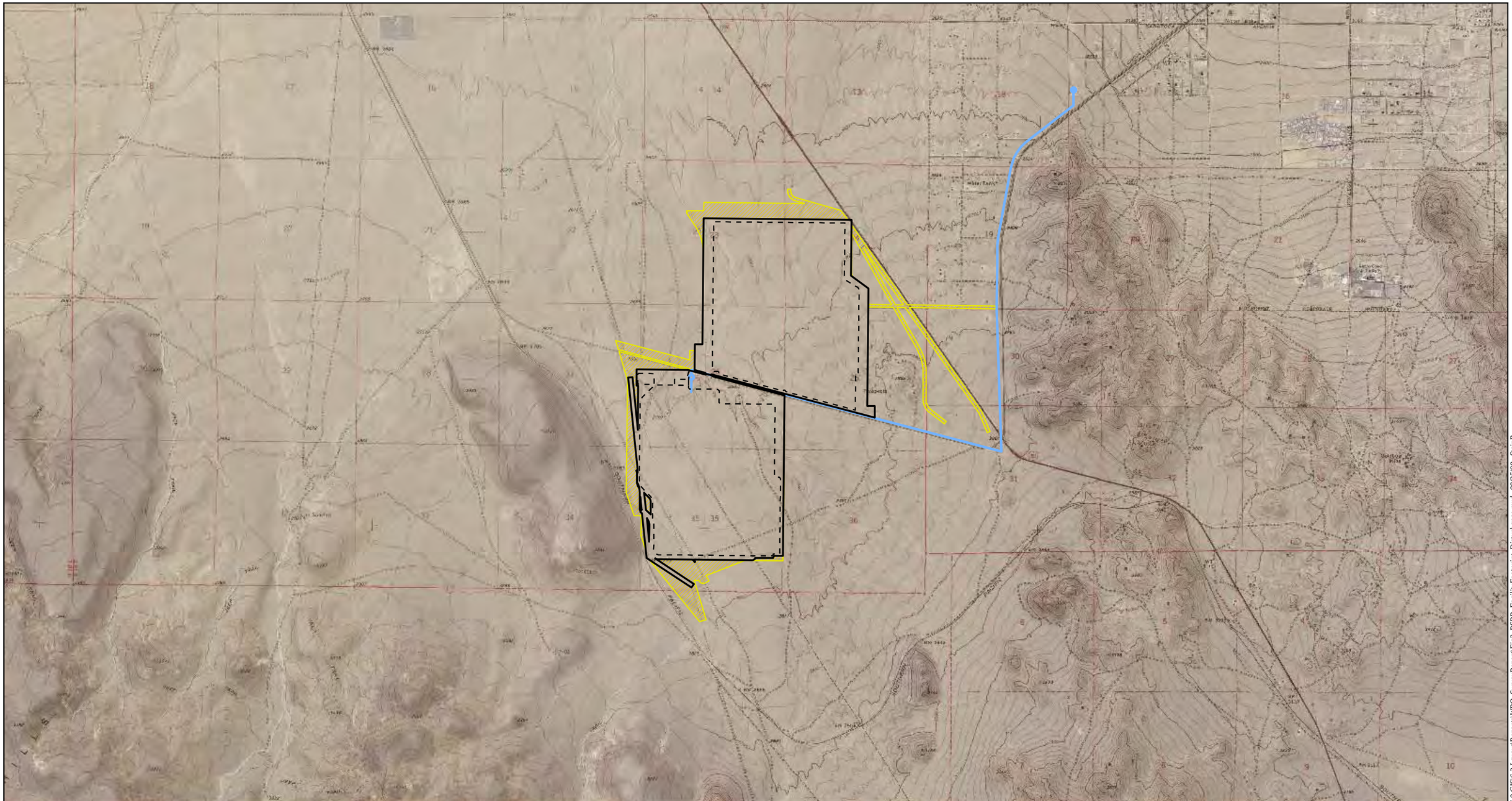
Source: ESRI; AECOM 2009

Solar Millennium

AECOM

Date: September 2009

Path: P:\2009\09080080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Reports\WBO_SurveyReport\Fig1_RSPP_RegionalLocation.mxd, 08/11/09, ShahS2



Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Disturbance Area (Surveyed - No Longer Proposed)

Source: USGS; NAIP 2005; AECOM 2009

N
W E
S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Western Burrowing Owl
Technical Report

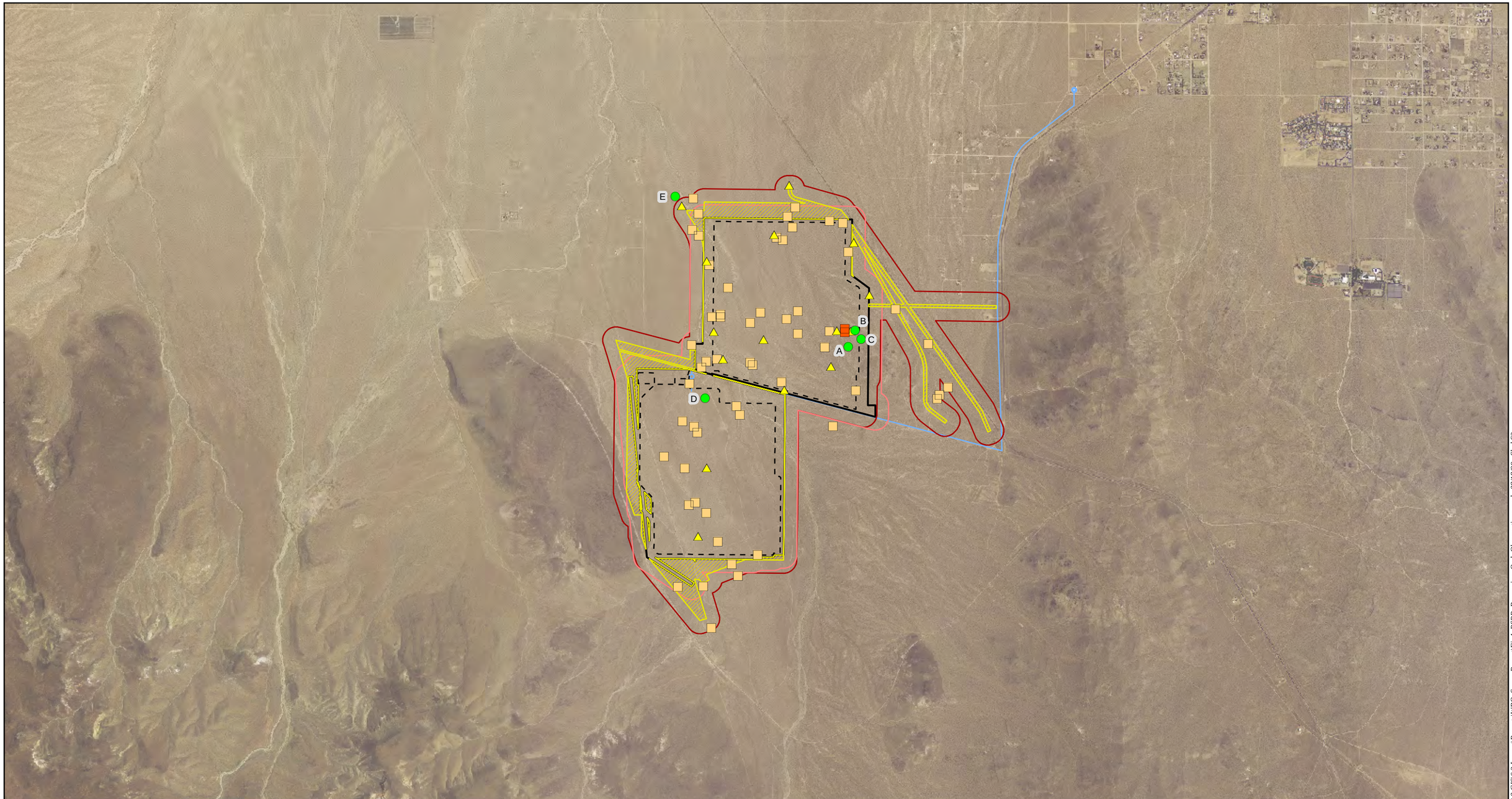
Figure 2
Facility Footprint and Disturbance Area

Solar Millennium

AECOM

Date: September 2009

Path: P:\2009\09080080\Sol Mil Ridgecrest\6.0 GIS\6.3 LayoutReports\WBO_SurveyReport\Fig2_RSPP_FacilityFootprint_Disturbance.mxd, 08/25/09, SteinB



Map Location

Legend

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Disturbance Area (Surveyed - No Longer Proposed)

Burrowing Owl Survey Buffer

- Previous CBOC 492-foot
- CBOC 492-foot

Burrowing Owl Observations

- Active Burrow (Main) (A, B, C, D, E)
- Active Burrow (Satellite)
- Burrow with Abundant Sign
- Burrow with Sign

Source: NAIP 2005; AECOM 2009; EDAW 2009

N W E S

1 inch = 3,500 feet

0 3,500 7,000 Feet

Ridgecrest Solar Power Project
Western Burrowing Owl
Technical Report

Figure 3
Burrowing Owl Observations

Solar Millennium

AECOM

Date: September 2009

Path: P:\2009\09080080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Reports\WBO_SurveyReport\Fig4_RSPP_Burrowing_Owl_Observations.mxd, 08/18/09, ShahS2

ATTACHMENT 2

WESTERN BURROWING OWL SURVEY DATA FORM

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: _____ Date: _____

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start					
End					

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)

***IDENT Code:** the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y** = **Yes**, multiple burrows forming a complex are represented by this IDENT Code**; N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O-**Owl**, W-**Whitewash**, P-**Pellets**, T-** BUOW Tracks**, B-** Bones (from degraded pellets)**, F-**Feathers**, Pr-**prey remains**, Ef-**Eggshell fragments**, St-**Sticks**, NONE-**no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign)**, PA = Potentially Active** (evidence of previous, but not recent, use; old sign)**, IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date):*_____ ***Approved by team leader (initials, date):_____

Project: SM Site:_____ Date: _____ Surveyor: _____ GPS Unit: _____

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Comments/Notes:

Reviewed by surveyor (initials, date):_____ Approved by team leader (initials, date):_____

Beaufort Wind Scale (http://www.geography-site.co.uk/pages/physical/climate/beaufort.html)

Beaufort Number	Wind Speed (mph)	Indicator
1	0-3	Smoke rises vertically to slight ripples; essentially no wind
2	4 to 7	Leaves rustle, wind felt on face and wind vanes moved by wind
3	8 to 12	Leaves and small twigs in constant motion. Wind can extend a lightweight flag.
4	13 to 18	Moves small branches and will raise dust and loose paper.
5	19 to 24	Small trees in leaf will begin to sway
6	25 to 31	Whistling can be heard in phone wires. Large branches are in motion. Umbrellas used with difficulty.
7	32 to 38	Whole trees in motion. Inconvenience felt when walking against the wind.

For GPS Entry and Field Mapping of Burrowing Owl and other Sensitive Resources

1. Place a dot on the map in the general vicinity of the observation of burrowing owls, unmapped (new) potential burrows, sign, and other special-status species.
2. Use the following IDENT CODE nomenclature to record the detection on your data sheet, GPS, and field map.

Example ---"**PBBSH001**" where P=Palen (Site Identifier), BB=burrowing owl burrow (Detection Type), SH=Steve Henderson (Surveyor Identifier), 001=Observation #.

Site Identifier: Palen=P; Blythe=B; Ridgecrest=R

Detection Type Codes:

Burrowing Owl	**Desert Tortoise**	**Other Bird Species**	**Mammals**
BL=live burrowing owl	DL= live desert tortoise	WK=White-tailed kite, KN=nest	KB=Kit fox burrow
BB=confirmed BUOW burrow	DB=burrow	CO=Cooper's hawk, ON=nest	GL=American badger live
BF=feather	DS=scat	SW=Swainson's hawk, SN=nest	GB=American badger burrow
BP=pellets	DC=carcass	FE=Ferruginous hawk, FN=nest	ML=Mojave ground squirrel live
BO=other (describe)	DT=tracks	GE=Golden eagle, EN=nest	SL=Bighorn sheep live
	DP=desert tortoise pallet	LS=Loggerhead shrike, LN=nest	SC=Bighorn sheep carcass
	DO=other (describe)	LT=Le Conte's thrasher, HN=nest	BA=Bat roosting sites
		NH=Northern harrier, NN=nest	MA=Mammal burrow
	Other Herps	BT=Bendire's thrasher, BN=nest	
	MF=Mojave fringe-toed lizard	CT=Crissal thrasher, CN=nest	**Other**
		GF=Gilded flicker, GN=nest	BC=Barrel cactus
		GW=Gila Woodpecker, WN=nest	OO=Other, specify in notes
		PR=Prairie falcon, RN=nest	
		PE=Peregrine falcon, PN=nest	
		NE=Unknown bird nest	

ATTACHMENT 3

WESTERN BURROWING OWL SURVEY DATA SHEETS

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** April 16, 2009

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	J	ARH WLB

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	1748	62°	2	—	0
End	1951	48°	2	—	0
April 17 Start	0606	42°	0	—	0
April 17 End	0907	65°	0	—	0

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C12	RMAJH003	N	N	—	1	10x12	15+	NONE	IA	Partially collapsed
C12	RMAJJ003	N	N	—	1	6x8	20+	None	IA	
C12	~~RDBJ~~ MA H001	N	N	—	1	5x10	17+	None	IA	
C12	~~RMAJ~~ MA H001	N	N	—	1	7x7	12+	NONE	IA	
C12	RDBGL001	N	N	—	1	14x8	18+	None	IA	
C11	RKBGL001	N	N	—	1	6x7	14	None	~~IA~~ X	Collapsed
C11	RDBAD009	N	N	—	1	16x14	25+	None	IA	Old kit fox scat
C11	RDBSD003	N	N	—	1	4x6	8+	None	IA	
C11	RDBMG002	N	N	—	1	8x5	10	None	~~IA~~ X	Filled in/ends
C11	RMAMG002	N	N	—	1	9x8	14+	None	IA	
C11	RDBKD002	N	N	—	1	4x5	6	None	~~IA~~ X	Desert tortoise
			4/17/09	on BACK						

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): ARH 4/17/09 4/16/09 ARH *Approved by team leader (initials, date):* JKK 4/17/09

Project: SM Site: Adjacent Date: 4/17/09 Surveyor: AH GPS Unit: J

Pg 2 of 4

Potential BUOW Burrows (cont.):

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
B11	RKBSD001	N	Y	—	1	7×9	12+	None	IA	Two burrows in bank of wash
C11	RDBSD004	N	N	—	1	7×4	6	NONE	X	Ends, shallow, not suitable
C10	RDBSD001	N	N	—	1	8×5	24+	None	IA	Active Tortoise (none obs, but sign)
C10	RKFGL003	N	N	—	1	12×10	10+	NONE	IA	Whitewash on branches near hole, no other bird sign.
C10	RMASJ001	N	N	—	1	5×4	8	None	X	Filled in KF dig hole, dismissed as very far, not suitable
C10	RMAMG001	N	N	—	1	6×3	12	None	X	Ends, not suitable
C10	RBBKH001	N	N	—	1	15×5	8+	P	PA	Burrow narrows quickly to a small <5in diam. hole. One pretty fresh pellet found (soft) could be deeper in hole.
							~~24+~~	~~NONE~~		
C10	RKBMG001	N	N	—	1	7×9	20+	NONE	IA	Recently excavated a bit
C10	RMARW001	N	N	—	1	5×3	10	None	X	Mostly collapsed, really not suitable
C10	RMAKD001	N	N	—	1	7×14	14	None	X	No roof, fresh but few dig
C10	RDBADD003	N	Y	—	1	8×9	14+	NONE	IA	Nice open location ~~2~~ entrances old kit fox scat
C10	RKBSD002	N	N	—	1	12×7	12+	None	IA	
C9	RKBGL002	N	N	—	1	6×6	14+	NONE	IA	Dense creosote over entrance cobwebs in hole
4/17 2-3 hours after sunrise ↓ C9	RKBKH001	N	N	—	1	9×8	10+	NONE	IA	Active kit fox scat + tracks Edge of creosote, not covered by branches
C9	RKBJH001	N	Y	—	1	10×12	10+	P (old)	PA	Kit fox complex with a couple old owl pellets, Open area, suitable for fox
C9	RMARW003	N	N	—	1	6×4	8	None	X	Small hole that ends quick under thick creosote NOT suitable
C8	RMAKD002	N	N	—	1	5×7	10+	None	IA	Under creosote, some veg in hole low → no suitability

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): 4/17/09 AH *Approved by team leader (initials, date):* JKR 4/17/09

Ct: SM Site: Ridgecrest Date: 4/16/09 Surveyor: AKH GPS Unit: J

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

RDL ARH001 0431501 3933456 Small live desert tortoise head first in KRAT burrow mostly sticking out carapice 3 inches wide 4.5 inches long hiding	R DBK D002 Live Desert tortoise Apprx 3 x 3.5 carapice hiding	Raven Horned lark Red tail hawk W. fence lizard

Comments/Notes: Species detected 4/17/09

Horned lark Turky Vulture
Unk. Flycatcher
Unk. Sparrow
W. fence lizard
CA. Whiptail lizard

Reviewed by surveyor (initials, date): AKH 4/16/09 *Approved by team leader (initials, date):* JKR 4-17-09

Beaufort Wind Scale (http://www.geography-site.co.uk/pages/physical/climate/beaufort.html)

Beaufort Number	Wind Speed (mph)	Indicator
1	0-3	Smoke rises vertically to slight ripples; essentially no wind
2	4 to 7	Leaves rustle, wind felt on face and wind vanes moved by wind
3	8 to 12	Leaves and small twigs in constant motion. Wind can extend a lightweight flag.
4	13 to 18	Moves small branches and will raise dust and loose paper.
5	19 to 24	Small trees in leaf will begin to sway
6	25 to 31	Whistling can be heard in phone wires. Large branches are in motion. Umbrellas used with difficulty.
7	32 to 38	Whole trees in motion. Inconvenience felt when walking against the wind.

For GPS Entry and Field Mapping of Burrowing Owl and other Sensitive Resources

1. Place a dot on the map in the general vicinity of the observation of burrowing owls, unmapped (new) potential burrows, sign, and other special-status species.
2. Use the following IDENT CODE nomenclature to record the detection on your data sheet, GPS, and field map.

Example ---"**PBBSH001**" where P=Palen (Site Identifier), BB=burrowing owl burrow (Detection Type), SH=Steve Henderson (Surveyor Identifier), 001=Observation #.

Site Identifier: Palen=P; Blythe=B; Ridgecrest=R

Detection Type Codes:

Burrowing Owl	Desert Tortoise	Other Bird Species	Mammals
BL=live burrowing owl	DL= live desert tortoise	WK=White-tailed kite, KN=nest	KB=Kit fox burrow
BB=confirmed BUOW burrow	DB=burrow	CO=Cooper's hawk, ON=nest	GL=American badger live
BF=feather	DS=scat	SW=Swainson's hawk, SN=nest	GB=American badger burrow
BP=pellets	DC=carcass	FE=Ferruginous hawk, FN=nest	ML=Mojave ground squirrel live
BO=other (describe)	DT=tracks	GE=Golden eagle, EN=nest	SL=Bighorn sheep live
	DP=desert tortoise pallet	LS=Loggerhead shrike, LN=nest	SC=Bighorn sheep carcass
	DO=other (describe)	LT=Le Conte's thrasher, HN=nest	BA=Bat roosting sites
		NH=Northern harrier, NN=nest	MA=Mammal burrow
	Other Herps	BT=Bendire's thrasher, BN=nest	
	MF=Mojave fringe-toed lizard	CT=Crissal thrasher, CN=nest	**Other**
		GF=Gilded flicker, GN=nest	BC=Barrel cactus
		GW=Gila Woodpecker, WN=nest	OO=Other, specify in notes
		PR=Prairie falcon, RN=nest	
		PE=Peregrine falcon, PN=nest	
		NE=Unknown bird nest	

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/16/09 pm
4/17/09 AM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	Garmin H	WLB / ARH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	17:28	62	2	Ø	Ø
End	19:51	56	2	Ø	Ø
4/17	6:04	41	0	0	0
	9:12	62	1	Ø	Ø

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C-12	RKRJH003	N	Y		1	12x8" 10x4"	15+ 15+	NONE	±A	3 burrows, one collapsed one add'l to DETO survey data
C-12	RDBMG001	N	N		1	11"x4"	6 collapsed	NONE	~~NA~~	collapsed burrow
C-12	RKBWB001	Y	N	0431959 3933297	1	10x4.5	20"	None	IA	kit fox, no sign
C-12	RKBKD002	N	Y		1	16x13 9x15	20+	W	PA	more w than other burrows
C-12	RDBRW004	N	N		1	6x12	12 collapsed	N	~~IA~~	DETO scat collapsed
C-11	RDBMG003	N	N		1	7x4	9 collapsed	N	~~IA~~	cobwebs too shallow
C-11	RDBMG001	N	N		1	6x4	5" collapsed	N	~~NA~~	not suitable too shallow used by K Rat?
C-11	RKBKD001	N	Y		1	13x11 15x	18+ way back	W	PA	6 burrows - some collapsed not much W - old some burrows suitable
C-11	RMAKD004	N	N		1	11x11	25+	N	IA	cobwebs ok size
C-11	RBBMG001	N	Y		1	15x15 12x7	30" 30"	P	PA	OLD pellets 3 collapsed no white wash ~6 burrows
C-11	RMAKD005	N	N		1	6x4	12" collapsed	N	~~IA~~	collapsed cobwebs Not suitable
C-11	RKBMG002	N	Y		1	15x7	15" collapsed	W	~~IA~~	cobwebs, collapsed 1 occupied by juve. DETO (small burrow)
C-11	RKBWB002	Y	N	0431881 3933761	1	9x9	12"	N	IA	New kit fox burrow too small for BUOW

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): WLB 4/16/09 ***Approved by team leader (initials, date):*** JKR 4/17/09

Project: SM Site: Ridgecrest Date: 1/17/09 Surveyor: WLB GPS Unit: Garmin H

Pg 2 of 4

Potential BUOW Burrows (cont.):

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
✓ C-11	RKBJ002	N	Y		1	11x8 8x7	22+ 18+	W (not much)	PA	KF scat old 11 burrows some collapsed some suitable
C-10	RDBKD003	N	N		1	9x5	15+	N	NA	under creosote - 4 holes not suitable
C-10	RKBKD003	N	Y		1	6x5 6x4	18+ 20+	W older	PA	about 9 sm st burrows some collapsed 1 with w. wash but hole is rotten
C-10	RDBMG005	N	N		1	10x3	2	N	IA	collapsed DETO burrow unsitable
C-10	RDBJH002	N	Y		1	5x7	4	N	NA	collapsed DETO burrows 3 Not suit 1 occupied (photo #1+2) DETO for BUOW
C-10	RMAFW004	N	N		1	10x7	12+	N	NA	burrow located under creosote - colonaly etc. Not suitable
C-10	RMAJH002	N	N		1	15x12	20	N	NA	Below / in creosote not suitable
C-9	RKBJ001	N	Y		1	6x15 9x5	18" 10"	N	IA	KF scat old NO BUOW sign - 7 burrows but some burrows poss suit
C-9	RDBRW005	N	N		1	7x5	15"	N	~~IA~~ NA	KF scat old collapsed not likely suitable
C-9	RKBRW003	N	Y		1	5x6 7x10	18+ collapsed	W (one)	PA	7 burrows, most collapsed suit 10' from Creosote
C-9	RMARW005	N	N		1	15x7	15 collapsed	W/one	NA	beneath creosote + burrows too open + shallow
C-9	RMAKD003	N	N		1	15x12	collapsed	N		completely collapsed under creosote unsitable
C-9	RKBJH002	N	Y		1	10x11 9x6	20+ 18+	W (not much)	PA	4 burrows some pot. suitable white wash could be passerine
C-9	RDBMG004	N	N		1	5x4	7"	N		K-rat burrow too shallow too small
C-9	RMARW006	N	N		1	6x7	12"	N		under creosote not suitable - also about ready to collapse
C-9	RDBRW003	N	N		1	8x5	18"	N	IA	could be used but no sign
C-9	RBBJH001	N	Y		1	10x7	18+	F, P, W, St	A	no owls seen DETO scat. 4-5 burrows, recorded as active By DETO crew.
C-9	RMARW002	N	Y		1	6x5 15x7	15" 22+	W (old)	PA	KF scat ~8 burrows (small 1/2 are collapsed) 2 suitable

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): WLB *Approved by team leader (initials, date):* JKR 1/28/09

ject: SM Site: Ridgecrest Date: 4/16/09 pm 4/17/09 AM Surveyor: WLB GPS Unit: Garmin H

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

4/16 Horned larks
ravens
Deto juve (mapped in burrow)
K-rat
Liz scat

4/17 cactus wren nests (2 old)
Horned larks
K-rat
old burrow scat
DeTO (mapped @ burrows - existing points)
unid sparrow
T.V.
old Buwo carcass (bleached bones)
blue-gray gnatcatcher
uniptail (111)
Grapebrush Lizard

BUOW flyover - on drive in [associated w/ known occupied BUOW burrow complex - RBBJH001]

Comments/Notes:

Reviewed by surveyor (initials, date): WLB 4/16/09 *Approved by team leader (initials, date):* JKR 4/17/09

Beaufort Wind Scale (http://www.geography-site.co.uk/pages/physical/climate/beaufort.html)

Beaufort Number	Wind Speed (mph)	Indicator
1	0-3	Smoke rises vertically to slight ripples; essentially no wind
2	4 to 7	Leaves rustle, wind felt on face and wind vanes moved by wind
3	8 to 12	Leaves and small twigs in constant motion. Wind can extend a lightweight flag.
4	13 to 18	Moves small branches and will raise dust and loose paper.
5	19 to 24	Small trees in leaf will begin to sway
6	25 to 31	Whistling can be heard in phone wires. Large branches are in motion. Umbrellas used with difficulty.
7	32 to 38	Whole trees in motion. Inconvenience felt when walking against the wind.

For GPS Entry and Field Mapping of Burrowing Owl and other Sensitive Resources

1. Place a dot on the map in the general vicinity of the observation of burrowing owls, unmapped (new) potential burrows, sign, and other special-status species.
2. Use the following IDENT CODE nomenclature to record the detection on your data sheet, GPS, and field map.

Example ---"**PBBSH001**" where P=Palen (Site Identifier), BB=burrowing owl burrow (Detection Type), SH=Steve Henderson (Surveyor Identifier), 001=Observation #.

Site Identifier: Palen=P; Blythe=B; Ridgecrest=R

Detection Type Codes:

Burrowing Owl	Desert Tortoise	Other Bird Species	Mammals
BL=live burrowing owl	DL= live desert tortoise	WK=White-tailed kite, KN=nest	KB=Kit fox burrow
BB=confirmed BUOW burrow	DB=burrow	CO=Cooper's hawk, ON=nest	GL=American badger live
BF=feather	DS=scat	SW=Swainson's hawk, SN=nest	GB=American badger burrow
BP=pellets	DC=carcass	FE=Ferruginous hawk, FN=nest	ML=Mojave ground squirrel live
BO=other (describe)	DT=tracks	GE=Golden eagle, EN=nest	SL=Bighorn sheep live
	DP=desert tortoise pallet	LS=Loggerhead shrike, LN=nest	SC=Bighorn sheep carcass
	DO=other (describe)	LT=Le Conte's thrasher, HN=nest	BA=Bat roosting sites
		NH=Northern harrier, NN=nest	MA=Mammal burrow
	Other Herps	BT=Bendire's thrasher, BN=nest	
	MF=Mojave fringe-toed lizard	CT=Crissal thrasher, CN=nest	**Other**
		GF=Gilded flicker, GN=nest	BC=Barrel cactus
		GW=Gila Woodpecker, WN=nest	OO=Other, specify in notes
		PR=Prairie falcon, RN=nest	
		PE=Peregrine falcon, PN=nest	
		NE=Unknown bird nest	

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/16/2009

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	G	HRValentine

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	1752	65	3-4	NONE	0
End	1952	60	2	NONE	~~0~~

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-8	RMAJH005	N	N	—	1	6W x 10H	18+	NONE	IA	cob webs @ burrow entrance; sub-terranean between slinks
D-8	RMAMG007	N	N	—	1	10W x 10H	12+	NONE	IA	portions may be collapsed, covered by dense lower branches of creosote
D-8	RDBAD008	N	N	—	1	7W x 6H	20+	NONE	IA(P)	JR 008-009 scat; evidence of use by mammals mouse and potential for scat. JR010-011 burrow prints; under creosote bush slight mound
D-8	RMAHV001	Y	N	3934830N 0432825	1	6W x 3H	unk.	NONE	—	Non-active burrow - cobwebs over entrance; Portions of burrow collapsed in. burrow entrance faces creosote.
D-9	RMAMG015	N	N	—	1	6W x 8H	unk. 12+(?)	NONE	IA(P)	ground cover outside burrow entrance looked matted down, but no scat of any kind found.
D-9	RDBAD016	N	N	—	1	7W x 8H	20+	NONE	IA(P)	looked used, disturbed ground @ entrance, but no scat of any species observed
D-9	RKBCG002	N	Y	—	1	4W x 6H most recent	8+	NONE	IA	2 larger burrows (likely kit fox) entrances covered w/ cobwebs; fox scat and what looks like a place to bed down present on NW side of complex; Measurements taken on burrow that looks fairly new; indistinguishable tracks outside of entrance. JR photos 4W x 6H @ entrance [3" + 6"], but narrowed quickly to size noted
										JR-017 burrow JR-018-019 fox scat
										(P) ⇒ potentially active by other species

not entered as potential; no need to return.

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JRR 4/18/09

Project: SM Site: R Date: 4/16/2009 Surveyor: H Valentine GPS Unit: G

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

lizard ~~R~~ photo [006 and 007] unk sp., ~~HCLA~~, jackrabbit, hummingbird moths (? sphinx)

BIRDS
HCLA
WCSP
GTTO

Comments/Notes:

Reviewed by surveyor (initials, date): _____ *Approved by team leader (initials, date):* JKR 4/18/19

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/14/09 PM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:52	65	3	None	0
End	7:52	60	2	None	0

X = not suitable for BUOW

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-9	RMAMG019	N	N	—	1	6W x 9H	10"	NONE	X	Blunt ended burrow beneath creosote w/ skj; Too shallow to be a nest burrow for BUOW. Branches make up roof of burrow.
D-9	RDBAD007	N	N	—	1	8W x 4H	12"+	NONE	IA	Some loose soil near entrance. Possible use by small mammals? in flat, relatively open terrain.
D-9	RDBCG001	N	N	—	1	(see above burrow)			X	Appears to be the same burrow as RDBAD007
D-9	RDBCG002	N	N	—	1	7W x 3.5H	8"+	NONE	IA	Sticks placed at burrow entrance. Patch of disturbed soil outside burrow entrance. Photo #16 (JR016)

*IDENT Code refers to the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 4-17-09 ***Approved by team leader (initials, date):*** JKR 4-17-09

...ect: **SM** Site: Ridgecrest Date: 4/16/09 Surveyor: Julie Roth GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Unknown lizard - dead near small mammal burrow complex (Photo 12/13) - longtail (whiptail?) → JR012, JR013
Unknown scat - like mini pancakes stacked together. (Photos 14/15) - possible burrow scat?
↓
JR014, JR015

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 4/18/09 *Approved by team leader (initials, date):* JKR 4/18/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Edgewood **Date:** 4/16/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH (Steve J. Henderson)

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:04 pm	~67	3	Ø	0
End	7:58 pm	~58	2	Ø	0

/ : not suitable Converse Ents is like Tribe

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-8	RMARW008	N	N		1	4x4	N/A →	None	Not Suitable	Burrowing out under pavement. Shallow tunnel follows through to other side (open tunnel). Not over ~ 12" distance. Suitable.
D-8	RMARW012	N	N		1	4x6	N/A →	None	/ ←	Pile dig under down overhanging shrub. Top is collapsed (no sign). Not suitable. Photos 130, 131.
D-8	RDBMF001	N	N		1	8x5	18+	None	IA →	DETO burrow, good condition. No sign.
D-7	RDBRW007	N	N		1	6x4	12	None	/	"DELETED" in DETO spreadsheet. Not suitable based on depth.
D-8	RMAMF005	N	N		1	6x6	16-18	None	IA	Narrows to ~ 3" at back of burrow. Cobbles present. Not likely suitable, but possible.
D-8	RMARW015	N	N		1	5x2	4	None	/	Collapsed / degraded.
D-8	RDRJT001	N	N		1	8x4	20+	W, B, P	PA	Photos 130-04, 05. Good condition. Sign appears not recent. Pellets bleached & degraded. Some veg. growing at
D-8	RKBMF005	N	Y	2 representative burrows	1	15x12	32+			Burrow complex. One burrowing out, probably. Entrance by cattle. 3 burrows suitable.
					1	7x5	24+	P, W, Pr	PA	For BUOW. Largest is 15"x12". More suitable burrow is 7x5". Photo 130-06. Pellet very old.
—	END —									

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 4/16/09 ***Approved by team leader (initials, date):*** JKR 4/17/09

Sheet: SM Site: Ridgecrest Date: 4/16/09 Surveyor: SJH GPS Unit: F

BUOW Detections: None

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

B.T. Jackrabbit
HoLA (Horned Lark)
LENI (Lesser Nighthawk)

Comments/Notes:

- First survey at Ridgecrest. Additional burrows searched for but not located due to darkness/poor vis. at ~7:50pm. Late start due to coordination/conversation w/ DETO team in field.
- Overall, area surveyed shows past use by BUOW (obl sign) + is suitable for BUOW nesting. Some burrows intact + in good condition.
- Dom veg: creosote, with forb, grass, + low shrub cover. Patches of ground veg. dense in some locations.

Reviewed by surveyor (initials, date): SJH, 4/16/09 *Approved by team leader (initials, date):* JKR 4/18/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Ridgecrest Date: 4/17/2009

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	1	HRV/ukitfw

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	0617	39	2	NONE	0
End	0917	70	3	NONE	0

/ = unsuitable for BUOW

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-9	RMARW015	N	N	—	1	5W x 4H	6+ UNK	NONE	—	K-rat tracks around bush it is under and surrounding area; entrance rank/tidy; veg. disturbed by veg. X
D-9	RMAMG006	N	N	—	1	2W x 1H	3	NONE	—	DELETE - most of entrance filled in w dirt - shallow. X
D-9	RMARW020	N	Y	—	1	6W x 6H x	12+	NONE	IA	3 burrows of varying size around clump of creosote; 2 could be used; 1 w/ cob webs over entrance; disturbance noted at other two; some mammal scat found nearby w/in lev
										far under bush; top of burrow at most of visible entrance made of loose branches;
D-9	RMAMG012	N	N	—	1	~7 W x 4H	?	NONE	/	entrance fairly obstructed by branches; mammal could use it; K-rat tracks present X
D-9	RMARW021	N	N(?)	—	1	UNK	~~UN~~K	NONE	—	Act potential burrows in vicinity; looked collapsed couldn't be sure & found it.
D-9	RMAMG017	N	N	—	1	4W x 2H	UNK	NONE	—	under bush; first 1.5' [illegible] no [illegible] present - bush only X
										small bird white wash on creosote adjacent
D-9	RMAMG008	N	N	—	1	6 W x 6H	UNK	NONE	IA	under creosote; cob webs over entrance; sm. mammal holes on backside; very degraded scat
D-9	RMAMG020	N	N	—	1	6W x 3H	12+	NONE	—	under very small shrub [creosote]; compacted mammal tracks at entrance
D-10	RDBRW008	N	N	—	1	7W x 3H	12+	NONE	—	under/between 2 creosote; top side of burrow has collapsed into entrance affecting height of burrow significantly; 8:15
D-10	RKBCG003	N	Y	—	1	several entrances	24+	NONE	IA	4-5 entrances w/in 1+m of one another smallest ~8 W x 5H ⇒ largest 10W x 18+H
										mammal tracks in and at entrances; but also possible scat (older); some fresh small: fg (coyote) and large tracks.

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JKR 4/18/09

Project: SM Site: R Date: 4/17/2009 Surveyor: HV/[illegible] GPS Unit: G

09

Potential BUOW Burrows (cont.):

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D11	RMAMGOI	N	N	—	1	11 W x 12 H	0	NONE	—	under creosote bush, [illegible] appears to be just the start, no tunnel formed / or very collapsed
D11	RMARWOID	N	Y	—	1	6 W x 2 H	24	NONE	—	collapsed - 2 burrows both collapsed - no evidence of use by any species

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[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): HV *Approved by team leader (initials, date):* JKR 4/18/09

Project: SM **Site:** Ridgecrest **Date:** 4/17/09 **Surveyor:** Heather Valentine **GPS Unit:** G

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Interesting group of large butterflies; appeared to be mating photo taken in cell

CORA
HOLA
- unknown sparrow crest. (5 eggs)
WCSP
SASP
CHSP

Comments/Notes:

Reviewed by surveyor (initials, date): HPV *Approved by team leader (initials, date):* JKR 4/18/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/17/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:18 am	39	2	NONE	0
End	9:15 am	73	2	NONE	0

X = not suitable for Buow.

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-9	RMARW011	N	N	—	1	6W x 7H	20"+	W-(very little)	PA	Under creosote on gentle slope down into a wash. Fairly open terrain w/ lots of small mammal burrows nearby.
										→ Photo 22 (JR022) - burrow entrance
										Photo 23 (JR023) - burrow on left - shows surrounding habitat.
D-9	RMARW013	N	N	—	1	6W x 5.5H	18"+	W(old), St	PA	partially under creosote shrub. Along gentle slope down towards wash - fairly open terrain
										→ Stick at entrance to burrow (Photo 24) → JR024
										dirt somewhat disturbed leading up to entrance.
D-9	RMARW014	N	N	—	1	8W x 5H	20"+	W(little), P	PA	under creosote shrub at high point lookout and across gentle sloping wash. Fair amount of
										Soil disturbance (w/ tracks) around burrow entrance. Photo 25 - burrow entrance → JR025
								could be from small mammals		Photo 26 - Pellet found near entrance, but could be kit fox scat [Not many insects] JR026
D-9	RDBRW006	N	N	—	1	8W x 2H	6"	NONE	X	Previous comments say "DELETED" - looks collapsed in back after ~8"
D-9	RMAMG010	N	N	—	1	9W x 12H	10"	NONE	X	Large hole in ground - can see back end of "burrow" looks like start of coyote or fox burrow.
										Quite a bit of coyote/large fox looking scat on side.
D-9	RMAMG003	N	N	—	1	5W x 5H	12"+	F?	IA	Likely gopher mound/burrow. Under large creosote. Soil disturbed w/ many tracks at entrance - possibly small mammal.
				lots of small mammal activity in vicinity						whitewash on a few large dead branches near burrow entrance → looks like passerine whitewash.

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[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Burrow at bottom of wash.

Downy Feathers (unknown origin) near burrow entrance.

Reviewed by surveyor (initials, date): JKR (4-17-09) *Approved by team leader (initials, date):* JKR 4/17/09

→ Photo 27 - burrow entrance to east.

Photo 28 - Photo of large creosote above burrow.

JR027
JR 028

Project: SM Site: Ridgecrest Date: 4-17-09 Surveyor: Julie Roth GPS Unit: I

page 2 of 3

Pag

Potential BUOW Burrows (cont.):

8:15am

1hr past DFG protocol

birds active not very hot

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-10	RMAJJ005	N	N	—	1	6W x 7H	12"	NONE	X	under edge of creosote shrub. In very open terrain. Looks like blind tunnel that dead ends at 12".
D-10	RMARW017	N	N	—	1	8W x 10H	6"	NONE	X	Can see back of hole 6" in.
D-10	RMAMG009	N	N	—	1	4W x 3H	3"	NONE	X	Previous notes say "Deleted" - burrow really just a short hole.
D-10	RMARW009	N	N	—	1	7W x 6H	5"	NONE	X	After ~5" in burrow, it splits into 2 small mammal burrows each ~ 1"x1" size.

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Reviewed by surveyor (initials, date): JKR 4/18/09 *Approved by team leader (initials, date):* JKR 4/18/09

ect: SM Site: Ridgecrest Date: 4/17/09 Surveyor: Julie Roth GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Common Raven (2)
Western Fence Lizard? (Photo 29) — JR029
Horned Lark (3)

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 4-17-09 *Approved by team leader (initials, date):* JFR 4/17/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/17/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH (Steve J. Henderson)

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:49 am	~40	1	None	0
End	9:16 am*	~65	2	None	0

* Extended survey 3 hrs past sunrise. Conditions cool + birds active.

/ = unsuitable nesting

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-8	RMARW019	N	N		1				→	Burrow not located. Location clay. Brown Rd. Mod. side-drainage channel + other veg. cover.
D-8	RMAMG008	N	N		1	N/A	N/A	None	/	Scrape in bank under dense shrub. Not suitable. No enclosed burrow found
D-8	RMAJH006	N	N		1	6x5	6	None	/	Under dense branches of creosote. Not suitable.
D-8	RMAJH007	N	N		1	5x6	11	None	/	Photo 131.0007. Fresh mammal scat, but burrow is shallow.
D-8	RKBRW021	N	Y	Representative Burrow	1	12x5	20+	W(old)	3 of 7 burrows suitable IA	Suitable for burrow, but no sign of use. Cobwebs + veg. present at entrance
D-8	RMAMG013	N	N		1	8x4	11	None	/	Shallow burrow w/ veg. at entrance. Not suitable.
D-8	RMAMG016	N	N		1	5x4	16	None	/	Under creosote.
D-8	RKBMG007	N	Y		1	5x4	18	None	IA	Degraded complex. 1 of 4 burrows suitable, marginally.
D-7	Time: 0816 RDBMG018	N	Y		1	8x5	18	None	IA	DETO burrow - no sign
D-8	RMARW016	N	N		1	5x4	18+	None	IA	Cobwebs + abundant veg. at entrance
D-7	~~RDBRW007~~	~~N~~	~~N~~		~~1~~	~~8x4~~	~~16~~	~~None~~	/	~~DETO burrow~~ ~~Cobwebs at entrance~~ ~~REPEATED ENTRY - See 4/16/09 PM SJH~~
D-7	RDBRW013	N	N		1	6x4	20+	None	IA	DETO burrow under creosote. Photo 131.0008.
D-7	RMAMG023	N	N		1	4x3	3+	None	/	Under dense veg. of creosote. Burrow too small + probably too shallow.
D-7	RDBMR001	N	N		1	6x5	8	None	/	DETO burrow - shallow.
D-7	RDBRW014	N	N		1	10x5	18+	W, Possibly BUOW	PA	DETO burrow. Whitewash. Photo 131.0009

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Reviewed by surveyor (initials, date): SJH, 4/17/09 ***Approved by team leader (initials, date):*** JKR 4/18/09

Project: SM **Site:** Ridgecrest **Date:** 4/17/09 **Surveyor:** SJH **GPS Unit:** F

Potential BUOW Burrows (cont.):

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-7	RDBRW017	N	N		1	12x7	18	None	IA	Near old kit fox burrow. In open
D-7	RDBMS017	N	N		1	11x6	24+	None	IA	DETO burrow. Steep with possible tortoise tracks.
D-7	Post-Survey									
D-7	↓ (will return)									
D-7	RBBKD01	N	N		1	7x7	24+	W, P (old)	PA	Nice burrow. Evidence of use by BUOW, but not recently. Lizard inside. ~18" from edge of creosote branches ~5' from creosote. Sign otherwise in open. Photo: 131-0011
—	END —									
						See data from Julie Roth 4/17/09 pm				

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Reviewed by surveyor (initials, date): SJH 4/17/09 *Approved by team leader (initials, date):* JKR 4/18/09

SM Site: Ridgecrest Date: 4/17/09 Surveyor: SJH GPS Unit: F

BUOW Detections: Follow-up on active BUOW burrow mapped by DETO crew. Observed owl + did not take burrow data

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	Already mapped by DETO crew. Not mapped separately from mapped burrow →			1	Unk.	A	Resting/sitting low + squat at burrow entrance. Flushed inside quickly.	Approached burrow to check status. Observed BUOW at entrance of DETO burrow. It flushed inside burrow. DETO burrow entrance had abundant DETO scat. Time of obs. ~ 0615.

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

GTTO W. Fence Lizard
WCSP Whiptail
Sage Sparrow
HOLA

Comments/Notes:

Met Mike Gallagher from DETO crew. They've seen only 1 live BUOW (mapped). Most burrows located under creosote, etc. + not suitable for BUOW. Few burrows out in open + with sign.

Reviewed by surveyor (initials, date): SJH, 4/17/09 Approved by team leader (initials, date): JKR 4/18/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/17/09 (see back for 4/18/09 AM data)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH (Steve J. Henderson)

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:24 pm	80	3	Ø	0
End	8:00 pm	69	2	Ø	0

/ = unsuitable

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-7	RMAMG024	N	N		1	7x4	18	None	IA	
D-7	RDBMG016	N	N		1	11x4	20	None	IA	DETO burrow
D-7	RDBRW009	N	N		1	12x6	30+	None	IA	Active DETO burrow. DETO scat + fresh tracks present. Cobwebs on top of burrow entrance.
D-7	RDBMG011	N	N		1	4x2	12	None	/	Degraded DETO burrow
D-7	RDBRW018	N	N		1	11x5	36+	None	IA	Active DETO burrow. Scat inside. Under outer edge of sparse creosote canopy, facing creosote.
D-7	RDBRW015	N	N		1	12x7	11	None	/	Collapsed DETO burrow
D-7	RMARW023	N	N		1	—			→	Not located w/in 5-10 min search of area. Some very small mammal holes + potentially collapsed burrows.
D-7	RMARW024	N	N		1	—			→	Same notes as above. Complex of small k-rat burrows ~2" x 2". Nothing suitable for BUOW. Some remnant burrows under creosote, but small.
D-7	RDBRW012	N	N		1	9x6	24+	None	IA	DETO burrow - cobwebs at entrance, pretty degraded. Also found burrow under dense branches of creosote near mapped point 5x3, concealed by shrub. Not suitable for BUOW.
D-7	RMAMG021	N	N		1	3x6	6	None	/	2nd burrow above + left, but filled in → 8" deep
										→ Marked as "deleted" in DETO spreadsheet. Burrow collapsed, under creosote branches.
D-7	RDBMG020	N	N		1	12x5	20	None	IA	DETO burrow. Scat outside. Under creosote, but open. Photo: 131-0018 : Scat
D-7	RMARW025	N	N		1	7x5	15+	None	IA	Veg. growing at entrance. No sign of recent use. Cobwebs at entrance
D-7	RMARW026	N	N		1	~5x4	4+	None	/	Area scraped out under dense shrub, w/ possible burrow feature, but looks like small depression. Unsuitable due to woody veg. concealment.

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Reviewed by surveyor (initials, date): SJH, 4/18/09 *Approved by team leader (initials, date):* JKR 4/18/09

Project: SM **Site:** Ridgecrest **Date:** 4/17+18/09 **Surveyor:** SJH **GPS Unit:** F

Potential BUOW Burrows (cont.):

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
4/17/09	D-7	RMARW027	N	N		1	9x5	12	W(old)	/	Burrow is shallow. Not suitable for nesting. Exposed site / burrow.
										Old whitewash could be BUOW. Burrow may
	End									have previously been suitable but possibly collapsed.
4/18/09	Site: Ridgecrest		Date: 4/18/09					Time	Temp	Wind / Precip / Cloud
	Survey Type:	3	GPS: F				Start:	6:21 am	~50 F	2 / Ø / 0
							End	6:48 am	~50 F	2 / Ø / 0
	D-7	RDBM6-0002	N	N		1	12x6	24+	P, B	PA	DETO burrow. Old pellets just outside burrow. Bone fragments at burrow entrance.
	D-7	RDBM6023	N	N		1	8x3	9	None	/	Degraded DETO burrow, w/ DETO scat at entrance

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[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 4/18/09 ***Approved by team leader (initials, date):*** JKR 4/18/09

Project: SM Site: Ridgecrest Date: 4/17+18/09 Surveyor: SJH GPS Unit: F

BUOW Detections: None

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

4/17/09 Desert iguana - after this morning's survey - obs. on map D-9/10.
HoLA

4/18/09 HOFI
HoLA

Comments/Notes:

4/18/09 Followed up on 2 burrows surveyed by AH + WB 4/17/09. RDBRWO03: Burrow (rabbit size) dug out under creosote, back toward direction away from shrub. At entrance, area was dug down below grade / base of shrub. Although site covered by woody branches, fairly open w/ visibility. Pellet found (old) under shrub. Photo 132-0041, 22. Also recent tracks in flat area above burrow entrance, at grade. RMAKD011: Burrow under creosote. Some whitewash, intact pellet w/ invertebrate parts. Photo: 132-0043. Entrance partly obstructed by branches.

Reviewed by surveyor (initials, date): SJH, 4/18/09 *Approved by team leader (initials, date):* JKR 4/18/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/17/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	5	APH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	1720	80	2	0	0
End	1948	65	2	0	0

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C8	RMAJT002	N	N	—	1	7×9	24	P(old)	PA	old pellet in dead end burrow, maybe just a hangout, partial perch, average
C8	RMAKD006	N	N	—	1	6×12	40	NONE	IA	Beer can deep in hole, edge of creosote but not really covered
C8	RMAMG004	N	N	—	1	6×8	12+	NONE	X	Not suitable – Entrance to burrow is totally covered by a bush
C8	RKBMG003	N	N	—	1	9×7	14	NONE	X	Not suitable – Burrow is collapsed or filled in after 5/ feet
C8	RDBMG008	N	N	—	1	12×5	24+	P(old)	PA	old pellet near entrance currently (today) has tortoise inside (could see very fresh tracks leading in)
D4	RDBKD008	N	N	—	1	14×7	15	NONE	X	Not suitable. Dirt arch. Not a burrow
D4	RDBKD009	N	N	—	1	12×6	18+	NONE	IA	Kit fox tracks, burrow appears to be used. Under canopy of creosote but not obstructed
D4	RDBKD010	N	N	—	1	8×5	12+	NONE	IA	Out in the open Suitable, no sign
D4	RMAKD017	N	N	—	1	9×7	12+	NONE	IA	Out in the open, some veg growing in entrance Sandy loose soil (work area)
D4	RKBKD007	N	Y	—	1	4×10 Back hole	12+	P(fresh + old) at Pr, B	PA	Fresh sign(pellets) BE CAREFUL NOT TO COLLAPSE Brush entrance, 1 w/sticks Prime.
D4	RMARW040	N	N	—	1	12×4	3	NONE	X	Burrow collapsed
D4	RMAKD016	N	N	—	1	12×2	5	NONE	X	"
D4	RMAKD025	N	N	Should be RMAMG025	1	5×9	10+	NONE	IA	Burrow under creosote but not obstructed
D5	RMAKD015	N	N	—	1	8×10	12	NONE	X	Burrow collapsed / ENDS
D5	RMAKD011	N	N	—	1	6×8	10+	P(somewhat fresh)	PA	Pellet – entrance. Under creosote + partially obstructed
D5	RMAMG027	N	N	—	1	9×4	6	NONE	X	Burrow collapsed

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): 4/18/09 APH ***Approved by team leader (initials, date):*** JK R 4/28/09

Project: SM **Site:** Ridgecrest **Date:** 4/17/09 **Surveyor:** AAH **GPS Unit:** J

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

NONE

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

White-crowned sparrow
Horned lark
Blk tailed jackrabbit
Raven
Blue-gray gnatcatcher

Comments/Notes:

Reviewed by surveyor (initials, date): 4/17/09 AAH *Approved by team leader (initials, date):* JK R 4/28/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** R **Date:** 4/17/2009

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	G	HRValentine

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	1731	78	3	None	8
End	1950	68	2	None	8

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D12	RMANG014	N	N	—	1	5W x 5H	UNK	NONE	IA	under creosote, but fairly open on W side where burrow is; some ground disturbance around but doesn't appear used; looks like it turns immediately @ entrance; entrance appr NE
D12	RKBNG006	N	Y	—	1	largest 7'W x 11H	12+	F just a couple in dirt	IA	Active burrow complex at least 4 used entrances; scat and lots of track; dirt mounds outside entrance; couldn't ID tracks (sand, soil) likely kit fox
D12	RKPAD002	N	Y	—	1	heavily excavated 6W x 11H	16+	W	PA	old burrow complex, but many of the burrows are collapsing and/or have cob webs; 3-4 burrows on eastern side are clearly re-excavated and there has been disturbance near entrances; scat found but old; white wash found at burrows near center of complex
D12	RKBJH005	N	Y	—	1	largest 5W x 7H	12+	NONE	IA	Most of these burrows look old, have cob webs on the entrance; those that do not show no disturbance of ground @ entrances
D7	RDBKD004	N	N	—	1	9W x 4.5H	12+	NONE	IA	appears to be used but not scat or other evidence of sp; possibly K-rat track at
	RMARN037	N	N	—	1	8W x 8H	16+	NONE	IA	steep entrance, some disturbance, but entrance contains test for related sp.; piece desicated scat
	RMAKD008	N	N	—	1	6W x 8H	12+	NONE	IA	excavated recently; but no evidence of sp.; LOTS OF BURRO SCAT! & BONES
	RKDKB006	N	Y	—	1	6W x 4H	16+	NONE	IA	no evidence of current use by sp.; 4 burrows 2 cob webs; 2 w/out cobwebs but slender entrance possible collapse

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

this should be: RKBKD006

Reviewed by surveyor (initials, date): HRV Approved by team leader (initials, date): JKR 4/18/09

~~RMARN037~~, ~~RMAKD008~~; ~~RKBKD006~~; ~~RDBKH024~~; ~~RDBNG026~~

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Ridgecrest Date: 4/17/2009

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	G	HRV/Valentine

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start					
End	0950	65	2	NONE	0

(JKR-)
DT = DESERT TORTOISE

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D7	RDBRW02D	N	N	—	1	10W x 5H	12+	NONE	IA	disturbance at burrow, but no species specific sign; Being used likely periodically by DT
D7	RDBMG026	N	N	—	1	6W x 5H	16+	NONE	IA	recent disturbance at entrance, but no specific sp. sign; very 1/2 moon shaped

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.
[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.
[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JKR 4/18/09

Project: SM **Site:** Ridgecrest **Date:** 4/17/09 **Surveyor:** Heather Valentine **GPS Unit:** 6

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JRC 4/18/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4-17-09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:30pm	78	2-3	None	0
End	7:45pm	69	2	NONE	0

(JR 030) Photo 30 DETO in burrow

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-12	RMAJH004	N	N	—	1	5W x 10H	18+	NONE	IA	under creosote at road side. Cobwebs covering burrow part way in. Kit fox tail drag outside. (or lizard)
D-12	RMAJJ004	N	N	—	1	5W x 9H	12+	NONE	IA	under creosote
D-12	RMARW007	N	N	—	1	4W x 6H	12+	NONE	IA	possibly an old burrow complex w/ 2 burrows 2nd burrow collapsed. Hole gets smaller ~1/2" in
D-12	RKBMG004	N	N	—	1	8W x 8H	12+ (W)	NONE	IA	Live DETO in burrow - cobwebs over top 1/2 of burrow entrance. big adult - carapax ~8"x5" JR031
D-12	RKBAD001	N	Y	—	1	6W x 10H / 4W x 8H	18+ all	W (little)	IA	Faces west. Cobwebs over several burrows (~12) Little bit of whitewash on one burrow. - Photo 31 - KB
D-7	RMARW036	N	N	—	1	6W x 12H	8"	NONE	X	mammal digging straight down in ground. Not a burrow
D-7	RKBKD005	N	Y	—	1	See Notes	18+ All	NONE	IA	4 burrow complex. 1- 4W x 3.5H, 1- 7W x 6H - cobwebs 1- 4W x 12H w/ cobwebs, 1- 6W x 6H. JR032-JR034
D-7	RBBKD001	N	N	—	1	7W x 7H	24+	W (little), P (old)	PA	Whitewash and pellets on ground at entrance to burrow [Photo 32-34]
D-7	RMARW031	N	N	—	1	8W x 12H	10"	NONE	X	Looks like mammal digging. Tunnel goes mostly straight down and ends. Not suitable for BUOW.

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O-**Owl, **W-**Whitewash, **P-**Pellets, **T-** BUOW Tracks, **B-** Bones (from degraded pellets), **F-**Feathers, **Pr-**prey remains, **Ef-**Eggshell fragments, **St-**Sticks, **NONE-**no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 4/18/09 ***Approved by team leader (initials, date):*** JKR 4/18/09

. roject: SM Site: Ridgecrest Date: 4/18/09 Surveyor: Julie Roth GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Horned Lark.

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 4/18/09 *Approved by team leader (initials, date):* JKR 4/18/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/17/09 PM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	Garmin H	WLB

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	17:20	80°	2	Ø	Ø
End	20:00	68°	3	Ø	Ø

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C-8	RKBJH004	N	N		1	12x10	20+	W, P	PA	very old pellets cobwebs in opening
C-8	RDBMG007	N	N		1	12x7	15"	N	/	completely obstructed by shrub
D-4	RDBRW020	N	N		1	12x5	10"	N	/	collapsed burrow too shallow to be suitable
D-4	RMAKD007	N	N		1	14x5	10+	P v. old	PA	old pellet, however burrow is collapsed & has weed growing in front of
D-4	RDBKD007	N	N		1	12x?	?	N	IA	occupied by PETO large rodent photo
D-4	RDBMG025	N	N		1	14x8+	Heavily Deep	N	IA	occupied PETO
D-4	RDBMG021	N	N		1	10x6	20+	N	IA	was used recently by PETO - 3 weeks
D-4	RMARW028	N	Y		1	--	--	N	/	Both burrows completely collapsed
D-5	RKBMG008	N	Y		1	10x15 7x4	20+ 15	W, P	PA	6 burrows, used in past old pellets + WW, old PETO scat
D-5	RDBRW029	N	N		1	5x8	4"	N	~~IA~~	collapsed
D-5	RDBRW023	N	N		1	8x7	15"	P	PA	old pellet under creosote burrow under/in creosote
D-5	RDBRW022	N	N		1	3x6	-	N	/	collapsed burrow
D-5	RMARW039	N	N		1	7x4	15+	N	/	buried under creosote
D-5	RMARW033	N	N		1	12x7	4"	N	/	collapsed burrow
D-5	RMARW029	N	N		1	9x6	5"	N	/	collapsed and under creosote roots + veg @ opening

***IDENT Code:** the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): WLB ***Approved by team leader (initials, date):*** JKR 4/27/09

Project: SM **Site:** Ridgecrest **Date:** 4/17/09 **Surveyor:** WCB **GPS Unit:** H

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Verdin 111
Western Kingbird - 2
Raven
H. Lark
K-rate
old Gunna scat

Comments/Notes:

3 photos taken @ RKBM0004 of pellet & shrub & pellet
2 photos @ DEED RPBM0008
3 of 2 Nest
1 of RMAK0007
3 photos DEED in RDBK0007

Reviewed by surveyor (initials, date): WCB 4/17/09 *Approved by team leader (initials, date):* JKB 4/27/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/18/09 AM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	5	ARH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	0613	49	2	0	0
End	0751	65	1	0	0

X = not suitable for BUOW.

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D5	RMAM6022	N	N	—	1	11×7	15	NONE	X	Burrow ends
D5	RDBRW011	N	Y	—	1	14×6	24+	P(old), W, Pr	PA	10 entrances [illegible] forward burrows. [illegible] BUOW sign. [illegible]
D5	RKBRW002	— SAME COMPLEX as RDBRW011							→	Good potential location
D6	RDBM6010	N	Y	—	1	8×12	20+	P(old), W	PA	6 entrances. Good potential location w/some old BUOW [illegible]
D6	RMARW022	N	N	—	1	5×4	12+	NONE	X	Very small burrow inside, [illegible] obstructed by [illegible]
D6	RDBM6012	N	N	—	1	12×7	20	NONE	X	Narrows out quickly and ends. Small tortoise burrow
D6	RKBRW001	N	Y	—	1	8×14	24+	P(old), W, Pr	PA	10 entrances, lots and complex (mostly [illegible] with some old BUOW sign. Good potential
D6	RDBRW010	N	N	—	1	10×5	12	NONE	X	Burrow ends quickly or [illegible]
D6	RDBM6013	N	N	—	1	15×8	36	NONE	IA	Old kit fox complex currently tortoise burrow w/some potential for BUOW
D6	RDBRD005	N	N	—	1	9×2	15	NONE	X	Old, unused tortoise burrow that appeared to end quickly. Not suitable

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): 4/18/09 ARH *Approved by team leader (initials, date):* JKR 4/26/09

Project: SM **Site:** Ridgecrest **Date:** 4/13/09 **Surveyor:** [illegible] **GPS Unit:** J

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Yellow headed blackbird
Unk. sparrow
[illegible]
[illegible]
[illegible]

Comments/Notes:

Reviewed by surveyor (initials, date): [illegible] 4/13/09 *Approved by team leader (initials, date):* JKR 4/26/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

~~RMAKD001, RMAKD013, RBBMG028, RKBMG009~~ ⑥ RDBMGD27 ~~RMAKD010, RMAKD014, RMAMG026, RDBMGD29~~ ~~RMARW039~~

Project: SM **Site:** Ridgecrest **Date:** 4/8/2009 **Page** 1 of 2

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	G	HRValentine

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	0617	49	3	NONE	8
End	0742	60	1	NONE	8

SMMA = Small mammal
DT = Desert Tortoise

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D7	RMAKD009	N	Y	—	1	5x 3.5	8	NONE	/	Some disturbance at entrance but doesn't stay open; possibly SMMA use (burrows, both narrow quickly under creosote w/ no clear area for 2.5'); some disturbance around entrance, no scat; fairly square
	RMAKD013	N	N	—	1	7x4	12+	NONE	not ~~IA~~	
	RDBMG028	N	N	—	1	12x6	12+	NONE	IA	Large burrow under creosote; heart shaped of dirt near entrance; odd amount of area dug out around base; rating area that falls open under brush
	RKBMG009	N	Y	—	1	14x10 → 5x9	24+	NONE		
									IA	open, large complex 2 larger holes; 3-4 smaller holes some disturbance near entrances, but not on mounds of dirt; scat
D6	RDBMGD27	N	N	—	1	10x 5	16+	NONE	IA	into burrow under creosote, but open DT tracks in entrance heading down into burrow; no DT observed and no BUOW sign detected.
	RMAKD010	N	N	—	1	6x 10→9	12	NONE	/	Large burrow/dig, but can see it ends abruptly
	RMAKD014	N	N	—	1	7x5 @ entrance	10+	NONE	/	Unc. sized opening near creosote, but narrows down quickly; hole at end only an inch or so wide
	RMAMG026	N	N	—	1	11x5	12+	NONE	/	wider burrow near creosote, but part of ceiling collapsed/dug; dirt mound near
	RDBMGD29	N	N	—	1	11x5	?12+	NONE	IA	2 paths at base of creosote to burrow; entrance faces creosote - difficult to see under
	RMARW039	N	N	—	1	7x3	6	NONE	/	Small dig under bush; shallow and short SMMA use

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.
[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.
[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): HR ✓ *Approved by team leader (initials, date):* JKR 4/18/09

Project: SM **Site:** Ridgecrest **Date:** 4/18/09 **Surveyor:** H. Valentine **GPS Unit:** G

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

COPA, HOLA

Comments/Notes:

Reviewed by surveyor (initials, date): HKV *Approved by team leader (initials, date):* JKR 4/18/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/18/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:18am	49	2	NONE	0
End	8:25am	68	1-2	NONE	0

DETO = Desert Tortoise

X = not suitable for burrowing owl.

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-7	RDBKD006	N	N	—	1	9W x 4H	18"+	NONE	IA	Burrow appears coded incorrectly. This is an old DETO burrow. Rodent burrow entrance dug into top of burrow leaving dirt fill in entrance to old DETO burrow.
D-7	RMARW038	N	Y	—	1	S: 7W x 4H E: 6W x 2H	6"+ 12"+	NONE	IA	2 burrows - one facing South (S) one east (E). East facing burrow looks like small DETO burrow.
							east facing burrow not suitable for BUOW.			South facing burrow appears to get smaller as it goes back. S-facing burrow probably not suitable for BUOW.
D-7	RMARW035	N	N	—	1	2W x 1.5H	6"	NONE	X	Looks like a mammal digging into an old rodent burrow. Stops after ~6".
D-6	RKBKD004	N	Y	—	1	5W x 10H 5W x 2.5H 10W x 5H	12"+ 8"+ 18"+	W(LITTLE), P	PA	3 burrow entrances. 2 burrows look like DETO burrows. W NW side of complex. Old kit fox scat. Few spots of white wash under shrub near burrows. One possible OLD pellet with many insect parts. One pellet and white wash nearest to burrow facing west (10W x 5H)
D-6	RDBMG024	N	N	—	1	11W x 6H	24"+	NONE	IA	Large DETO burrow.
D-6	RDBRW019	N	N	—	1	6W x 5H	12"+	NONE	IA	

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[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 4/18/09 *Approved by team leader (initials, date):* JKR 4/18/09

Project: SM **Site:** Ridgecrest **Date:** 4/18/09 **Surveyor:** Julie Roth **GPS Unit:** I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 4/18/09 *Approved by team leader (initials, date):* JKR 4/18/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgeview **Date:** 4/8/09 AM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	H	WLB

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:45	49°	2	Ø	7
End	7:45	53°	1	Ø	Ø

/ = not suitable for BUOW.

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-5	RMARD012	N	N		1	8x6"	10+	N	~~IA~~	partially collapsed
D-6	RMARW030	N	N		1	4x3	7	N	/	suitable
D-6	RDBMG014	N	N		1	12x6	18+	N	IA	could be used [illegible] not suitable [illegible]
D-6	RDBMG009	N	N		1	15x6	3	N	/	collapsed burrow not suitable
D-6	RDBMG015	N	N		1	7x3	4+	N	/	burrow collapsed, not used - [illegible]
D-6	RDBRW016	N	N		1	7x3	5+	N	/	burrow collapsed - not used - [illegible]
D-6	RMARW032	N	N		1	8x4	7	N	/	not suitable, collapsed shallow [illegible]

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O-**Owl, **W-**Whitewash, **P-**Pellets, **T-** BUOW Tracks, **B-** Bones (from degraded pellets), **F-**Feathers, **Pr-**prey remains, **Ef-**Eggshell fragments, **St-**Sticks, **NONE-**no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): WLB 4/13/09 ***Approved by team leader (initials, date):*** JKR 4/28/09

Project: SM **Site:** Edgewood **Date:** 1/18/09 **Surveyor:** WLB **GPS Unit:** H

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list **ALL wildlife species** and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Horned larks coyote scat
BWO-1 old burro scat
? whipsnail (juve.)

Comments/Notes:

Reviewed by surveyor (initials, date): WLB *Approved by team leader (initials, date):* JKR 4/28/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/18/09 (pm)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
II + III	J	ARK

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	1734	75	0	0	0
End	1940	65	0	0	0
4/19/09 (am) Start	0655	60	0	0	0
4/19/09 (am) End	1145	85	2	0	0

Potential BUOW Burrows:

* = not suitable for BUOW (QKR)

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
	RDBAH002	Y	N	434717 3934442	1	7x6	12+	NONE	IA	Desert tortoise burrow w/ low fresh pellets
*	~~RDBAD007~~	N	N	—	1	6x2	16	NONE	~~NS~~	Small crack [illegible] surveyed 0915
* outside buffer	RDBCG002	N	N	—	1	7x3	12	NONE	X	Surveyed at 0918 Not suitable [illegible]
*	RKBCG003	N	Y	—	X	12x20	36+	NONE	IA	Active kit fox complex, NO BUOW sign 0940 7 entrances
	RKBAH003	N	Y	432312 3932799	X	8x14	20+	P, W	PA	Kit fox complex (3 entrances) w/ old pellets + whitewash (had been more [illegible])
	RDBAH004	Y	N	431970 3932604	X	12x6	n/a	NONE	IA	Tortoise in [illegible] of burrow 1047
	RKBAH005	Y	N	431722 3932534	X	6x6	24+	P, W	PA	2 entrance kit fox out in open w/ old pellets + whitewash
	RKBAH006	Y	Y	431600 3932809	X	6x8	20+	NONE	IA	Old kit fox burrow (4 entrances)
	RMAAH007	Y	N	431865 3932736	X	8x10	20+	NONE	IA	Partially obstructed by creosote
					X = outside Phase 3 protocol time period → need to conduct visit #1 (QKR)					
*	Data for RDBAD007 RDBCG002 already collected by Julie Roth on 4/14/09 - (deemed marginally suitable - may get revisited on visit 2)									
*	Data for RKBCG003 already collected by Heather Valentine on 4/17/09 am.									

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): ARK 4/19 *Approved by team leader (initials, date):* JKR 4/20/09

Project: SM **Site:** Ridgecrest **Date:** 4/18-19 **Surveyor:** AH **GPS Unit:** J

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

CA Kingsnake
W. Fence lizard
CA Ground Squirrel
Sage sparrow → (possible Sage sparrow) JKR
Blue gray gnatcatcher
Raven
Horned lark
Pocket Rat (sp.)

4/18/09 (pm)

4/19/09 (am)
RDBAH004 – DL
Tortoise in entrance of burrow
Approx 11 inch × 8 inch
Clear eyes, good health
• black throated sparrow
• sage sparrow

T.V.
Blue gray gnatcatcher
w. fence lizard
raven
horned lark

Comments/Notes:

4/18/09 - Start of biofer plan II/III
PM Surveys
Area surveyed very trashed by people. Shotgun shells, clay pigeons, smashed beer bottles, etc

Reviewed by surveyor (initials, date): AH 4/19 *Approved by team leader (initials, date):* JKR 4/20/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/18/09 PM & 4/19/09 AM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
2+3	I	SJH, HRV

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:47 pm	78	2	Ø	0
End	7:45 pm	65	2	Ø	0

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
	RMAHV002	Y	N	3934711 N 0434585 E	P2+ P3-1	11x10	12	None	IA	Under Creosote Poor shape
	RMASH001	Y	N	3935627 N 0434173 E	P2+ P3-1	5x5	18+	None	IA	Cobwebs @ entrance.
	RDBHV003	Y	N	3935631 N 0434139 E	P2+ P3-1	12x7	20+	None	IA	DETO burrow. No DETO sign observed.
	Julie + Wendy: No detections									
	4/19/09					Start:	7:00 am	Temp 58	Wind: 1	Precip: Ø Cloud 0
						End:	8:13 am	Temp 70	1	Precip Ø Cloud 0
					Extended	End:	9:13 am			
Time 8:13 am ↓						End:	11:00 am			
	RDBADOOS6	N	N		P2+ P3-1	6x6	24+	None	IA	Under Creosote {data already gathered by Heather Valentine 4/18/09 pm}
Time 9:13 am ↓										
	RKBSH002	Y	Y	3932683 N 431918 E	P2	4x6	12+	W	PA	Kit fox den with 2 suitable burrows. Turns to left. 2nd hole larger + deeper (30+). Good Potential owl burrows.
					→ Needs P3 visit 1			(P3-1)		

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[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 4/20/09 *Approved by team leader (initials, date):* JKR 4/30/09

Project: SM **Site:** Ridgecrest **Date:** 4/18/09 pm 4/19/09 am **Surveyor:** SJH **GPS Unit:** I

BUOW Detections: None

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

4/18/09 pm BTSP

4/19/09 am Sage Sparrow
Rover
BTSP
Dead K-rat (baby)
Mojave green rattlesnake
Zebra-tailed lizard

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 4/20/09 *Approved by team leader (initials, date):* JKR 4/30/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/19/09 (am)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
2/3	G	Julie Roth (top) Heather Valentine (bottom)

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	7:10am	58	2	NONE	0
End	12:15pm	80	2-3	NONE	0

→ extended Phase 3 protocol occurred 8:13-9:13am [Sunrise = 6:13am]
X = outside Phase 3 protocol time period → need to conduct visit 1

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
8:13-9:13am	RMAJR001	Y	N	3934659N 0433313	1	8W x 8H	24"+	NONE	IA	Burrow under creosote shrub. 2 sticks in entrance. Old kit fox scat ~2ft away. Tiny bit of
After 9:13am →										whitewash (passerine?) nearby. Looks used by something (perhaps small mammal)
										Burrow gets taller/thinner as it goes back.
	RMAJR002	Y	N	3932767N 0432072E	X	~5W x ~6H	~10"+	NONE	IA	Burrow tucked under branches of shrub; branches form burrow roof for ~12".
										Whitewash (passerine?) nearby. Old rabbit scat nearby. Marginal burrow suitability
										due to location under shrub.
	RKBJR001	Y	Y	3932675N 0431629E	X	4W x 5H 5W x 11H	20"+ 20"+	W, P	PA	Whitewash and pellets old. 14 burrows in complex; about 1/3 are collapsed or
					2 representative burrows					too shallow. A few burrows look like tortoise burrows. Old coyote scat.
										Not an active complex.
	Heather Valentine data below									
During Buow Phase 3 protocol (before 8:13am) →	RKBHV004	Y	Y	3932906N 0432638E	1	5W x 8H	12"+ turns, can't see	W	PA	4 entrances; 2 cobwebs; 1 partially collapsed 1 w/ some recent disturbance @ entrance.
										Small patches of old potential whitewash. Kit fox scat present (old)
				NO incidental detections!						

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.
[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.
[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 4/20/09 *Approved by team leader (initials, date):* JKR 4/20/09

Project: SM **Site:** Ridgecrest **Date:** 4/19/09 AM **Surveyor:** Julie Roth, Heather Valentine **GPS Unit:** G

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code**: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Sage sparrow
Rock wren
Black throated sparrow
White-crowned sparrow
Unk. whiptail (blue/green head, buffy speckling on back)

Julie Roth

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 4/20/09 *Approved by team leader (initials, date):* JKR 4/20/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/19/09 (am) 5 (pm)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
2/3	H	WLB

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	7:00	60	1	Ø	Ø
End	12:00	88	3	Ø	Ø

2/3

X = outside protocol transect (>100)

P.M S 5:45 85 1 Ø Ø
E 7:30 ~~75~~ 1 Ø Ø

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
	RKBWB003	Y	Y	0431645 3932731	X	6x8 4x8	20+ 20+	NONE	IA	7 burrows, old K. fox scat. Some pot. KF tracks not likely in use
pm protocol →	RKBWB004	Y	N	0451655 3930960	1	10x6	22+	W	PA	Sm amts white wash, not active. No apparent BUOW historic use. Top ar [illegible]

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): WLB ***Approved by team leader (initials, date):*** JKR 4/20/09

Project: SM **Site:** Ridgecrest **Date:** 4/19/09 **Surveyor:** WCB **GPS Unit:** #

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Black-throated Sparrow 4/18
gnatcatcher
H. larks - nesting behavior - nesting [illegible]
kingsnake
rockwren
Jack rabbit [illegible] / visual
Rock wren
Mojave green rattlesnake
[illegible] generalist
whiptails
Zebra-tailed lizard
Horned Lizard
* NEW SP. PM

4/19 Brewer's Sparrow
Black-throated Sp.
[illegible] Sp.
coyote & KF scat
Sage Sp.
H. hawk
Raven

Comments/Notes:

Reviewed by surveyor (initials, date): WCB *Approved by team leader (initials, date):* JKR 4/20/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/19/09 (pm)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
II/III	T	AHH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	1747	85	2	0	0
End	1930	70	1	0	0

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
	RKBAH008	Y	Y	432052 3937167	1	7x12	12+	W (old)	PA	Old [illegible] complex, [illegible] [illegible] (rabbits)
	FBBAH009	Y	Y	431805 3937085	1	14x6	24+	P	PA	One kit fox burrow, one Desert tortoise burrow / No sign w/ old [illegible]
	RDBAH010	Y	N	431673 3936998	1	12x6	24+	W (lots) P (old)	PA	Apparently active desert tortoise (tracks) burrow w/ BUOW sign (w/ [illegible] old [illegible])
	RDBAH011	Y	N	431788 3936584	1	9x5	15+	None	IA	Older [illegible] burrow. No [illegible]

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[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): AH 4/19 ***Approved by team leader (initials, date):*** JKR 4/20/09

Project: SM **Site:** [illegible] **Date:** 4/19/09 (pm) **Surveyor:** AH **GPS Unit:** J

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
		NONE						

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

CA Horned lizard
Zebra lizard (Western tailed lizard? - JKR)

Comments/Notes:

Reviewed by surveyor (initials, date): AH 4/19 *Approved by team leader (initials, date):* JKR 4/20/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Along west side of pit area - heading South - we stopped @ 3935913N

Project: SM **Site:** Ridgecrest **Date:** 4/19/09 (pm)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
2/3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:50pm	80-85	2	None	0
End	7:48pm	65	2	NONE	0

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
?	RDBJR001	Y	N	3936729N 0431795E	1	8W x 7H	24"+	NONE	IA	Looks like Active burrow. Possibly DETO tracks inside burrow entrance. Vegetation leading up to burrow: Shrit and matted.

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O-**Owl, **W-**Whitewash, **P-**Pellets, **T-** BUOW Tracks, **B-** Bones (from degraded pellets), **F-**Feathers, **Pr-**prey remains, **Ef-**Eggshell fragments, **St-**Sticks, **NONE-**no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 4/20/09 ***Approved by team leader (initials, date):*** JKR 4/20/09

Project: SM **Site:** Ridgecrest **Date:** 4/19/09 (pm) **Surveyor:** Julie Roth **GPS Unit:** I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

NONE

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 4/20/09 *Approved by team leader (initials, date):* JKR 4/20/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/19/09 (pm)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
2+3	G	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:55pm	~55	2	None	0
End	7:45pm	~68	1	None	0

Butter Survey

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
?	RDBSH001	Y	N	N 3936973 E 0431808	P2+ P3-1	5x7	24	None	IA	DETO burrow - good condition. No sign, but indistinguishable tracks at entrance. Rabbit scat
	RDBSH002	Y	N	N 3936805 E 0431754	P2+ P3-1	12x14	24+	None	IA	Active DETO burrow! Abundant scat inside & outside burrow. Large tracks. Fresh tracks
	RKBSH001	Y	N	N 3936743 E 0431821	P2+ P3-1	7x7	12+	None	IA	Photos: 45, 46, 47 = DETO scat. 48, 49 = burrow (Tulare County)
							(Turns, so collapsed)			(No comments for RKBSH001)
	RDBSH003	Y	N	N 3936675 E 0431846	P2+ P3-1	11x5	[None taken]	None	IA	Active DETO burrow. Scat at entrance. Tracks
	RDBSH004	Y	N	N 3936660 E 0431870	P2+ P3-1	12x6	30+	W, P (old)	PA	Active DETO burrow. Tracks, matted veg. Previously used by BUOW.

***IDENT Code**: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

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[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 4/20/09 ***Approved by team leader (initials, date):*** JKR 6/10/09

Project: SM **Site:** Ridgecrest **Date:** 4/20/09 **Surveyor:** SJH **GPS Unit:** 6

BUOW Detections: None

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

***IDENT Code**: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Horned lizard

HoLA

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 4/20/09 *Approved by team leader (initials, date):* JKR 6/11/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/20/09 (am)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
2&3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:54 am	55	1	NONE	0
End	10:08 am	80	1	NONE	0

Potential BUOW Burrows:

X = Outside Phase 3 protocol time period → need to conduct visit 1.

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
before 8:13am	RDBJR002	Y	N	3935422N 0431786E	1	10W x 7H	12" +	W, P	PA	Burrow out in open. Whitewash and pellets - old. Piece of vegetation at entrance to burrow.
8:13am - 9:13am	(No burrows located)									A few cobwebs along tipped over entrance. Only small shrub nearby.
after → 9:13am	RKBJR002	Y	Y	3934858N 0431036E	X	4W x 6H 6W x 5H 8W x 5H	12" + 12" + 16" +	NONE	IA	9:17am; 3 burrow complex. 1 burrow with cobwebs. Old scat fox scat nearby. Old coyote scat nearby. 3 burrows placed around creosote shrub clump.

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 4/20/09 ***Approved by team leader (initials, date):*** JKR 4/21/09

Project: SM **Site:** Ridgecrest **Date:** 4/20/09 **Surveyor:** Julie Roth **GPS Unit:** I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Gopher snake (~ C-7 center) → Photo 50 → (JR050)
Western whiptail (CA Whiptail?) - middle of B-7; and B-8

Comments/Notes:

500ft buffer in southwest corner of project area is thrashed by human disturbance. There are lots of volcanic (black) rock along ridge to west & west border of project area (in south) - In this area, we saw several kit fox looking burrows that were dug straight down into ground & turned ~ 6-12" down. Not suitable burrow entrance for BUOW.

Reviewed by surveyor (initials, date): JKR 4/20/09 *Approved by team leader (initials, date):* JKR 4/20/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgeverest **Date:** 4/20/09 AM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
2+3	G	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:58am	~18	1	None	0
End	8:13	~75	1	None	0
Extended: End	9:15	~79	1	None	0
End	10:08 am	~25	1	None	0

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
	After 8:13am	- Phase 2+3								
	↓	↓								
	After 9:13am	↓								
	↓	Phase 3								
	Surveyed 30-m line on 150-m buffer around Ts									
	No suitable BUOW burrows or BUOWs observed.									

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 4/20/09 ***Approved by team leader (initials, date):*** JKR 6/9/09

Project: SM **Site:** Ridgecrest **Date:** 4/20/09 **Surveyor:** SJH **GPS Unit:** G

BUOW Detections: None

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	S (M/F	A (A/J	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 omenclature and es.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

ROWR
HOLA
Whipsnl
Kopler snake (Juvi [illegible])

Comments/Notes:

Low suitability for Burrow [illegible] Very rocky, associated by gun fire. Photo 132-0035.
Project boundary against rocky hill.

Reviewed by surveyor (initials, date): SJH, 4/20/09 *Approved by team leader (initials, date):* JKR 6/9/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/20/09 (am)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
2/3	H	WLB/ARH/SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:57	60°	1	0	0
End	10:15	80°	1	0	0

JKR

Potential BUOW Burrows:

X = Outside Phase 3 protocol time period → need to conduct visit 1. (JKR)

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
Extending project site outside	910 RKBWB005	Y	Y	0430880 3935167	1	13x5 10x12	30++ 30++	N	IA	active kit fox burrows - 5 main entrances 9-10 burrows - Fresh kf scat
→	RMAWB006	Y	N	0431094 3933780	X	7x7	18"	N	IA	no sign - generally suitable (shallow)
	Steve Henderson →			No burrows located						
	Andy Hatch →			No burrows located.						

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-[illegible] P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Re[illegible] *(initials, date):* WLB *Approved by team leader (initials, date):* JKR 4/20/09

Project: SM **Site:** Ridgecrest **Date:** 4/20/09 (AM) **Surveyor:** WCB/ARH/SJH **GPS Unit:** H

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Reviewed by surveyor (initials, date): WCB *Approved by team leader (initials, date):* JKR 4/20/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/20/09 PM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
II/III	J	AH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	1741	89	1	0	0
End	1937	79	1	0	0

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
	RDBAH012	Y	N	432530 3937187	1	6x4	22	NONE	IA	Recently used [illegible]
	RKBAH013	Y	N	433141 3937078	1	8x8	24	NONE	IA	Not much if any recently use

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): AH 4/20 ***Approved by team leader (initials, date):*** JKR 4/21/09

Project: SM **Site:** Ridgecrest **Date:** 4/20 **Surveyor:** ARH **GPS Unit:** J

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Stopped survey at fence by hiking 39 —

433350
3937115

Reviewed by surveyor (initials, date): ARH 4/20 *Approved by team leader (initials, date):* JKB 4/21/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/20/09 (pm)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Rotter, Steve Henderson

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:40 pm	90	2	NONE	10
End	7:40 pm	76	1	None	10

Potential BUOW Burrows:

/ = Not suitable for BUOW.

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
B-8	RFBJR001	N	Y		1	See Phase 2 Data		None	IA	
B-11	RMAWB005	N	N		1	" "	"	None	IA	
C-11	RDBKD001	N	N		1	6 x 3	12	None	/	Not suitable for BUOW. Too small.
C-13	RMAAH007	N	N	—	1	See Phase 2 Data		NONE	IA	entrance largely facing crosspole shrub. Low suitability. burrow roof collapsing, but hole still remains & burrows. Potential old white wash.
C-13	RKBSH002	N	Y	—	1	See Phase 2 Data		(W? old)	PA	
* C-13	RDBAH004	N	N	—	1		12"	NONE	/	Active DETO burrow - tracks of DETO evident in burrow. Burrow too small for Burrow-Icam
C-13	RMAJR002	N	N	—	1	See Phase 2 Data		W?,	PA	Little bit of white wash - partially [illegible]. See photo of burrow lined with sticks & vegetation.
										Looks like freshly clipped veg. in front of burrow entrance. Old rabbit poop inside.
										Probably not active by BUOW, but something else.
										Veg. in overall entrance looks like result of
										Shrub above burrow.
?	RKBAH003	N	Y		1	See Phase 2 data		W	PA	Main burrow with DETO inside.

***IDENT Code:** the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.
[2] **BUOW or Sign: O-**Owl, **W-**Whitewash, **P-**Pellets, **T-** BUOW Tracks, **B-** Bones (from degraded pellets), **F-**Feathers, **Pr-**prey remains, **Ef-**Eggshell fragments, **St-**Sticks, **NONE-**no sign detected.
[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 4/28/09 *Approved by team leader (initials, date):* JKR 4/28/09

* - This burrow had a live DETO in it earlier today - see Phase 2 data!

Project: SM **Site:** Ridgecrest **Date:** 4/20/09 **Surveyor:** Julie Rotty, Steve Henderson **GPS Unit:** I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Black-tailed jackrabbit.
Desert tortoise
HOLA
CORA

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 4/28/09 *Approved by team leader (initials, date):* JKR 4/28/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgewest **Date:** 4/20/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	G	Julie Roth, Steve Henderson

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:40 pm	90	2	None	10
End	7:40 pm	76	1	None	10

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C-13	RKBAH005	N	Y*		1	See Phase 2 data		None	IA	Two entrances into same hole. One is suitable for BUOW. Possibly some very old whitewash, difficult to tell
C-13	RKBWB003	N	Y		1	↓	↓	None	IA	High-suitability for BUOW. Many burrows
C-13	RKBJR001	N	Y		1	↓	↓	~~None~~ (W?)	PA	High-suitability for BUOW. Many burrows possible whitewash.
C-13	RKBAH006	N	Y		1	↓	↓	None	IA	Small, slightly degraded burrows. Cobwebs.
			* 2 entrances very close together							

***IDENT Code:** the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 4/20/09 ***Approved by team leader (initials, date):*** TKR 4/28/09

Project: SM **Site:** Ridgecrest **Date:** 4/20/09 **Surveyor:** Steve Henderson, Julie Roth **GPS Unit:** 6

BUOW Detections: None

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOW Detected	Sex (M/F/Unk.)	(A[illegible]nk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 4/20/09 *Approved by team leader (initials date):* JKR 4/28/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/20/09 PM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
2/3	H	WLB

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:12	39°	2	Ø	Ø
End	7:31	79°	1	Ø	Ø

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
?	RMANB007	Y	N	0432940 3937230	1	12x7	20+	N	IA	manual burrow not recently used has rain crust
?	RKBWB008	Y	Y	0433017 3937198	1	12x15	20+	W	PA	looks like some kit use. 3 total w/ two other burrows collapsed

***IDENT Code**: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): WLB ***Approved by team leader (initials, date):*** JKR 4/21/09

Project: SM **Site:** Ridgecrest **Date:** 4/20/09 **Surveyor:** WB **GPS Unit:** H

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

no [illegible]

Comments/Notes:

Reviewed by surveyor (initials, date): WB *Approved by team leader (initials, date):* JRC 4/21/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/27/09 Am

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:40 am	60	2-3	NONE	5
End	8:03 am	68	3-4	NONE	5

X NS- Not suitable for BUOW

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-7	RKBMG010	N	Y	—	1	10W x 13H	>24"	W (old, white)	PA	15+ entrance burrow complex. ~1/3 of burrows w/ cobwebs. Old coyote and kit fox scat. ~5-6 burrows suitable.
D-7	RMAMG032	N	N	—	1	6W x 5H	12"	NONE	~~NS~~	Several burrows w/ trash (ie beer cans, newspaper) inside → cobwebs. Ends abruptly.
D-7	RMAKD021	N	N	—	1	6W x 5H	6"+	NONE	IA	entrance beneath branches of creosote. Not very high quality for BUOW.
D-7	RMAMG031	N	N	—	1	7W x 5H	12"+	NONE	IA	Cobwebs across entrance.
D-7	RDBKD013	N	N	—	1	7W x 3H	8"	NONE	~~NS~~	Narrows quickly and ends.
D-8	RMAMG036	N	N	—	1	8W x 6H	10"+	NONE	IA	Entrance beneath and facing base of creosote. Not very suitable for BUOW.
D-7	RDBKD004	N	N	—	2	(see visit #1)		NONE	IA	South-facing; Soil disturbed @ entrance.
D-7	RMARW037	N	N	—	2	"		NONE	IA	Stick in burrow; Some soil disturbance @ entrance.
D-7	RKBKD005	N	N	—	2	"		NONE	IA	
D-7	RMAKD008	N	N	—	2	"	10"	NONE	~~NS~~	Burrow ends abruptly. - may have recently collapsed.
G-10	RKBCG001	N	Y	—	1	8W x 6H	12"+	NONE	IA	@ 9:35am checked this out. 3 burrow complex. Only 1 burrow really suitable for BUOW. Kit fox scat (old)

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 4/27/09 ***Approved by team leader (initials, date):*** JKR 4/27/09

Project: SM **Site:** Ridgecrest **Date:** 4/27/09 am **Surveyor:** Julie Roth **GPS Unit:** I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Sage Sparrow
Horned Lizard (C-8) - probably desert horned lizard.

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 4/27/09 *Approved by team leader (initials, date):* JKR 4/27/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/27/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	G	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	0651 a.m	~56	3	None	0
End	0804 a.m	~60	3	None	0

NS = not suitable

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-6	RDBM6033	N	N		1	6 x 2	3	None	NS	Collapsed
D-6	RDBM6031	N	N		1	11 x 5	12	None	NS	Tortoise tracks
D-6	RKBM6011	N	Y		1	11 x 6	24+	None	IA	2 burrows. One is suitable for BUOW, other potentially suitable. old Kit Fox scat
D-6										
D-6	RDBM6032	N	Y		1	11x7	24+	W	PA	Could be considered part of same complex as RKBM6011 one burrow suitable 2-3 others are collapsed → Too low in height.
D-6	RDRKD011	N	N		1	7x3.5	18+	None	NS	
D-6	RMARW041	N	N		1	8x9	18+	None	IA	Mapped. Under crosser
D-6	RDBM6027	N	N		2			None	IA	May be <18" deep.
D-6	RDBM6027	N	N		2			None	IA	
D-6	RKBKD004	N	Y		2			W possibly, but old	PA	
D-6	RDBRW017	N	N		2			None	IA	
D-6	RKBSH003	Y	Y	0432599 E 3925901 N	1	5x8	12+	None	IA	Kit Fox burrow complex not previously mapped. 3 suitable holes. Couldn't see full depth.

***IDENT Code:** the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O-**Owl, **W-**Whitewash, **P-**Pellets, **T-** BUOW Tracks, **B-** Bones (from degraded pellets), **F-**Feathers, **Pr-**prey remains, **Ef-**Eggshell fragments, **St-**Sticks, **NONE-**no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 4/27/09 ***Approved by team leader (initials, date):*** JKR 6/12/09

Project: SM Site: Ridgecrest Date: 4/27/09 Surveyor: SJH GPS Unit: F

BUOW Detections: None

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

HOLA

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 4/27/09 *Approved by team leader (initials, date):* JKR 6/12/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgeline **Date:** 4/27/09 PM & 4/28/09 AM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
2	G1	[illegible]

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	1700	75°	4	None	60
End	1739	73°	6	NONE	10

Potential BUOW Burrows:

X = too windy for Phase 3 survey; need to re-survey for visit #1.

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
	KFW005	Y	Y	N 3937756 E 424[illegible]	X	4W 5H	12+	NONE	IA	old KF burrow complex; 3-4 entrances still w/ open [illegible]; 3-4 additional filled in; KF [illegible] [illegible] no new disturbance burrows by largest open burrow quickly; [illegible] [illegible] → [illegible] not need to return. No BUOW sign.
								WEST Species: CORA, HOLA, LASP VEFD [illegible]		
START: 555		58°F		WIND: 2		PRECIP: NONE		CC% 5		[illegible] 0120
END ~0720		57°F		WIND 4		—	"	CC% 0		
	RKB+V006	Y	Y	N 3935723 E 424745	1	4-5W 8 H	16+	NONE	IA	KF burrow complex, lots of old scat; sign evidence of recent disturbance but not sure of species; no new sign to burrows. Still [illegible] a possible collapsed [illegible] could be present
Second AM session:										
Start 0810		57°F		WIND 3		PRECIP NONE		CC% 1		
END 0920		65°F		WIND 2			"	CC% 1		
										CORA, HOLA,
										? Western

APR 28 2009

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): [illegible] *Approved by team leader (initials, date):* JKR 6/10/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/27/09 Pm

4/28/09 Am

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
2/3	H	WLB

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:35 pm	55°	5	0	70
End	7:39	60°	5	0	20%
4/28/09 AM	5:37	50	2-3	0	10%
	9:20	64°	2-3	0	0%

X = too windy - must re-survey on Phase 3 visit #1.

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
	RKBWB009	Y	Y	0434468 3935925	X	6x5 12x9	20+ 18+	N	IA	Kit fox scat, 4 burrows
	RKBWB010	Y	N	0439945 3934663	X	11x7	18+	Y	PA	one burrow - old whitewash (one) - recent activity by other spp
4/28/09 Am	NO BURROWS RECORDED									

PHOTO OK

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3] **Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): WLB ***Approved by team leader (initials, date):*** JCR 6/10/09

Project: SM **Site:** Ridgecrest **Date:** 4/28 **Surveyor:** WLB **GPS Unit:** 4

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

4/27 King ~~snakes~~ (2) → Later identified as long-nosed snakes.
4/28 Wilson's warbler, b-g gnatcatcher, cottontail, Brewer's sparrow, coyote droppings

Comments/Notes:

Reviewed by surveyor (initials, date): WLB *Approved by team leader (initials, date):* JKQ 6/10/09

7:33pm Sunset

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/27/09 pm

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
2/3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:35pm	68	4-5	NONE	55
End	7:39pm	60	5-6	NONE	3

Potential BUOW Burrows:

X = Conducted outside protocol conditions (Visit #1 still needs to be completed)

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
?	RMAJR004	Y	N	3935612N 434270E	X	8W x 6H	12"+	NONE	IA	Cobwebs over entrance. Burrow under side of creosote.
↓	RKBJR004	Y	Y	3935429N 434472E	X	8W x 11H	12"+	W(little bit)	PA	Old kit fox scat. 4 entrances. Old coyote scat nearby.
↓	RMAJR005	Y	N	3935282N 434576E	X	10W x 6H	18"+	NONE	IA	Old kit fox scat with some very soft fur in it. Entrance under branches of creosote. Cobwebs.

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JVR 4/28/09 ***Approved by team leader (initials, date):*** JKR 4/28/09

Project: SM Site: Ridgecrest Date: 4/27/09 Surveyor: Julie Roth GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Long-nosed snake - near intersection of 395 & Brown Rd ~400 m

Comments/Notes:

Reviewed by surveyor (initials, date): JKB 4/28/09 *Approved by team leader (initials, date):* JRB 4/28/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/27/09 pm

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
2	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:36 pm	68	5	Ø	60
End	7:39 pm	60	5	Ø	0

Potential BUOW Burrows:

X = Toowindy - need to re-survey for visit #1 (Phase 3)

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
	RKBSH004	Y	Y	0434577 3934807	X	11x11 9x11	18+ 12+	None	IA	~11 burrows, 5 suitable. Long-nosed snake inside one burrow. Kit fox scat. Fresh scraping/digging. Trash stuffed inside some burrows.
	RKBSH005	Y	Y	0434601 3934854	X	11x7	18+	None	IA	2 burrows - both suitable. One possibly old DETO burrow. Cobwebs.
	RKBSH006	Y	Y	0434698 3934941	X	5x5	12+	P, W	PA	Pellet, moderate amount of whitewash. 4 suitable burrows. Whitewash doesn't appear too old. Coyote scat.

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[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 4/28/09 ***Approved by team leader (initials, date):*** JKR 6/10/09

Project: SM **Site:** Ridgecrest **Date:** 4/27/09 **Surveyor:** SJH **GPS Unit:** F

BUOW Detections: None

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

CORA
Long-nosed snake
HoLA
Ground squirrel (probably Antelope G.S.)

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 4/28/09 *Approved by team leader (initials, date):* JKB 6/10/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/28/09 Am

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
2	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:00 am	55	3	NONE	<5
End	9:00 am	68	-4	NONE	5

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
		NONE								

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JRR 4/28/09 ***Approved by team leader (initials, date):*** JKR 6/10/09

Project: SM **Site:** Ridgecrest **Date:** 4/28/09 **Surveyor:** Julie [illegible] **GPS Unit:** I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Sage Sparrows
Antelope ground squirrel (NE along Hwy 395) → prob 2 transects

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 4/28/09 *Approved by team leader (initials, date):* JKR 6/10/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/28/09 Am

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
2,3	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:06 am	50	3-4	Ø	5
End	7:20 am	58	3-4	Ø	0
Start	8:14 am	60	4-5	Ø	0
End	9:20 am	65	2	Ø	0

Buffer Surveys/Phase 2

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
?	RMASH002	Y	N	0435001 3935006	1	7x10	10+	W (poss. not BUOW)	PA	Under creosote. Coyote scat outside entrance. Located btw. China Lake Blvd. + Hwy 395.
↓										Photo: 134-0042
	RMASH003	Y	N	0434994 3935036	1	7x8	10+	W	PA	Small amount of old whitewash.
	End: 7:20 AM.		End at	0435044, 3935090		(150-m transect line) at		property line.		
	Start: 8:14 Am									
	- No burrows -									
	End: 9:20 A.M									

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[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3] **Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 4/28/09 ***Approved by team leader (initials, date):*** JCB 4/28/09

Project: SM Site: Ridgecrest Date: 4/28/09 Surveyor: SJH GPS Unit: F

BUOW Detections: None

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

***IDENT Code**: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

WIWA B-T Jackrabbit
BRSP HoLA
CORA BTSP

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 4/28/09 *Approved by team leader (initials, date):* JKR 6/10/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** [illegible] **Date:** 4/28/09 Pm

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
2	G	HR Valentine

4/29/09 AM

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	1740	75	6-7	None	0
End	1915	68	4	None	0

Potential BUOW Burrows:

X = too windy; need to re-survey as phase 3 visit #1. NS = not suitable for BUOW

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
4/28/09 Pm	RMAHV008	Y	N	3135872 [illegible]	X	W 11 H 10	20+	NONE	IA	[illegible] falling in; [illegible] under [illegible] burrow; [illegible] no scat found
								Other Species:		CORA, Black-throated sparrow, Mojave green, long-nosed snake, HOLA
4/29/09 (AM)	START: 0615	TEMP: 43°	WIND: 1	PREC: IT	NONE	CICV% 0	TROPICOL 8[illegible]			
E6	RDBMG040	N	N	—	1	W 3 H 2	4+	NONE	NS	DELETE tiny
	RMAKD030	N	N	—	1	W 4 H 6	20+	NONE	IA	under creosote; some branches around entrance but not completely obscured; cobwebs; entrance to E
	RMAMG041	N	N	—	1	W 7 H 5	2	NONE	NS	DELETE beginning of dig, no burrow area around it collapsed
	RMARW048	N	N	— Same as MG041 above					NS	~~DELETE~~; believe this is same burrow as MG041, there is a small lizard hole nearby, but GPS lines [illegible]
	RMAKD041	N	N	—	1	W 8 H 7	12 only	NONE	NS	DELETE - Starting of burrow, but ends abruptly
	RMAMG040	N	N	—	1	—	—	NONE	NS	DELETE - dig under bush -> no burrow
	RMAKD039	N	N	—	1	W H	—	NONE	NS	DELETE - beginning dig of [illegible] burrow — no [illegible]
	RKBRW007	N	Y	—	1	W 8 H 11→6	16+	NONE	IA	3 holes fairly spread out; RF and coyote scat found; all holes seem to narrow quickly, but continue; some disturbance near burrows, but no recent sign (ie scat)

Phase 3 Surveys

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JKR 6/10/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Tidewater **Date:** 4/29/09 Am (cont.)

- Mojave Ecocen
CORA
HELA
Shrubs - Shades whiptail (a) chuckwalla (fairly [illegible] lizard)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	G	HR Valentine

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start					
End					

~~NS~~ - Not suitable for BUOW.

PROTOCOL 0801
Extended 0801

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E6	RMAMG045	N	N	—	1	—	—	NONE	~~NS~~	DELETE – 2 burrow starts, but no burrows
	RMAKD040	N	N	—	1	W 12 H 8	?	NONE	~~NS~~	DELETE – too obstructed by branches under creosote; very difficult to see into
	RMAMG046	N	N	—	1	W 7 H 4	6	NONE	~~NS~~	DELETE – shallow beginning of burrow – ends a few inches
	RDBMG037	N	N	—	1	W 12 H 5	16+	NONE	IA	coyote scat around burrow; cobwebs covering entrance; left side of burrow sloping into entrance; one small mammal scat found
	RDBMG038	N	N	—	1	W 10 H 3	5	NONE	~~NS~~	DELETE – collapsed or filled in no burrow
E5	RMAMG051	N	N	—	1	W 6 H 3	3	NONE	~~NS~~	DELETE – mostly filled in by dirt and vegetation – shallow
	RDBMG042	N	N	—	1	W 7 H 2	6+	NONE	—	DELETE – mostly collapsed, filled in, false scats, dist. burrow (DT?) ↑ OBI
	RMAKD042	N	N	—	1	W 7 H 6	12+	NONE	IA	under Senna shrub, but open enough; no recent activity; cobwebs covered entrance
	RMAKD035	N	N	—	1	W 5 H 6	6	NONE	~~NS~~	DELETE – collapsed/filled in or just started
	RMARW049	N	N	—	1	est. W 5 H 6	?	W Pellets/prey remains	IA	under creosote; Entrance to W; very obstructed by few branches → difficult to see into; unlikely for BUOW → too obstructed. ? DELETE
	RDBKD015	N	N	—	1	W 6 H 3	4	NONE	~~NS~~	DELETE very shallow
	RMAMG048	N	N	—	1	W 7 H 3	8	NONE	~~NS~~	DELETE – shallow → ends ~8"
	RMAKD034	N	N	—	1	W 5 H 4	?	NONE	IA	under creosote entrance facing base of shrub, fairly obstructed by branches; cob webs

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3] **Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Done to end 5/1 daily entry

Reviewed by surveyor (initials, date): HR ✓ ***Approved by team leader (initials, date):*** JK R 6/10/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Ridgecrest Date: 4/29/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	G	H. Nakutsing

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start					
End	0857	65	2	NONE	0

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E5	RMARW052	N	N	—	1	W 5 H 4	12+	NONE	IA	under creosote bush open; nice sign for burrow however no sign found; coyotes over entrance
[illegible]	RDBWB013	Y	N	N 3936300 E 0423302	1	W 12 H 5	15	NONE	IA	GPS H found while walking back to car; large burrow, but shallow

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): HNV 4/29/09 ***Approved by team leader (initials, date):*** JKR 6/10/09

Project: SM **Site:** Ridgecrest **Date:** 4/29/09 Am **Surveyor:** Heather Valentine **GPS Unit:** G

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

CORA
HOLA
Gopher snake
Mojave Green
Whiptails

4/29/09 Am

Comments/Notes:

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JKR 6/10/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

NS = Not suitable for BUOW.

Project: SM **Site:** Ridgecrest **Date:** 4/28/09 Pm

4/29/09 Am

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
2/3	H	WKB

X = [too early, must re-survey for Phase 3 visit #1.]

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:09	75	6-7	0	0%
End	7:15	65+	3	0	0%
4/29/09	6:12	48°	1	0	0
	9:00	65°	2	0	0

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
? 4/28/09 Pm	RKBW0011	Y	Y	0433840 3936108	X	6x10 20x15	18+ 20++	F+ F+	IA	active couple burrow, fresh scat, tracks - smaller burrow pellets (old)
	RMAWB012	Y	N	0433922 3936087	X	7x6	18	N	Pr-coupled	rat in burrow - old kit for complex only two open burrows
									IA	No Sign but pot suit below cover but not observed
	4/29/09 Am 2									
E-6	RDBRW046	N	N		1	8x4	5"	N	NS	too shallow - Sewage
E-6	RDBRW043	N	N		1	6x16	12?	N	IA	could be used by BUOW but unlikely. pretty burned under
E6	RMARW065	N	N		1	8x5	18?	N	IA	Fire site. could be used but not likely as open. Possible WW
E6	RDBMG056	N	N		1	8x4.5	18	N	IA	Probably too narrow for use by BUOW
E-6	RDBKD020	N	N		1	9x4.5	15"	N	NS	too shallow + short to be suitable
E6	RDBKD022	N	N		1	9x5	15+	N	NS	same as above - not suitable
E-6	RDBMG051	N	N		1	7x6	12	N	NS	burrow is deeper than 12 but narrows to about 2" @ 12 inches back - not suitable
E6	RDBKD021	N	N		1	7x4	15	N	NS	too shallow + too narrow for BUOW not suitable
E-6	RDBMG055	N	N		1	5x3	7	N	NS	too small
E-6	RDBRW045	N	N		1	8x5	15+	N	NS	pretty narrow + shallow to be suitable Chokes down (~5") quickly.

← These 3 surveys ↑

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[1]Does the Burrow ID represent a complex of multiple burrows? **Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): WKB 4/29/09 ***Approved by team leader (initials, date):*** JKR 6/10/09

8:01
9:01

Project: SM **Site:** Ridgecrest **Date:** 4/28/09 pm 5/4/29/09 Am **Surveyor:** WCB **GPS Unit:** H

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

4/28 Pm Longnosed snake, barn owl, + lots of coyote sign.
2 W - green

4/29 Am [illegible] done

Comments/Notes:

Reviewed by surveyor (initials, date): WCB 4/29 *Approved by team leader (initials, date):* JKR 6/10/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/29/09 AM (cont)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	H	WLB

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:12	48	1	Ø	Ø
End	9:00	65	2	Ø	Ø

(2) **Potential BUOW Burrows:**

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E-6	RDBRW0316	N	N		1	4x10	15+	N	NS	probably too narrow to be suitable
E-6	RDBMG050	N	N		1	—	—	N	NS	completely caved in not suitable
E-6	RDBMG046	N	N		1	10x5	18"	N	IA	could be used but under creosote + other slugs
E-6	RDBMG043	N	N		1	4x8	10"	N	NS	a bit to narrow + shallow to be suitable (curvature)
E-6	RDBMG039	N	N		1	8x4	10+	N	NS	roof caving in - could be used but not likely.
E-6	RKBMG014	N	N		1	15x12	30+	P	PA	Pretty large / potential wing movement use - coyotes / old pellets
E-6	RDBMG049	N	N		1	6x1	6"	N	NS	collapsed not suitable DETO SCAT
E6	RMAMG059	N	N		1	7x6	15+	N	IA	could be used no sign of recent activity
E-6	RDBMG045	N	N		1	7x6	12"	N	IA	under Senna shrub possible white wash.
E-5	RDBMG043	N	N		1	5x9	15+	N	NS	probably too narrow but appears deep enough.
E-5	RDBRW039	N	N		1	5x10	25+	N	IA	could be used - quite deep
E-5	RDBKD017	N	N		1	4x6	15	N	NS	too narrow - lots of soil slumped into burrow
E-5	RDBKD018	N	N		1	3x5	5	N	NS	collapsed not suitable
E5	RDBRW033	N	N		1	7x4	8"	N	NS	too shallow - not recently used - grasses growing in burrow
E-5	RDBRW034	N	N		1	3x6	9"	N	NS	not suitable, burrow filled in not utilized

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[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

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Reviewed by surveyor (initials, date): WLB 4/29 *Approved by team leader (initials, date):* JKR 6/11/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridge crest **Date:** 4/29/09 AM (cont)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	H	WLB

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start					
End	9:00	45	1-2	Ø	Ø

(3) **Potential BUOW Burrows:**

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E-5	RKBKD009	N	Y		1	7x12	18+	P	IA	only 1 burrow not collapsed (three total) No burrows partially filled in no recent activity lots of animal veg. over of. Pellets quite old
E-5	RMAMG054	N	N		1	8x10	3-4	N	NS	completely collapsed.
E-5	RDBMG047	N	N		1	3x6	6	N	NS	not suitable
										SAME AS above - veg. + cobbles in opening.
E5	RMAKD044	N	N		1	6x4	10+?	N	NS	Burrow completely obscured by sloping shrub - no reasonable access
E-5	RMARW060	N	N		1	5x3	12	N	NS	collapsed - not suitable
E-5	RKBKD008	N	Y		1	6x4 5x10	18+ 18+	Y	IA	old + recent KF scat. new/older coyote scat. Two burrows
E-5	RMARW062	N	N		1	7x3	3	N	NS	collapsed. not suitable

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Reviewed by surveyor (initials, date): WLB 4/29 ***Approved by team leader (initials, date):*** JKR 6/10/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/28/09 PM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
2	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:45 pm	70	6-7	NONE	0
End	7:15 pm	65	4	NONE	0

Potential BUOW Burrows: X - outside protocol - need to conduct visit #1

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
?	RBBJR001	Y	N	3935990N 433805E	X	7wx 12H	24"+	P, W	PA	Pellets (1½" long). Fair amount of whitewash. Burrow faces North between 2 creosote. Old kit fox scat nearby. [Photo # JR010 & JR011]
↓	RKBJR006	Y	Y	3936582N 433627E	X	12wx 11H	24"+	P, W, St	PA	3 burrows - all suitable for BUOW. 2 w/ white-wash and pellets; numerous pellets at one entrance. Some dark pellets. Coyote scat nearby. Dimensions of burrow w/ most sign. main burrow narrows to ~ 6wx5H w/in ~ 1ft of entrance. [Photos JR012, JR013, JR014] Nice burrow complex for BUOW! Photo JR012 shows ramp coming out of burrow w/ whitewash on it. Pellets range from just <1 inch → 1½" → 2". Best burrows faces east.

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Reviewed by surveyor (initials, date): JKR 4/28/09 ***Approved by team leader (initials, date):*** JKR 4/28/09

Project: SM **Site:** Ridgecrest **Date:** 4/28/09 pm **Surveyor:** Julie Roth **GPS Unit:** I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
		NONE						

***IDENT Code**: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Long-nosed snake
Black-tailed jackrabbit.
Horned Lark
Sage Sparrow
unk. Warbler.
Coyote - live adult

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 4/28/09 *Approved by team leader (initials, date):* JKR 4/28/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/28/09 PM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
2	F	SJH

Buffer Surveys: Phase 2

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:57 pm	73	6	Ø	0
End	7:15 pm	65	4	Ø	0

Potential BUOW Burrows: None

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
	NONE LOCATED									

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Reviewed by surveyor (initials, date): SJH, 4/28/09 ***Approved by team leader (initials, date):*** JKC 6/11/09

Project: SM **Site:** Lodgepole **Date:** 4/28/09 **Surveyor:** SJH **GPS Unit:** F

BUOW Detections: None

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

***IDENT Code**: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Long-nosed snake
Mojave green rattlesnake (1)

Comments/Notes:

Reviewed by surveyor (initials, date): SJH 4/28/09 *Approved by team leader (initials, date):* JKC 6/10/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Sunrise 6:01

Project: SM **Site:** Ridgecrest **Date:** 4/29/09 Am

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:05	42	1-2	NONE	0
End	8:50	70	1	NONE	0

~~NS~~ - Not suitable for BUOW.

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E-7	RMAKD047	N	N	—	1	7wx 4.5H	12"+	NONE	~~NS~~	Burrow faces base of creosote. Not suitable. Burrow narrows after entrance. Branches cover
E-7	RMAMG057	N	N	—	1	7wx 5H	12"+	NONE	IA	Burrow at base of creosote, faces out. entrance. Some soil disturbance @ entrance.
E-7	RMARW064	N	N	—	1	6wx 3H	8"	NONE	~~NS~~	At base of creosote. Branches obstructing burrow entrance & too small for BUOW.
E-7	RDBRW037	N	N	—	1	12wx 7H	18"+	NONE	IA	Burrow facing outward (NW) from base of creosote. K-rat/Lizard tracks outside. Cobwebs covering. black spider in visible entrance
E-7	RDBRW031	N	N	—	1	9wx 3.5H	12"+	NONE	~~NS~~	Burrow faces base of creosote. Burrow gets less tall as it goes back. Too small for BUOW
E-7	RDBMG054	N	N	—	1	8wx 5H	18"+	NONE	IA	In between 2 creosote - facing out & South. Entrance partially obstructed by branches. Low suitability. Soil disturbance @ entrance. Possible use by small mammals?
E-7	RDBMG053	N	N	—	1	10wx 7H	24"+	W, Pr, P	PA	Faces west. Moderate amount of whitewash. Feathers from small passerine prey at entrance. Cobwebs cover entrance. [Photo JR015, JR016]. Ants @ entrance. Burrow in open terrain. Photo JR016 shows whitewash.
E-7	RKBKD010	N	Y	—	1	18wx13H 9wx10H 3.5wx5H	36"+ 24"+ 12"+	W, P P W,	PA	3 entrances. One is very large. 2 w/ whitewash. Soil disturbed @ 2 entrances w/ whitewash. Old kit fox scat. Many pellets near burrows of various age. Some possible old DEIO scat. Entrances around small clump of creosote, facing east, west & south. Some pellets dark and a little bit glistening. [Photo JR017, JR018]
E-7	RBBMG002	N	N	—	1	7wx 11H	24"+	W, P, F	PA	Faces NW. Cobwebs over entrance. Degraded pellets in entrance.

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[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 4/29/09 *Approved by team leader (initials, date):* JKR 4/30/09

Project: SM Site: Ridgecrest Date: 4/29/09 AM Surveyor: Julie Roth GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
E-7	N/A	—	RKBRW013	1	Unk.	A	Flushed - flew away from burrow	fairly open terrain - creosote w/ some other shrubs interspersed near top of gentle sloping wash

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Sage Sparrows (several)

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 4/29/09 *Approved by team leader (initials, date):* JKR 4/30/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/29/09 am

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	See page 1 of 3				
End					

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E-7	RDBRW044	N	N	—	1	11W x 6H	20"+	P, W, St	PA	Faces West under creosote, but entrance not obstructed, many old pellets. Pellets ~1½" long.
										Pellets w/ fur, insect parts & lizard parts. 2 sticks inside burrow ~1 foot. [Photo JR019]
E-7	RDBRW042	N	N	—	1	6W x 4H	18"+	NONE	IA	Faces NE. DETO scat inside.
E-7	RMARW066	N	N	—	1	8W x 7H	12"+	NONE	IA	Faces NW – Commensant of base of creosote. Partially obstructed by branches. Lower quality for Buow.
E-7	RDBRW038	N	N	—	1	6W x 4H	18"+	NONE	IA	Faces SE. Small lizard in burrow entrance. under small shrub. (Sagebrush lizard?) blue speckles on back pale yellow speckles along side.
E-7	RMAKD046	N	N	—	1	7W x 6H	8"	NONE	~~A~~ IS	Ends abruptly – under creosote.
E-7	RKBRW013	N	Y	—	1	10W x 6H 10W x 9H	18"+ 24"+	W, P, F	A	Flushed a Buow as I approached ~25m away. @ 8:40am 2 entrances facing N & S. Lots of whitewash.
										One fresh dark pellet? [Photo JR020]. This fresh pellet removed from burrow! Photo JR021 – burrows.

← Extended protocol >2:01am

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3] **Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 4/29/09 ***Approved by team leader (initials, date):*** JKR 4/30/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/29/09 AM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:18 am	49	1	Ø	0
End	8:01 am	62	1	Ø	0
End	9:01 am	70	1	Ø	0

Still cool after 8:01 am. NS: Not suitable

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E-7	RMAKD031	N	N		1	8 x 7	15	P (old)	NS	Old pellet, but burrow not presently suitable. Shallow. Nearby burrow looks root/cavity - dug out.
E-7	RMAMG039	N	N		1	8 x 6	12	None	NS	Other is "deep, but constricts to [illegible] under creosote.
E-7	RMARW047	N	N		1	7x7	15	None	NS	
E-7	RMAKD036	N	N		1	7x5	8	None	NS	Under creosote. After ~8", hole constricts to [illegible] diameter
E-7	RMAMG049	N	N		1	3x5	10	None	NS	
E-7	RMAKD038	N	N		1	8x9	17	None	NS	Under creosote w/ branches [illegible]. Many cobbles
E-7	RMAKD037	N	N		1	7x7	18+	None	IA	Very low suitability - under creosote, partly obstructed
E-7	RMARW055	N	N		1	7x6	12	None	NS	Recent digging, shallow
E-7	RMARW054	N	N		1	5x3	7	None	NS	Partly collapsed. Vegetated.
8:01 AM E-7	RDBRW029	N	N		1	~15x10	Not Measured - BETO present			Large BETO exiting burrow + resting at entrance.
						Estimate.	Not measured			at ~0810. See comments on next page. Photos 135-0047-50.
E-7	RMAMG050	N	N		1	12 x 4	4	None	NS	Not a burrow anymore. Collapsed
E-7	RKBRW008	N	Y		1	12 x 18	18+	W/ small amount	PA	Constricts to 6 x 5 [illegible] & suitable burrows (= [illegible] on complex)
						5 x 11	15+			Old kit fox sign
E-7	RDBRW025	N	N		1	9x7	16+	None	IA	BETO burrow w/ recent excavation + fresh tracks

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3] **Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 4/29/09 ***Approved by team leader (initials, date):*** JKR 6/12/09

Project: SM **Site:** Ridgecrest **Date:** 4/29/09 **Surveyor:** SJH **GPS Unit:** F

BUOW Detections: None, but Julie Roth observed one BUOW at BKRW013

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

***IDENT Code**: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

*DETO at RDBRW029. Resting at burrow entrance, facing out. Carapace ~15" long x 18" wide. (Estimated at distance.) Clear eyes, blinking.

BTSP
Whiptail
CORA

Comments/Notes:

- On 3rd visit to burrow 1013 as PA burrow [illegible] based on dimensions, convert to NS. Probably resting [illegible]
- Julie located active/occupied burrow known. Flushed one BUOW. Burrows (2) not fit for owls. Abundant whitewash + some feathers. BKRW013.

Reviewed by surveyor (initials, date): SJH, 4/29/09 *Approved by team leader (initials, date):* JKR 6/12/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/29/09 PM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
II/III	I	AH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	1731	81	3	0	0
End	1940	65	3	0	0

Potential BUOW Burrows:

NS=not suitable for BUOW

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
	RKBAH020	Y	Y	432894 3957231	1	8x14	24+	W, P	PA	old kit fox complex, appears to have been used by Tortoise & BUOW
	RMAM6047	N	N	–	1	6x3	10	NONE	NS	Burrow collapsed/ends quickly
	RMARW053	N	N	–	1	9x7	12	NONE	NS	Partially obstructed, ends pretty quickly, where it has a roof, more like a trench
	RKBAH013	N	N	–	2	–	–	W	PA	May end quickly, Faces NE Tortoise scat
	RMAM6042	N	N	–	1	3x2	4	NONE	NS	Small ~~[illegible]~~ mammal hole that ends, no roof
	RMAKD032	N	N	–	1	4x3	5+	NONE	NS	Very small entrance, appears to have collapsed
	RMARW058	N	N	–	1	6x3	10	NONE	NS	Obstructed by brush, appears to have collapsed
	RMAKD043	N	N	–	1	6x6	12+	NONE	IA	Burrow is under bush, mostly obstructed old whitewash? kit fox scat.
	RMARW063	N	N	–	1	13x4	10	NONE	NS	Burrow obstructed, potentially collapsed
	RMAM6055	N	N	–	1	5x7	8+	NONE	IA	Fresh rabbit tracks
	RKBRW011	N	Y	–	1	6x12	24+	P, Pr, B	PA	Sign looked old. 10 entrances
	RMAM6056	N	N	–	1	5x6	7	NONE	NS	obstructed by brush Partially collapsed
	RDBKD019	N	N	–	1	12x4	12	NONE	NS	Burrow dead ends quickly
	RKBRW009	N	Y	–	1	10x15	24+	P	PA	Really old pellets (mostly kit fox) (a couple) scat
	RMARW056	N	N	–	1	8x5	12	NONE	NS	Ends quickly

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): AH 4/30 ***Approved by team leader (initials, date):*** JKR 6/12/09

Project: SM Site: Redgrass Date: 4/29/09 Pm Surveyor: AH GPS Unit: J

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Reviewed by surveyor (initials, date): AH 4/29/09 *Approved by team leader (initials, date):* JKR 4/12/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Big yeast **Date:** 4/29/09 pm

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3		Andy Hatch

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start		See page 1 of 3			
End					

Potential BUOW Burrows:

X NS = not suitable for BUOW

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
	RKBM6013	N	Y	—	1	6x10	24+	NONE	IA	Potential site. No BUOW sign. One active kit fox entrance. 11 total / holes
	RMARW057	N	N	—	1	4x2	5	NONE	X NS	Burrow collapsed
	RMAMG013	N	N	—	1	n/a	n/a	NONE	X NS	Burrow totally filled in. No roof, just a depression
	RMARW051	N	N	—	1	8x7	12+	W	PA	Burrow doesn't look active (cobwebs) but had one spot of whitewash
	RMAKD027	N	N	—	1	4x6	13	NONE	X NS	Blocked by stick, appears to pinch off and end
	RMARW050	N	N	—	1	N/A	N/A	NONE	X NS	NO ROOF. Actively being dug but not yet a burrow
	RMAMG044	N	N	—	1	4x2	5	NONE	X NS	Burrow filled in / too small
	RMAKD028	N	N	—	1	6x10	12+	W	PA	Burrow does NOT look active (cobwebs). One spot of whitewash near entrance

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O-**Owl, **W-**Whitewash, **P-**Pellets, **T-** BUOW Tracks, **B-** Bones (from degraded pellets), **F-**Feathers, **Pr-**prey remains, **Ef-**Eggshell fragments, **St-**Sticks, **NONE-**no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): 4/29/09 AH ***Approved by team leader (initials, date):*** JKR 6/12/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/29/09 PM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	G	HR/Vickerstine

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	1710	75	4	NONE	5
End	1922 1855 end	60	4	"	10

NS = not suitable for BNOW.

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E5	RMAKD033	N	N	—	1	W 4 H 7	14	NONE	NS	DELETE – narrows to 1 inch wide hole.
	RDBMG036	N	N	—	1	W 6 H 3	7	NONE	NS	DELETE – under creosote not very deep
	RKBRW006	N	Y	—	1	W 4 H 8	20+	W (small)	PA	5 entrances, 4 covered w cobwebs, one covered entrance of some recent use
				—						2 small splashes of white wash near burrow on north side; a lot of scat
										around area all use full of fur → KF
										one large coyote scat near used burrow
										entrance being used faces E/SE
										spinal bones on top of mound
	RKBRW005	N	Y	—	1	W 10 H 8	16+	NONE	IA	2 entrances cob webs on both; one fairly large; a lot of old KF and some scat
	RMAKD029	N	N	—	1	W 3 H 2	10+ (curves)	W	IA	burrow is small and appears to have been filled in, but not w/ dirt from
										directly around burrow; this area is
										relatively understocked; however
										a lot of white wash on mound outside
										entrance and a lot of scat around
										large DT scat outside burrow entrance
										too. Scat surrounding burrow appears
										to be KF as no insect or rodent parts
										were in scat – all hair/bones.
	RDBMG035	N	N	—	1	W 8 H 6	20+	NONE	IA	Recent use by tortoise evident by tracks and matting down of vegetation
	RMAKD026	N	N	—	1	—	—	NONE	NS	DELETE – collapsed in
↓	RMAMG038	N	N	—	1	W 4 H 7	~16	NONE	IA	under senna bush; cob webs over entrance unlikely use by BUOW and no sign, but possibly open enough understory

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

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Reviewed by surveyor (initials, date): HR/ ***Approved by team leader (initials, date):*** JKR 6/12/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/29/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	G	HRValentine

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start					
End	1922	60	4	NONE	10

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D5	RMAPW046	N	N	—	1	W 7 H 10	10	NONE	~~NS~~	Delete - not deep enough - under Senna bush
	RMAPW045	N	N	—	1	W 6 H 4	7	NONE	~~NS~~	DELETE - mostly filled in w/ dirt and vegetation - shallow
	RMAKD023	N	N	—	1	W 4 H 7	14	NONE	~~NS~~	under Senna - clear path, but dens appears to end; can't tell if it may turn to left — unlikely BUOW use
	RDEMG034	N	N	—	1	W 8 H 7	~16	NONE	IA	Slightly under Senna, but off to side decent opening; long entrance - steps.
	RDBMG030	N	N	—	1	W 11 H 5	14	NONE	~~NS~~	evidence of recent activity, but probably small mammal - shallow
	RMAMG034	N	N	—	1	W 6 H 4	5	NONE	~~NS~~	LATRINE - A lot of scat of several species coyote, kit fox may be DELETE - shallow area, very steeps up likely kit coyote
	RMAMG035	N	Y	—	1	W 8 H 7	24+	?W [small] ?P/B	PA	2 burrows, 1 filled in; very small spot of whitewash near entrance could be possum; KF scat present; 1 very old degraded potential pellet found
	RMAKD024	N	N	—	1	W 6 H 3	7	NONE	~~NS~~	DELETE - partially filled in shallow
			*No incidental detections							(IA) check on depth requirements may be too shallow and can be deleted.
			& no live BUOW detections.							

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

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Reviewed by surveyor (initials, date): HRV ***Approved by team leader (initials, date):*** DER 6/12/09

Project: SM **Site:** Ridgecrest **Date:** 4/29/09 pm **Surveyor:** H. Valentine **GPS Unit:** G

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code**: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JKR 6/12/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/24/09 PM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:34 pm	75	4	NONE	10
End	7:30	60	4	NONE	10

Potential BUOW Burrows:

NS - not suitable for BUOW.

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-3	RMAWB007	N	N	—	2	—	—	NONE	IA	Tiny spot of whitewash - probably passerine. Faces west.
D-3	RKBWB008	N	Y	—	2	—	—	NONE	IA	Main entrance faces NW.
D-3	RMAKD019	N	N	—	1	8wx 6H	8"	NONE	NS	Can see back of digging ~ 8" in.
D-3	RDBKD010	N	N	—	2	—	—	NONE	IA	One spot of whitewash ? - passerine? Faces W-NW
D-4	RMAKD022	N	N	—	1	8wx 8H	12"+	NONE	IA	Faces N. Entrance faces base of creosote. Marginal suitability due to partial obstruction of entrance. Out in open. Burrow narrows a little as it goes back. May be too small for BUOW. Faces West.
D-4	RDBRW025	N	N	—	1	9wx 4H	18"+	NONE	IA	
D-4	RMAKD017	N	N		2	—	—	NONE	IA	Faces west.
D-4	RKBRW004	N	Y		1	6wx7H 9wx12H	12"+ 36"+	W, P(many new)	PA	9 entrances. ~6 covered w/ cobwebs. Some brown, but dry pellets w/ insect parts. Pellets 1"-1 3/4" Old Kit fox and coyote scat.
D-4	RMAMG033	N	N		1	7wx 5H	5"	NONE	NS	Faces East.
D-4	RDBKD014	N	N		1	7wx 4H	8"	NONE	NS	
D-4	RMAMG037	N	N		1	5wx 4H	6"	NONE	NS	Roof collapsed for most of burrow - ends abruptly after roof begins.
D-4	RMAKD025	N	N		1	9wx 3H	1"	NONE	NS	Looks like the start of a DETO burrow.
E-4	RKBMG012	N	Y		1	5wx11H 5wx8H	18"+ 12"+	NONE	IA	4 entrances. 2 w/ cobwebs. Old Kit fox scat.
D-4	RMARW044	N	N		1	7wx6H	18"+	P(old), W	PA	Faces East. One pellet outside - degraded. 2 splatches of whitewash.

go through

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[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 4/30/09 *Approved by team leader (initials, date):* JKR 4/30/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/29/09 PM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	See page 1				
End					

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-4	RMAKD018	N	N	—	1	7wx 5H	6"	NONE	~~NS~~	Faces SW. Burrow gets smaller quick until it ends ~6" in.
D-4	RMAMG025	N	N	—	2	—	—	NONE	IA	

* Note: No incidental detections and No live BUOW detections.

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[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

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[3] **Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 4/30/09 ***Approved by team leader (initials, date):*** JKR 4/30/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/29/09 PM

& 4/30/09 AM (see page 3)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	H	WLB

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:14	78°	3-4	Ø	5%
End	7:32	60°	3-4	Ø	10%

PM

N = NONE

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E-5	RKBRW012	N	Y		1	5x6 5x9	18+ 20+	P	PA	11 burrows, 9 suitable size - no recent activity. Mostly KF scat but old pellets
E5	RMAMG058	N	N		1	4x5	15'	N	NS	some larger sz bone (hare or rabbit) scattered about no new KF activity either
										burrow cleared, caved down - not suitable
E-5	RDBRW40	N	N		1	8x6	25+	N	IA	active DETO sign (tracks, scat) Burro sign.
E-5	RDERW041	N	N		1	5x4	10"	N	NS	not deep enough to be suitable
E-5	RMAKD048	N	N		1	4x6	15'	N	IA	two collapsed burrows + one beneath creosote, could be used
E5	RDBRW03	N	N		1	5x7	3"	P	NS	Very old degraded pellet - single sm. bones but burrow was collapsed and is not suitable
E-5	RKBMG015	N	Y		1	20x9 5x7	20" 15+	N	IA	2 burrows - one coyote sized - not vacant coyote + kit for scat
E-5	RMARW001	N	N		1	5x3	—	N	NS	burrow collapsed
D-5	RMAKD020	N	N		1	8x5	15+	N	NS	Burrow buried beneath Sarria shrub. No easy access - annual grasses growing @ opening
D-5	RDBKD012	N	N		1	5x4	12	N	NS	collapsed
D-5	RKBMG008	N	Y		2			NONE	IA	no apparent new sign/activity - not active
D-5	RDBRW023	N	N	—	2	—		N	IA	no apparent new sign/activity - not active
D-5	RMAKD011	N	N	—	2	—		N	IA	no apparent new sign/activity not active
D-5	RMAMG030	N	N		1	10x5	18+	N	IA	Could be used - no sign

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Reviewed by surveyor (initials, date): WLB 4/29/09 ***Approved by team leader (initials, date):*** JKF 4/13/09

Project: SM Site: [illegible] Date: 4/29/09 Surveyor: [illegible] GPS Unit: M

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code**: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

usual species

Comments/Notes:

Reviewed by surveyor (initials, date): NB *Approved by team leader (initials, date):* JKR 4/13/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgegate **Date:** 4/29/09 PM
4/30/09 AM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	H	WLB

4/29 PM →

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:14	78°	3-4	Ø	5%
End	7:32	60°	3-4		
4/30 AM.	6:00	50°	1	Ø	5%
	7	62	1	Ø	10%

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
4/29 D-5	RMARW042	N	N		1	3'x15	N/A	N	NS	Scrape - not suitable DETO scat. Under creosote
4/30 D-6	RDBMG0024	N	N	—	2	—		NONE	IA	no sign - not active
D-6	RDBMG013	N	N	—	2	—		NONE	IA	no sign - not active
D-6	RKBRW001	Y	Y	—	2	—		NONE	IA	no [illegible] from the [illegible]
D-6	RDBMG010	N	Y		2			JKR NONE	IA	mention RF burrow... no new sign - not active
~~D-5~~	~~RKBRW002~~	N	[removed from dataset		2	this burrow called "NS" during visit 1]				no new sign - not active
D-5	RDBRW011	N	Y	—	2	—		NONE	IA	no new sign - not active
D-6	RDBMG019	N	N	—	2	—		NONE	IA	no sign - not active
D-7	RDBMG026	N	N	—	2	—		NONE	IA	no sign - not active - used by DETO
D-7	RDBRW021	N	N	—	2	—		NONE	IA	no sign - not active - robinweb cutage
D-7	RKBSD006	N	Y	—	2	—		NONE	IA	no new sign - not active
	* No incidental detections or live BUOW detections.									

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[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.
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[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): WLB 4/30/09 ***Approved by team leader (initials, date):*** JKR 6/13/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/30/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
III	J	AH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	1737	72	2	0	40
End	1940	62	2	0	25

X = Not Suitable (NS) for BUOW.

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C-11	RKBWB002	N	N		2			NONE	X	Burrow has no roof. Just a recently dug hole
C-11	RMAMG002	N	N		2			NONE	X	Burrow collapsed
C-11	RBBMG001	N	Y		2			W	PA	Fresh coyote scat. Burrow w/whitewash has not been active recently
C-11	RMAKD001	N	N		2			NONE	IA	Cobbles in entrance
C-11	RKBKD001	N	Y		2			W, P	PA	No fresh BUOW sign. Burrows used by mammals/b. rodents
C-11	RKBJJ002	N	Y		2			W, P	PA	No fresh BUOW sign. Some mammal/[illegible] use
C-11	RDBAD001	N	N		2			NONE	IA	Coyote scat. Burrow is not
C-11	RDBSD003	N	N		2			NONE	X	Burrow obstructed/collapsed
B-11	RKBSD001	N	Y		2			NONE	X	Two burrows in side of wash, both dead end in <2 feet.
B-11	RMAWB006	N	N		2			NONE	X	Burrow collapsed after about 1 foot
C-12	RDBGL001	N	N		2			NONE	X	Burrow mostly obstructed and ends after ≈2 ft
C-12	RDBJM001	N	N		2			NONE	X	Burrow mostly obstructed narrows down/ends in <2 feet
C-12	RMAJH001	N	N		2			NONE	X	Burrow mostly obstructed narrows down and appears collapsed after 1-2 ft
C-12	RMAJJ003	N	N		2			NONE	X	Burrow dead ends after 1.5 ft
C-12	RMAJH003	N	N		2			NONE	X	Burrow obstructed/collapsed

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Reviewed by surveyor (initials, date): AH 4/30/09 ***Approved by team leader (initials, date):*** JKR 5/6/09

Project: SM Site: Ridgecrest Date: 4/30/09 Surveyor: AHH GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

NONE

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**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Reviewed by surveyor (initials, date): AHH 4/30/09 *Approved by team leader (initials, date):* JKR 5/6/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

.. **SM** Site: Ridgecrest Date: 4/30/09 PM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
III	J	AH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start					
End					

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C-12	RKBJH003	N	Y		2			W, P	PA	old looking BUOW sign
C-12	RKBKD002	N	Y		2			W, P	PA	NO new BUOW sign
C-12	RKBWB001	N	N		2			NONE	IA	cobwebs in burrow

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Reviewed by surveyor (initials, date): AH 4/30/09 ***Approved by team leader (initials, date):*** JKR 5/6/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/30/09 AM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
III	J	AH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	0604	55	1	0	0
End	0800	68	1	0	0

Potential BUOW Burrows:

X = Not Suitable for BUOW

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D4	RMAKD007	N	N		2			NONE	X	Burrow may have collapsed, very small entrance, facing E - Did not appear suitable
D4	RKBKD007	N	N		2			W	PA	Appears to be active tortoise burrow Entrance faces W
C-3	RKBAH008	N	Y		2			W	PA	No fresh sign. Easily approached from any direction
C4	RKBAH009	N	Y		2			W	PA	Complex is one old [illegible] burrow and one Desert tortoise burrow. [illegible] at DO
C-4	RDBSH001	N	N		2			NONE	X	Faces S. Small [illegible] burrow (and [illegible])
C-4	RDBAH010	N	N		2			W	PA	Desert tortoise in Burrow Faces NW, approach from any [illegible]
C-4	RKBWR004	N	N		2			W	PA	Faces E. No fresh sign [illegible] after 2 wks ft. pretty open
C-4	RDBSH002	N	N		2			NONE	IA	Fresh Tortoise scat Faces NNE
C-4	RKBSH001	N	N		2			NONE	IA	Approach from NE
C-4	RDBJR001	N	N		2			P	PA	Old pellets. No current activity (cobwebs) Faces N.
C-5	RDBSH003	N	N		2			NONE	IA	Faces E. Active tortoise (tracks)
C-5	RDBSH004	N	N		2			W	PA	Faces S. Active tortoise (tracks)
C-5	RDBAH011	N	N		2			NONE	IA	Faces E. Non-active tortoise (cobwebs in entrance)

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[3] **Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): AH 4/30 ***Approved by team leader (initials, date):*** JKR 5/6/09

Project: SM Site: Ridgecrest Date: 4/30/09 Surveyor: AH GPS Unit: T

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Desert tortoise
in Burrow RDSAH010
Carapace Approx 12 inch length
8 width
Appeared to be in good shape
could not see head

info added to comments
on burrow RDSAH010 visit 2

Comments/Notes:

Reviewed by surveyor (initials, date): AH 4/30 *Approved by team leader (initials, date):* JCR 5/6/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/30/09 AM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	G	HRV, [illegible]

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	0631	50°	1	NONE	15
End	0732	60°	1	— " —	15

CORA
• BUOW
• Bnt thrasher
sparrow
• W. tree frog
• Hawk
LASP

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E7	RDBKW027	N	N	—	1	W 7 H 3	6+	P	IA	[illegible] not at very deep [illegible] that it may cause to trap [illegible] is deep — S. [illegible] DT said [illegible] small holes and one [illegible]
E-7	RDBRW032	N	N	—	1	W 7 H 5	10+	NONE	IA	occupied by DT; couldn't tell depth — DT in head first, back of shoulders just inside [illegible]
E-7	RDBRW028	N	N	—	1	W 8 H 6	12	NONE	IA	small spots of whitewash near entrance but under chaparral [illegible] passing [illegible] DT said [illegible]
E-7	RDBRW010	N	Y	—	1	W 8 H 12	24+	W Potential	IA	2 entrances; cob webs out - at entrance but slightly disturbed. DT said around entrance coyote whitewash spots near [illegible]
E-7	RDBMG044	N	N	—	1	W 5 H 3	12	NONE	NS	DELETE — gets very short quickly
"	RMAMG053	N	N	—	1	W 5 H 2	4	NONE	NS	DELETE — [illegible] inside
"	RDBMG041	N	N	—	1	W 9 H 5	12	NONE	IA	Large opening; facing W; shallow [illegible]
"	RDBKD016	N	N	—	1	W 6 H 2	6	NONE	NS	DELETE - shallow and short partially filled in it appears
"	RMARW059	N	N	—	1	—	—	NONE	NS	DELETE - a dig - no burrow present
"	RDBRW030	N	N	—	1	W 5 H 3	16+	NONE	IA	entrance faces E - nothing that indicates recent [illegible]
"	RMAKD045	N	N	—	1	W 7 H 6	10	NONE	NS	DELETE too shallow.
"	RMAMG052	N	N	—	1	W 6 H 10	16	NONE	IA	under small shrub, but dug out enough to be open [illegible] back - 16, but bush provides additional tunnel.

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[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3] **Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use, old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): HRV 4/30/09 ***Approved by team leader (initials, date):*** JKR 4/30/09

Project: SM Site: Ridgecrest Date: 4/30/09 AM Surveyor: Heather Valentine GPS Unit: G

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
E7	PBUOW	heard in the vicinity of	where Julie found	active burrow	previous	~~current~~		day
	heard from	point RDERNCRT	heard to SE.					

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JKR 5/6/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/30/09 Am

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:04am	58	1	NONE	10
End	7:59am	62	1-2	NONE	35

NS = Not suitable for BUOW.

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-3	RDBAH012	N	N	—	2	[See visit 1]		NONE	IA	Probably active DETO burrow. Tracks, small entrance @entrance. Faces South.
D-4	RDBKD009	N	N	—	2	[See visit 1]		NONE	IA	Active DETO burrow. Live DETO inside. cent kill site. Faces WEST
D-4	RMARW043	N	N	—	1	6wx 2.5H	4"	NONE	NS	Shallow digging.
D-4	RDBKD007	N	N	—	2	[See visit 1]		NONE	IA	Faces west. One spot of whitewash → probably passerine. Small disturbance at entrance - possibly active by DETO.
D-4	RDBMG025	N	N	—	2	"		NONE	IA	Faces E-NE. Looks like Active DETO burrow (tracks @ entrance)
D-4	RDBMG021	N	N	—	2	"		NONE	IA	Faces N. Looks like active DETO burrow. (tracks @ entrance & disturbed flat ramp into burrow)
D-7	RMARW038	N	N	—	2	6wx3H 4wx1.5H	6" 8"	NONE	NS	2 small DETO looking burrows immediately. both too small & too shallow.
D-7	RDBMG028	N	N	—	2	[See visit 1]		NONE	IA	Faces west. Cobwebs along top of entrance.
D-7	RKBMG009	N	Y	—	2	"		W(old)	PA	Old whitewash near burrow facing S.
D-7	RDBKD006	N	N	—	2	5wx 2.5H	18"+	NONE	NS	Burrow quickly narrows to dimensions recorded. Too small for BUOW.
D-7	RDBRW018	N	N	—	2	(See visit 1)		NONE	IA	Entrance partially obstructed by branches of creosote. Faces N.

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[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 4/30/09 ***Approved by team leader (initials, date):*** JKR 4/30/09

Project: SM Site: Ridgecrest Date: 4/30/09 AM Surveyor: Julie Roth GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
		NONE						

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

CA Whiptail (D-6)

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 4/30/09 *Approved by team leader (initials, date):* JKR 4/30/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

D12, C13, D13
EXTRAS

Project: SM **Site:** Ridgecrest **Date:** 4/30/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	G	HRV akitine

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	1735	75	4	None	60
End	1950	70	3	None	40

NS = Not suitable for BUOW.

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C9	RDBRW003	N	N	—	2	—	—	NONE	IA	all but 1 burrow filled in - entrance SE; no new BUOW sign present. DT
	RKEJH002*	N	Y	—	2	observed 5 min.		W (one spot); P (potential → old)	PA	4 entrances 2E; 1N; 1W; new disturbance around mouth; no new scat/pellets, 1 w/ old scat; 2 entrances/most likely SE side; no new sign detected
	RKEBW003*	N	Y	—	2	observed 5 min		W (small, old, near entrance)	PA	
	RKBJJ001	N	Y	—	2	—	—	W (old)	PA	several entrances; no new sign detected
	RKBJH001*	N	Y	—	2	observed 5 min		P (old)	PA	several entrances → most - will be used to be used; face S and W; no new sign detected
	RKBCH001	N	N	—	2		#16	NONE observed	NS	no new sign but recent disturbance at burrow entrance; [illegible]
	RKBGL002	N	N	—	2	—	—	NONE	NS	DELETE - under creosote entrance; dry; fairly constricted; cobwebs; no sign
C10	RKBSD002	N	N	—	2	—	—	NONE	NS	can't really see into burrow, but appears [illegible]
	RDBAD003	N	Y	—	2	—	—	W (small)	PA	DT burrow is collapsed; really KF complex, passerine ww; small old W on mound; no new sign detected
	RDBSD001	N	N	—	2	(small, likely passerine ww)		NONE	IA	cob webs - no new sign; a lot of scat DT and a couple KF outside burrow - old
	RKFGL002	N	N	—	2	—	—	W	PA	a lot of white wash near small mound; from passerine perching in creosote; 14 [illegible] no pellets or other sign detected
	"									
	RBBKH001	*N	N	—	2	observed 7 min		old W, P	PA	no recent activity apparent; entrance NE
	RKBMG001	N	N	—	2	—	—	NONE	IA	no evidence of recent activity; cob webs w/ spiders @ entrance; KF [illegible]
	RKBKD008	N	Y	—	2	—	—	W, P	PA	a lot of white wash at a couple of the [illegible] entrances; see more notes on back

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[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3] **Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

RKBMG001 → RKBSD002

Reviewed by surveyor (initials, date): HRV ***Approved by team leader (initials, date):*** JKR 6/14/09

Project: SM Site: Ridgecrest Date: 4/30/09 PM Surveyor: HRV GPS Unit: 4

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

RKBKD003 (continued) majority of white wash at burrow facing east, but too dark over entrance to that burrow; more white wash at burrow under creosote. No new pellets seen, but old pellets — it was also getting hard to see.

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JKR 6/14/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/30/09 PM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:35 pm	75-80	3	NONE	30
End	7:50 pm	75	2-3	NONE	30

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C-7	RDBJR002	N	N	—	2	—		W, P	PA	3 splats old whitewash; 2 degraded white pellets. Faces NE. DETO scat (2 pieces). Stalk of dry veg. @ entrance.
D-7	RDBRW012	N	N	—	2	—		NONE	IA	Faces NE. Cobwebs cover entrance.
D-7	RDBMG020	N	N	—	2	—		NONE	IA	Faces SW. Possibly active DETO burrow (some soil disturbance @ entrance)
D-7	RMARW025	N	N	—	2	—		NONE	IA	Faces E-SE. Undisturbed veg. growing @ entrance.
D-7	RDBMG022	N	N	—	2	—		W (tiny bit old)	PA	Faces S. Soil disturbance @ entrance w/ flat lamp. may be active DETO burrow.
D-7	RBBKD001	N	N	—	2	—		W, P (old)	PA	Faces N. 4-5 spots white wash @ entrance (old). Soil disturbance @ entrance. 2 old pellets under nearby shrub.
D-7	RDBRW017	N	N	—	2	—		NONE	IA	Faces W. Narrows as it goes back. (Perhaps not high quality for BUOW)
D-7	RMAMG024	N	N	—	2	—		NONE	IA	Faces N. Pretty small for BUOW. mostly undisturbed veg. growing at entrance
D-7	RDBRW009	N	N	—	2	—		NONE	IA	Looks like an active DETO burrow (tracks & soil disturbance along ramp into burrow). Faces W.
D-7	RDBMG016	N	N	—	2	—		NONE	IA	Faces NE.
D-7	RDBMG017	N	N	—	2	—		NONE	IA	Faces S. Soil disturbed @ entrance. Looks like it may be active w/ DETO.
D-7	RDBRW014	N	N	—	2	—		NONE	IA	Faces → NW. One spot white wash - probably passerine. Burrow gets more shallow as it goes back. Tenuously for BUOW.
D-7	RDBMG018	N	N	—	2	—		NONE	IA	Possibly active DETO. Faces W. Burrow gets smaller as way in - marginal for BUOW.
D-8 *	RMARW016	N	N	—	2	—		NONE	IA	Faces E. Veg and Cobwebs along entrance. Fresh coyote scat nearby.
D-7	RDBRW013	N	N	—	2	—		NONE	IA	Faces SW. Disturbed soil @ entrance. Possibly active DETO burrow.

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[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

* Steve Henderson also visited this burrow on 4/30/09 PM!

Reviewed by surveyor (initials, date): JKR 4/30/09 *Approved by team leader (initials, date):* JKR 4/30/09

Project: SM Site: Ridgecrest Date: 4/30/09 Pm Surveyor: Julie Roth GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Sage Sparrow
Horned Lark
Nighthawk (in wash c-7)

Comments/Notes:

Reviewed by surveyor (initials, date): JRC 4/30/09 *Approved by team leader (initials, date):* JRC 4/30/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/30/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:35 pm	75	13 mph	Ø	20
End	7:30 pm	68	5 mph	Ø	10

NS = not suitable

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C-8	RMAKD002	N	N		2			None	IA	
C-8	RMARW002	N	Y		2			W	PA	Cobwebs over entrances
C-8	RMAJJ002	N	N		2			P	PA	old pellet
C-8	RMAKD006	N	N		2			P, W	PA	Very old small whitewash, old pellet inside
C-8	RDBMG005	N	N		2			P, W	PA	old pellets. More recent DETRITUS. Recently used.
C-8	RKBJH004	N	N		2			P, W	PA	Many old pellets, abundant whitewash.
										Probably nesting burrow recently. Cobwebs over
										entrance. One very small (<1.5") fresh
										pellet(?) Black, composed of all bug parts, narrow.
										Possible tracks inside.
D-8	RMARW016	N	N		2			None	IA	→ Also visited by Julie Roth during same
										survey session. Julie's
D-8	RDBMG007	N	N		2			None	IA	data entered!
D-8	RMAMG005	N	N		2			None	NS	What must have been the burrow is recently
										filled in w/ fresh dirt.

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[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3] **Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 4/30/09 ***Approved by team leader (initials, date):*** JKR 5/6/09

Project: SM Site: Ridgecrest Date: 4/30/09 Surveyor: SJH GPS Unit: F

BUOW Detections: None

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

HoLA

Nighthawk (probably Lesser Nighthawk)

Comments/Notes:

Surveyed area on map C-8 showed signs of past BUOW activity over much of the area.

Reviewed by surveyor (initials, date): SJH, 4/30/09 *Approved by team leader (initials, date):* JKR 5/6/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 4/30/09 (continued)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH

See Page 1

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start					
End					

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-8	RDBJJ001	N	N		2			B, W	PA	No fresh signs.
D-8	RKBMG005	N	Y		2			W	PA	No fresh signs.
D-8	RKBRW021	N	Y		2			None	IA	
D-8	RKBMG007	N	Y		2			None	IA	
D-8	RDBAD008	N	N		2			None	IA	
D-8	RMASH004	Y	N	0432836 E 3734911 N	1	8x13	12+	W, P	PA	Under Senna shrub, but unobstructed, Photo 001 - old pellet. Abundant whitewash
D-8	RMAMG007	N	N		2			None	IA	Very marginal under dense creosote
D-8	RMAJH005	N	N		2			None	IA	
C-8	RBBJH001	—	—	Occupied	—	—	—	—	A	Attempted observational follow-up, but getting too dark to see well

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[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3] **Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use, old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 4/30/09 ***Approved by team leader (initials, date):*** JKP 5/6/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

extn D12 D13 C13

Project: SM **Site:** Ridgecrest **Date:** 1/30/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	H	WCB

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	17:35	33°	13 mph gust	0	35%
End	19:42	62°	3 ~10 mph	0	30%

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-9	RMARW011	N	N		2			P(old)	PA	no new sign - only old pellets no activity
D-9	RMARW013	N	N		2			W(old)	PA	no new sign - w only (old) no activity
D-9	RMARW014	N	N	—	2	—		NONE	IA	no new sign - existing old new look preserve. Burrow could use but [illegible]
D-9	RMARW020	N	Y	—	2			W(old), B	PA	no new activity - burrow does have [illegible] and a few rabbit bones (~3 old w.)
D-9	RMAMG015	N	N	—	2	—		NONE	IA	no sign - not active
E-9	RMAJR001	N	N		2			NONE	IA	no sign - not active
E-9	KFBURROWCOMPLEX		Y		1			P(old)	PA	recent coyote sign - burrows enlarged old pellets no new or other newer sign
D-9	RDBAD007	N	N		2			NONE	~~NS~~	should be thrown out old DETO burrow too narrow, filled in. Dead shrub [illegible]
D-9	RDBCG002	N	N		2			NONE	~~NS~~	not suitable filled in with [illegible] debris, etc. should remove out
D-10	RKBCG003	N	Y		2			NONE	IA	active kit fox burrows
D-9	RKBCG002	N	Y		2			NONE	IA	no sign - not active
D-9	RDBAD006	N	N		2			NONE	IA	no sign - not active
D-9	RMAMG018	N	N		2			NONE	IA	no sign - not active
D-9	RMAMG003	N	N		2			NONE	IA	no BUOW sign 10 ft of passing [illegible]

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use, old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): WCB 1/30/09 *Approved by team leader (initials, date):* JKR 5/6/09

Vaux swift sidewinder night heron

Project: SM Site: Ridgecrest Date: 4/30/09 Surveyor: WLB GPS Unit: H

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Vaux swifts
Side winder
nighthawk
lots of kit fox - complete scat
large owl pellet - [illegible] Barn owl (have photo)

Comments/Notes:

Reviewed by surveyor (initials, date): WLB 7/30/09 Approved by team leader (initials, date): JKR 5/6/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 5/1/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
III	J	AH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	0556	65	2	0	40
End	0759	74	2	0	30

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C-13	RKBAH006	N	Y		2			NONE	IA	Cobwebs in [illegible]
C-13	RKBWB003	N	Y		2			NONE	IA	No BUOW sign
C-13	RKBJR001	N	Y		2			W, P	PA	No fresh BUOW sign. Cobwebs in [illegible]
C-13	RKBAH005	N	N		2			NONE	IA	Fresh eagle scat
	RDBAH021	Y	N	432056 3932070	1	11x4	12+	NONE	IA	Rodent scat [illegible]
	RKBAH022	Y	Y	432013 3932208	1	6x12	24+	W	PA	No fresh sign. 2 cobwebs, [illegible]

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): AH 5/1/09 ***Approved by team leader (initials, date):*** JKR 5/6/09

Project: SM Site: Ridgecrest Date: 5/1/09 Surveyor: AH GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

NONE

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Reviewed by surveyor (initials, date): AH 5/1/09 *Approved by team leader (initials, date):* JKB 5/6/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 5/1/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	9	HKVulkhmina

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	[illegible]	[illegible]	[illegible]	[illegible]	55
End	0915	80	1-2	NONE	40

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C13	RMAJR002	N	N	—	2	[illegible]	[illegible]	W [illegible]	IA	[illegible] 2"; a couple small [illegible] but [illegible] no [illegible] signs. Entrance W
C·13	RMAAH007	N	N	—	2	—	—	NONE	IA	[illegible] no sign detected; [illegible]
	RKBSH002	N	Y	—	2	[illegible]	[illegible]	W [illegible] B	PA	[illegible] no [illegible] signs.
	TRANSECT 7 0700									
	RDBHV007	Y	N	N: 3932353 E: 0432031	1	W 10 H 9	40	NONE	IA	beautiful burrows in side of drainage very deep; recent disturbance, but no BUOW signs

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): HKV ***Approved by team leader (initials, date):*** JKR 5/6/09

Project: SM Site: Ridgecrest Date: 5/1/09 AM Surveyor: Heather Valentine GPS Unit: G

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

ETHA

Comments/Notes:

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JCR 5/6/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 5/1/09 Am

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:19am	68	1-2	NONE	35
End	9:15am	80	1-2	NONE	40

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-12	RMAMG014	N	N	—	2	—	—	NONE	IA	Low quality Buow burrow. Cobwebs. Faces N on west side of shrub.
D-12	RKBMG006	N	Y	—	2	—	—	NONE	IA	Active kit fox burrow. Numerous dark scats, many tracks.
D-12	RKBAD002	N	Y	—	2	—	—	W(OW)	PA	2 entrances in middle look like they might be used currently. 4 spots of whitewash near central entrance.
D-12	RKBJH005	N	Y	—	2	—	—	NONE	IA	Inactive old kit fox burrow. Cobwebs over most entrances.
D-13	RKBHV004	N	Y	—	2	—	—	NONE	IA	Active kit fox complex. Fresh dark, shiny scat, tracks.
		↳ ended @ 6:50am.								
	Phase 2 Buffer surveys started @ 7:00am, ended @ 9:15am.									
		↳ NO burrows located								

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[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

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Reviewed by surveyor (initials, date): JKR 5/1/09 ***Approved by team leader (initials, date):*** JKR 5/6/09

Project: SM Site: Ridgecrest Date: 5/1/09 AM Surveyor: Julie Roth GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Sage Sparrow

Brewer's Blackbird

Comments/Notes:

Reviewed by surveyor (initials, date): JCR 5/1/09 *Approved by team leader (initials, date):* JKR 5/6/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Ridgecrest Date: 5/1/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	0540 am	62	4	Ø	90
End	0759 am	69	3	Ø	95

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
F-7	RMASH001	N	N		2			None	IA	Cobwebs.
F-7	RDBHV003	N	N		2			None	IA	

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[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3] **Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 5/6/09 ***Approved by team leader (initials, date):*** JKR 5/6/09

Project: SM Site: Ridgecrest Date: 5/1/09 Surveyor: SJH GPS Unit: F

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
E-7	RKBRW013		RKBRW013	1	M, based on call	A	"Coo-Coo" call heard. flying to burrow area	observed twice between 0540 + 0730.

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

*BUOW: Conducted follow-up at occupied burrow documented by JKR earlier this week. At 0540, heard "Coo-Coo" call from vicinity of RKBRW013 - I was on road to north, ~300 m away. I scanned with binos briefly, + saw one BUOW flying in very gusty wind and landing in burrow vicinity. I then drove to rock outcrop east of burrow, ~230 m away from burrow + observed until 0730. One BUOW approached burrow area from the south, then landed in burrow vicinity behind shrub and out of sight. During this period (0540-0730) I saw one BUOW twice - very brief looks.

HOLA
CORA
BHGN
BTSP

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 5/6/09 Approved by team leader (initials, date): JKR 5/6/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 5/01/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	H	WLB

→ Hawks - was two KB 004s

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:53	45°	2	Ø	35%
End	8:00	70°	2	Ø	65%

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-13	RKBAH005	N	Y		2			See previous visit	PA	no new sign - not active
~~D-12~~	~~RKBJH005~~	~~N~~			~~2~~			~~NONE~~	~~IA~~	~~no sign - not active~~ - already visited by Julie Roth
D-12	RKBAD001	N	Y		2			W(old), P(old)	* PA	no new sign. not active - summer did have old sign - W + P.*
D-12	RKBNG004	N	N		2			NONE	IA	no sign not active
D-12	RMARW007	N	N		2			NONE	NS	no sign - burrow not suitable - not deep enough, no steep height
D-12	RMAJJ004	N	N		2			NONE	IA	no sign - not active
D-12	RMAJH004	N	N		2			NONE	IA	no sign - likely not used by BUOW - burrow on very edge of road
→	RMAWB014	Y	N	0430950 3939663	~~2~~	6x7	18"	N	IA	no sign - just deep enough to be suitable - maybe tunnel?
outside protocol time @ 8:50 AM										

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[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use, old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): WLB 5/1/09 *Approved by team leader (initials, date):* JKR 5/6/09

Project: SM **Site:** Ridgecrest **Date:** 5/01/09 **Surveyor:** WB **GPS Unit:** CT

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Red-tailed hawk
Blue-gray gnatcatcher
possible Vesper Sparrow but could have been a lizzie
possible Brewer's Sparrow
10+ pairs of rock wrens along edge of buffer (photos)

Comments/Notes:

Reviewed by surveyor (initials, date): WB *Approved by team leader (initials, date):* JKR 5/6/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 5/2/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	G	HR Valentine

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	[illegible]	60	3-4	NONE	80
End	0725	65	3-4	NONE	60

NS = Not suitable for BUOW

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
?	RKSBD004	Y	Y	—	1	—	—	W, E, Pr, Pellets (fully preserved)	IA	UNO additional signs, entrance mostly [illegible] (fresh no use by any species)
?	RKBWB009	Y	Y	—	—	—	—	—	NS	[illegible] (Same burrow location) Delete record
?	RMAJR005	Y	N	—	1	—	—	NONE	A	[illegible] destructed by [illegible] branches
?	RKBSH006	Y	Y	—	1	[illegible]	[illegible]	P, W [illegible]	[illegible]	no recent sign; most likely entrance potentially used by BUOW face N
?	RKBHV005	Y	Y	—	1	—	—	NONE	NS	DELETE - [illegible] partially collapsed tunnel [illegible]
?	RKBSH005	Y	Y	—	1	—	—	T [illegible]	[illegible]	no recent sign observed
?	RKBSH004	Y			1			T [illegible]	[illegible]	pellets [illegible] no recent sign observed
?	RMAHV002	N	N	—	—	—	—	NONE	NS	[illegible] partial [illegible] too [illegible] — DELETE
?	RKBNB010	Y	N	—	1	—	—	NONE	IA	UNO RECENT SIGN

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): HRV ***Approved by team leader (initials, date):*** JKR 5/6/09

Project: SM Site: Ridgecrest Date: 5/2/09 Am Surveyor: Heather Valentine GPS Unit: G

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JKR 5/6/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 5/2/09 AM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:10 am	58	4	NONE	60
End	7:30am	62	4-5	NONE	60

F SP

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
?	RMAJR004	Y	N	—	1	(See Phase 2)		NONE	IA	Cobwebs over entrance. Under shrub, low quality for BUOW. Faces SW on W side of shrub
?	RMAHV008	Y	N	—	1	"		NONE	IA	Cobwebs over entrance. Near but away from shrub - suitable for BUOW. Faces NE
?	RMAWB012	Y	N	—	1	"		NONE	IA	Faces W, on W side of shrub in wash. Old Rabbit droppings outside.
? ☆	RBBJR001	Y	N	—	1	"		P, W (old)	PA	Faces NE @ 40m W of a rise. Old coyote/Kit fox scat near entrance. Several old pellets w/ lots of insect parts above and west of entrance. Photo JR 029 of pellet with insects.
?	RKBWB011	Y	Y	—	1	"		NONE	IA	Active Kit fox complex. main entrances face W and NW. Not suitable for BUOW due to presence of predator.
? ☆	RKBJR006	Y	Y	—	1	"		W, P	PA	Main entrance with sign faces E. whitewash along entrance. many pellets, several dark. Some old pellets under nearby shrub.

☆ Great potential BUOW burrows!

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[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 5/2/09 *Approved by team leader (initials, date):* JKR 5/6/09

Project: SM Site: Ridgecrest Date: 5/2/09 AM Surveyor: Julie Roth GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 5/2/09 *Approved by team leader (initials, date):* JKR 5/6/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Ridgecrest Date: 5/2/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	0602 am	61	3-4	Ø	40
End	0730 am	62	4-5	Ø	60

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
B-8	RKBJR002	N	Y		2			None	IA	
B-8	RKRWB005	N	Y		2			F	PA	Active kit fox burrow complex. Down feathers in cobwebs in one burrow. Not likely occupied by BUOW, but possible sign.
E-7	RDBKD023	N	N		1	11x4	15+	None	IA	Cobwebs.
E-7	RMAMG052	N	N		1	12x13	15+	W	PA	Small amount of whitewash, although possibly not BUOW. Already checked by Heather Valentine 4/30/09 Am
	This burrow may have already been checked.									
F-2	RDBAH002	N	N		2	5x3	12+	None	NS	Too small ≤3" at construction inside
	RMAWB014	Y	N		1			None	NS	Too shallow. Determined previous evening (5/1/09). Burrow <18" deep.

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[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 5/2/09 ***Approved by team leader (initials, date):*** JCR 5/6/09

Project: SM Site: Ridgecrest Date: 5/2/09 Surveyor: SJH GPS Unit: F

BUOW Detections: None

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

BTSP
HoLA

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 5/2/09 Approved by team leader (initials, date): JKR 5/6/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Ruby Creek Date: May 11, 2009 (Pm)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	H	HR Valentine

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	1811	86		NONE	10
End	2003	80	4	NONE	5

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C3	RKBAH009	N	Y	—	3	—	—	NONE	IA	1 of 5 - potential entrance - [illegible] has cobwebs
C4	RKBAH009	N	Y	—	3	—	—	P	PA	pumpkin pellet - no new sign
~~C4~~	~~RDBSH001~~	~~N~~	~~N~~	~~—~~	~~—~~	wasn't supposed to check				bunny in burrow!
C4	RDBAH010	N	N	—	3			W, B, F	PA	evidence of DT use in entrance (tracks) also feathers in entrance; W on nearby rock too!
C4	RKBWB004	N	N	—	3	—	—	W (small old)	PA	no recent sign
C4	RDBJR001	N	N	—	3	—	—	NONE	IA	
C5	RDBSH004	N	N	—	3	—	—	W (old)	PA	no recent sign
C7	RDBJR002	N	N	—	3	—	—	W, P	PA	no recent sign DT scat and gopher snake at burrow
D7	RDBRN014	N	N	—	3	—	—	W (old)	PA	no recent sign
D7	RBBKD001	N	N	—	3	—	—	W, B, P	PA	no recent sign

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T-** BUOW Tracks, **B-** Bones (from degraded pellets), **F-**Feathers, **Pr-**prey remains, **Ef-**Eggshell fragments, **St-**Sticks, **NONE-**no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): OKV *Approved by team leader (initials, date):* JKR 5/12/09

Project: SM Site: Ridgecrest Date: 5/11/09 PM Surveyor: HRV GPS Unit: H

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Gopher snake

Comments/Notes:

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JKR 5/11/

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Ridgecrest Date: 5/11/09 Pm

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:10pm	86	6	NONE	10
End	8:06pm	75	5-6	NONE	0

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-3	RKBAH020	N	Y	—	2	—	—	W	PA	Old whitewash → Quite a bit @ 2 burrows facing N. No new sign
D-3	RKBWB008	N	Y	—	3	—	—	W	PA	2 small spots whitewash. Not currently active for BUOW. No new sign.
D-4	RKBRW004	N	Y	—	2	—	—	W, P	PA	W, P near entrance with cobwebs. Faces W-NW. No New sign.
D-4	RKBKD007	N	Y	—	3	—	—	NONE	IA	Old Kit fox sign.
D-4	RMARW044	N	N	—	2	—	—	P	PA	Degraded pellet. No new sign. Not currently active for BUOW
D-5	RKBMG008	N	Y	—	3	—	—	W, P	PA	old whitewash (lots) & pellets. Fresh kit fox scat in one burrow entrance. No new sign.
D-5	RDBRW023	N	N	—	3	—	—	NONE	IA	No New Sign.

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[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3] **Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 5/11/09 ***Approved by team leader (initials, date):*** JKR 5/11/09

Project: SM Site: Ridgecrest Date: 5/11/09 (PM) Surveyor: Julie Roth GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Desert Horned Lizard
Live Desert Tortoise on dirt road to west of rocky outcrops on east side of project area - DETO burrow found nearby ~5 meters NW of detection.
↳ RDLJR001 - 3935359N 433857E

Comments/Notes:

Reviewed by surveyor (initials, date): JRS 5/11/09 Approved by team leader (initials, date): JCR 5/11/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Ridgecrest Date: 5/11/09 (Pm)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:04 pm	89	6	Ø	0
End	8:10 pm	75	6	Ø	0

NS = not suitable

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E-7	RKBRW013	N	Y		2			BUOW O	A	BUOW observed.
E-7	RKBKD010	N	Y		2			W, P	PA	Recent whitewash. *Focusal obs. for next visit.
E-7	RBBMG002	N	N		2			W, P, F	PA	Cobwebs
E-7	RDBRW044	N	N		2			W, P	PA	Cobwebs Abundant old pellets
E-7	RKBRW008	N	Y		2			W	PA	
E-7	RKBRW010	N	Y		2			W	PA	Cobwebs
E-7	RDBMG053	N	N		2			W, F, P	PA	Cobwebs.
E-7	RDBRW027	N	N		2			W	NS	Constricts too narrow - ~3" high, + appears
										<10" deep. Cobwebs.
E-6	RDBMG052	N	N		1	7x2	5	None	NS	
E-6	RBBJR001	N	N		2			W, P	PA	*Fowsal obs. for next visit.
E-6	RKBMG014	N	N		2			W	PA	Cobwebs.

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 5/12/09 *Approved by team leader (initials, date):* JKR 5/13/09

Project: SM Site: Ridgecrest Date: 5/11/09 (PM) Surveyor: SJH GPS Unit: F

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
E-7	RKBRW013		RKBRW013	1	Unk.	A	Flew to + landed at burrow, from south. Saw me ~70 m away, stood upright + bobbed body twice, then flew away to east.	

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Antelope ground squirrel
Desert tortoise (same one recorded by Julie Roth on this survey - UTM coordinates on her datasheet)

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 5/11/09 Approved by team leader (initials, date): JKR 5/13/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Ruby Hill Date: 5/12/09 (AM)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	H	HRVolentine

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	0525	72	2	NONE	0
End	0747	80	2	NONE	0

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D7	RDBMGD22	N	N	—	3	—	—	NONE	IA	
D7	RKBMGD11	N	Y	—	2	—	—	W, P(old)	PA	no recent sign
D7	RKBMGD09	N	Y	—	3	—	—	W, B	PA	no recent sign
D8	RDBJD001	N	N	—	3	—	—	B	PA	no recent sign
D8	RKBMGD05	N	Y	—	3	—	—	P	PA	no recent sign
D8	RMASH004	N	N	—	2	—	—	W	PA	no recent sign
D9	RMARW020	N	Y	—	3	—	—	NONE	IA	kit fox and coyote scat
D9	RMARW014	N	N	—	3	—	—	NONE	NS	entrance fairly obstructed and burrow appears to narrow quickly → DELETE
D9	RMARW013	N	N	—	3	—	—	W (old)	PA	no recent sign W old and small
D9	RMARW011	N	N	—	3	—	—	NONE	IA	no sign observed
C9	RKBJH002	N	Y	—	3	—	—	?	NS	OCCUPIED KIT FOX!! 2 KF adults @ entrances, 1 possible juvenile emerged
C9	RKBRW003	N	Y	—	3	—	—	W potential P	PA	no recent sign
C9	RKBJJ001	N	Y	—	3	—	—	W, B potential P	PA	no recent sign
C9	RKBJH001	N	Y	—	3	—	—	P	PA	no recent sign

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T-** BUOW Tracks, **B-** Bones (from degraded pellets), **F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.**

[3] **Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JKB 5/12/09

Project: SM Site: Ridgecrest Date: 5/12/09 AM Surveyor: Heather Valentine GPS Unit: 1+

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Townsend's warbler in wash on south side of road (Brown Road assumed)

Comments/Notes:

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JKR 5/12/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 5/12/09 AM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:30am	74	2-3	NONE	0
End	7:50am	85	3	NONE	0

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-5	RMAKD011	N	N	—	3	—	—	NONE	IA	Entrance partially obstructed by branches. Low quality for BUOW. No new sign.
D-5	RMAMG035	N	N	—	2	—	—	NONE	IA	No new sign. 1 spot WW (Passerine?)
D-5	RDBRW011	N	N	—	3	—	—	NONE	IA	No new sign. 1 tiny spot WW (Passerine?) 1-rodent bone.
D-6	RDBMG010	N	Y	—	3	—	—	NONE	IA	Part of kit fox complex. 6 entrances. Little → no BUOW sign. No new sign. In open. 2 appear to be used by something. 1 spot old WW.
D-6	RKBRW001	N	Y	—	3	—	—	W(little), P(old)	PA	No new sign. Few spots old WW. Possible few old pellet.
D-6	RKBKD004	N	Y	—	3	—	—	W(little), P(old)	PA	No new sign. Some old WW near 2 burrows. 1 possible old pellet. Not currently Active
D-6	RDBMG032	N	N	—	2	—	—	W(old)	PA	No new sign. Not currently active.
D-6	RKBMG011	N	Y	—	2	—	—	NONE	IA	Very little bit of W @ 2 burrows (Passerine) - not currently active.
G-8	RMASH003	N	N	—	2	—	—	NONE	IA	No new sign. 2 spots of whitewash - passerine? Low quality for BUOW - faces base of shrub.
G-8	RMASH002	N	N	—	2	—	—	NONE	IA	No new sign. 2 spots W - passerine? Low quality for BUOW under branches of shrub. Partially obstructed entrance.

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3] **Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 5/12/09 ***Approved by team leader (initials, date):*** JKR 5/13/09

Project: SM Site: Ridgecrest Date: 5/12/09 (Am) Surveyor: Julie Roth GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Sage Sparrow
Common Raven
Verdin

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 5/12/09 *Approved by team leader (initials, date):* JKR 5/12/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 5/12/09 (AM)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:35 AM	75	3-4	Ø	0
End	7:48 AM	85	2	Ø	0

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E-4	RKBAH013	N	N		3		15	W, P ~~PA~~	NS	Measured depth at ~ 12-15"! old pellets inside hole. Constricts to 3-4" high. Partly filled?
E-4	RMARW051	N	N		2			W	PA	Cobwebs
E-4	RMAKD028	N	N		2			None	IA	Cobwebs
E-4	RKBRW009	N	Y		2			W, P	PA	
E-4	RKBRW011	N	Y		2			P, W	PA	
E-5	RKBJR006	N	Y		2			W, P	PA	* Focused obs next visit
E-5	RKBRW012	N	Y		2			P	PA	
E-5	RKBRW006	N	Y		2			W	PA	
F-7	RKBJR004	N	Y		2			W	PA	
F-8	RKBSH006	N	Y		2			W	PA	
F-8	RKBSH005	N	Y		2			P, W	PA	
F-9	RKBSH004	N	Y		2			W, P	PA	

***IDENT Code:** the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O-**Owl, **W-**Whitewash, **P-**Pellets, **T-** BUOW Tracks, **B-** Bones (from degraded pellets), **F-**Feathers, **Pr-**prey remains, **Ef-**Eggshell fragments, **St-**Sticks, **NONE-**no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 5/12/09 *Approved by team leader (initials, date):* JKL 5/13/09

Project: SM Site: Ridgecrest Date: 5/12/09 Surveyor: SJH GPS Unit: F

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

- YELW (Yellow Warbler) - CORA (Common Raven)
- WIWA (Wilson's Warbler) - HOLA (Horned Lark)
- Horned lizard

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 5/12/09 *Approved by team leader (initials, date):* JKP 5/13/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Ridgecrest Date: 5/12/09 (pm) RKBJH022 RKBAD002

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	H	HRValentine

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	1745	85	3-4	NONE	5
End	1950	78	3	NONE	10

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C8	RKBJH004	N	N	—	3	—	—	W, P	PA	no recent sign
C8	RDBMG008	N	N	—	3	—	—	? None	IA	no obvious new sign around burrow PT in entrance.
C8	RMAKD006	N	N	—	3	—	—	W	PA	W is small and old no recent sign
C8	RMAJJ002	N	N	—	3	—	—	potential P B	PA	no recent sign
C8	RMARW002	N	Y	—	3	—	—	W, B	PA	no recent sign
C8	RBBJH001	N	Y	—	3	—	—	W, P, F	A	only a couple of fresh P observed no super recent W either, but a lot
C10	RDBAD003	N	Y	—	3	—	—	W, P	PA	no recent sign
C10	RKBKD003	N	Y	—	3	—	—	W, B	PA	no recent sign
C10	RBBKH001	N	Y	—	3	—	—	W, P	PA	one pellet fresher than rest, but not recent
B8	RKBWB005	N	Y	—	3	—	—	NONE	IA	KF scat

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[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JKR 5/13/09

..: SM Site: Ridgecrest Date: 5/12/09 (pm) Surveyor: Heather Valentin GPS Unit: H

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JKR 5/13/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 5/12/09 (PM)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:48pm	85	5	NONE	5-10
End	8:06pm	78	3	NONE	5-10

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C-14	RKBAH022	N	Y	—	2	—	—	W (vegetative/old)	PA	No new sign. Great BUOW potential.
D-12	RKBAD002	N	Y	—	3	—	—	W (lithic/old)	PA	No new sign.
D-12	RKBAD001	N	Y	—	3	—	—	NONE	IA	
D-13	RKBHV004	N	Y	—	3	—	—	NONE	NS	Active KF/coyote complex. Not suitable for BUOW due to presence of potential predator
D-13	RKBAH003	N	Y	—	3	—	—	NONE	IA	Live DEER in main burrow. Can't tell size.
E-9	KFBURROWCOMLN		Y	—	2	—	—	NONE	IA	Lots of KF scat/tracks. Fresh, soft "coyote scat"
C-10	RKFGL003	N	N	—	3	—	—	W	PA	Poor burrow location for BUOW. Faces shrub. No new sign

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[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code

[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected

[3] **Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy)

Reviewed by surveyor (initials, date): JKR 5/13/09 ***Approved by team leader (initials, date):*** JKR 5/13/09

Project: SM Site: Ridgecrest Date: 5/12/09 Pm Surveyor: JulieRoth GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs, reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Yellow Warbler (along powerline road)

Horned Lark pair

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 5/13/09 *Approved by team leader (initials, date):* JKR 5/13/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 5/12/09 (Pm)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:45 pm	89	6	Ø	10
End	8:00 pm	78	3	Ø	0

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C-11	RKBKD001	N	Y		3			W	PA	
C-11	RBBAG001	N	Y		3			W	PA	Kit Fox Lights.
C-11	RKBJJ002	N	Y		3			None	IA	
C-12	RKBKD002	N	Y		3			W	PA	
C-12	RKBJH003	N	Y		3			W	PA	
C-13	RKBJR001	N	Y		3			W	PA	
C-13	RKBSH002	N	Y		3			W	PA	
C-13	RMAJR002	N	N		3			W	PA	

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[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected

[3] **Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 5/13/09 ***Approved by team leader (initials, date):*** JKR 5/13/09

Project: SM Site: Ridgecrest Date: 5/11/09 Surveyor: SJH GPS Unit: F

BUOW Detections: None

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m, identify owl pairs; reproductive status)

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 5/18/09 Approved by team leader (initials, date): JKR 5/13/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** [illegible] **Date:** 5/13/09 (AM)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	H	HRV, [illegible]

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	[illegible]	65	2	None	5
End	0750	73	2	None	5

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E7	RKBNW010	N	Y	—	3	—	—	W	PA	no recent sign
E7	RDBNW053	N	N	—	3	—	—	W, B, P	PA	Possible feathers at entrance
E7	RKBRW008	N	N	—	3	—	—	W	PA	[illegible]
E7	RKBRW013	N	Y	—	3	—	—		A	[illegible]
E7	RDBRW044	N	N	—	3	—	—	P, W	PA	no recent sign
E7	RBBNW002	N	N	—	3	—	—	W, B, F potential P	PA	no recent sign; one [illegible] on bush
E7	RKBRW010	N	Y	—	3	—	—	W	PA	no recent sign
E6	RBBJR001	N	N	—	3	—	—	W, P	PA	no recent sign
E6	RKBNE014	N	N	—	3	—	—	NONE	IA	small drop of W above burrow entrance
E5	RKBRW006	N	Y	—	3	—	—	W (very small)	PA	W-[illegible] passerine
E5	RKBRW012	N	Y	—	3	—	—	NONE	IA	no recent sign; a lot of litter for scat/ola)

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[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): HRV ***Approved by team leader (initials, date):*** JKR 5/13/09

Project: SM Site: Ridgecrest Date: 5/13/09 AM Surveyor: Heather Valentine GPS Unit: H

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs, reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JKR 5/13/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 5/13/09 (AM)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:45	68	3	NONE	5
End	7:48am	78	2	NONE	5

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C-3	RKBAH008	N	Y	—	4	—	—	NONE	NS	most entrances collapsed - or narrow/end gravelly
C-4	RKBAH009	N	Y	—	4	—	—	NONE	IA	No New Sign. Likely active DETO burrow (tracks)
C-4	RDBAH010	N	N	—	4	—	—	W, p(old)	PA	No new sign. Looks like active DETO burrow (tracks). 1 possible degraded pellet.
C-4	RKBWB004	N	Y	—	4	—	—	NONE	IA	1 spot whitewash [illegible] No new sign.
C-4	RDBJR001	N	N	—	4	—	—	NONE	IA	
C-5	RDBSH004	N	N	—	4	—	—	W(some)	PA	recent rain day in mouth of burrow, — may make it less suitable.
C-7	RDBJR002	N	N	—	4	—	—	W(old), p(old)	PA	3-4 spots old whitewash. No new sign. 1-2 degraded pellets.
D-7	RDBRW014	N	N	—	4	—	—	NONE	IA	1 spot whitewash (possible?)
D-7	RDBMG022	N	N	—	4	—	—	NONE	IA	1 tiny spot whitewash. No new sign.

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[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3] **Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 5/13/09 ***Approved by team leader (initials, date):*** JKR 5/13/09

Project: SM Site: Ridgecrest Date: 5/13/09 AM Surveyor: Julie Roth GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Kingbird (in main wash @-4)
Horned Lark
Wilson Warbler (♀ or immature)
White-tailed antelope ground squirrel (D-7)

* from ~8:30-10 am we observed the owl from burrow # RKBRW013
- multiple sightings of the owl occurred near this burrow.

Comments/Notes:

Reviewed by surveyor (initials, date): JLR 5/13/09 Approved by team leader (initials, date): JKR 5/13/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 5/13/09 (AM)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:50 AM	62	3	Ø	5
End	7:55 AM	75	2	Ø	0

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-3	RKBA4030	N	Y		3			W, P	PA	Abundant W at 2 burrow entrances
D-3	RKBUB008	N	Y		4			None	IA	*Burrow head calling (♂) - See Notes →
D-4	RKBRW004	N	Y		3			P, W	PA	
D-4	RKBKD007	N	Y		4			W	PA	
D-4	RMARW044	N	N		3			P	PA	
D-5	RKBMG005	N	Y		4			W, P	PA	Return for obs. Abund. of W
D-5	RDBRW043	N	N		4			P	PA	Not recently used
D-5	RMAKD011	N	N		4			None	IA	0
D-5	RMAMG035	N	N		3	Delete		NONE	IA	probably passerine; One spot of tobacco wash. No recent activity. No need to return
	0746									
D-5	RDBRW011 / RKBRW042	N	Y		4			P	PA	
	0755 end	Same burrow/complex *For mapping, retain both points								

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes

[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code

[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3] **Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use, old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH 5/13/09 ***Approved by team leader (initials, date):*** JKR 6/14/09

Project: SM Site: Edgewest Date: 5/13/09 Surveyor: SJH GPS Unit: F

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
On or near D-3				1	M	A	Heard calling Not observed	See notes below

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes

**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

*BUOW ♂ calling, > 200 m 50° (NE) of RKBWBOOS Heard faintly + sporadically due to road noise, ~0740.

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 5/13/09 Approved by team leader (initials, date): JKR 5/13/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Ridgecrest Date: 5/13/09 (PM)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	H	HRV/Valentine

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	1815	83	4	None	35
End	2015	75	4	None	35

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E4	RKBRW011	N	Y	—	3	—	—	T	PA	no recent sign
E5	RKBJR006	N	Y	—	3	—	—	P, W	PA	no recent sign
F7	RKBJR004	N	Y	—	3	—	—	W	PA	no recent sign
F8	RKBSH005	N	Y	—	3	—	—	B, P	PA	no recent sign
F9	RKBSH004	N	Y	—	3	—	—	W, B potential P	PA	small spot of W under creosote, but no recent sign
G8	RMASH002	N	N	—	3	—	—	W	PA	small spots of W under creosote no recent sign
C13	RKBJR001	N	Y	—	4	—	—	P, W	PA	no recent sign
C13	RKBSH002	N	N	—	4	—	—	NONE	IA	
C13	RMAJR002	N	N	—	4	—	—	W	PA	no recent sign; couple small W spots.

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JKR 5/14/09

Project: SM Site: Ridgecrest Date: 5/13/09 pm Surveyor: Heather Valentine GPS Unit: H

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Western Yarrow

Comments/Notes:

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JKR 5/14/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Ridgecrest Date: 5/13/09 pm

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:10pm	84	3	NONE	35
End	8:10pm	75	2	NONE	35

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E-4	RKBRW009	N	Y	—	3	—	—	P(old)	PA	2 old pellets. No new sign. Cobwebs.
E-4	RMAKD028	N	N	—	3	—	—	NONE	IA	
E-4	RMARW051	N	N	—	3	—	10"	NONE	NS	1 spot W (passerine?) No new sign. Burrow ends after 10".
E-4	RDBJR010	Y	N	3936828N 433298E	1	10W x 5H	?	NONE	NS	DETO inside ~8x5" carpace. probably too small for BUOW.
F-8	RKBSH006	N	Y	—	3	—	—	W, P	PA	2-3 spots W Pellets old - but near 2 burrows.
G-8	RMASH003	N	N	—	3	—	—	NONE	IA	No new sign. 2 tiny spots W (Passerine?)
C-14	RKBAH022	N	Y	—	3	—	—	W(old)	PA	No new sign.

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[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 5/14/09 *Approved by team leader (initials, date):* JKR 5/14/09

Project: SM Site: Ridgecrest Date: 5/13/09 (PM) Surveyor: Julie Roth GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m, identify owl pairs, reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Horned lizard.
Live DETO (see notes on previous side of datasheet for RDBJR010)

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 5/14/09 Approved by team leader (initials, date): JKR 5/14/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Ridgecrest Date: 5/13/09 (pm)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:46 pm	88	5	Ø	25
End	7:54 pm	74	5	Ø	20

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-6	RDBMG010	N	Y		4			None	IA	
D-6	RKBRW001	N	Y		4			P	PA	
D-6	RKBKD004	N	Y		4			W	PA	
D-6	RDBMG032	N	Y		3			W	PA	other burrows in complex collapsed / filled.
D-7	RKBMG009	N	Y		4			W	PA	
D-7	RKBMG010	N	Y		3			W, P	PA	
D-7	RBBKD001	N	N		4			W, P	PA	
D-8	RDBJJ001	N	N		4			B, W	PA	No recent owl activity.
D-8	RKBMG005	N	Y		4			W, P	PA	
D-8	RMASH004	N	N		3			W	PA	

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[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3] **Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy)

Reviewed by surveyor (initials, date): SJH, 5/14/09 ***Approved by team leader (initials, date):*** JKR 5/14/09

Project: SM Site: Ridgecrest Date: 5/13/09 Surveyor: SJH GPS Unit: F

BUOW Detections: None

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m, identify owl pairs; reproductive status)

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

HoLA
CoRA
Whiptail

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 5/14/09 Approved by team leader (initials, date): JKR 5/14/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Kidyurst Date: 5/14/09 (Am)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	H	HRValentine

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	0550	65	2-3	None	5
End	0730	72	2	None	5

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C11	RKBKD001	N	Y	—	4	—	—	W	PA	no recent sign W=small spot
C11	RBBMG001	N	Y	—	4	—	—	W	PA	no recent sign
C11	RKBJJ002	N	Y	—	4	—	—	B potential P	PA	no recent BUOW sign recent KF scat nearby
C12	RKBJH003	N	Y	—	4	—	—	W	PA	no recent sign
C12	RKBKD002	N	Y	—	4	—	—	W potential P	PA	no recent sign
C12	RKFAP002	N	Y	—	4	—	—	W	PA	no recent sign W=small spot below crossole
[illegible]	[illegible]001	N	Y	—	4	—	—	W	PA	no recent sign
[illegible]	RKBHD003	N	Y	—	4	—	—	W	PA	no recent sign
[illegible]	RKBHV004	N	Y	—	4	—	—	-	NS	kit fox in burrow - OCCUPIED!
C10	RKFEL003	N	N	—	4	—	—	W	PA	no recent sign

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[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3] **Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JKR 5/14/09

Project: SM Site: Ridgecrest Date: 5/14/09 (Am) Surveyor: Julie Roth GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Reviewed by surveyor (initials, date): HRV *Approved by team leader (initials, date):* JKR 5/14/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Ridgecrest Date: 5/14/09 (am)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:45am	68	2	NONE	10
End					

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C-8	RKBJH004	N	N	—	4	—	—	W, P	PA	Abundant W's several old pellets @ nearby shrub. Cobwebs.
C-8	RDBMG008	N	N	—	4	—	—	NONE	IA	Lots of DETO scat.
C-8	RMAKD006	N	N	—	4	—	—	NONE	IA	
C-8	RMAJJ002	N	N	—	4	—	—	P (old)	PA	1 old pellet. No new sign
C-8	RMARW002	N	Y	—	4	—	—	W (old)	PA	No new sign.
C-9	RKBWB005	N	Y	—	4	—	—	NONE	IA	
C-8	RBBJH001	N	Y	—	4	—	—	?		Observed for 30 minutes from between 500 meters to 100 meters from burrow.
										No owls observed. Avoided going up to
										burrow so as not to disturb.

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code

[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected

[3] **Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use, fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JVR 5/14/09 ***Approved by team leader (initials, date):*** JVR 5/14/09

Project: SM Site: Ridgecrest Date: 5/14/09 AM Surveyor: Julie Roth GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Nighthawk
Horned Lark
Kit fox (at burrow checked by Steve Henderson during this session)

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 5/14/09 *Approved by team leader (initials, date):* JKR 5/14/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Ridgecrest Date: 5/14/09 (Am)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:51 AM	68	3	Ø	10
End	7:47 AM	78	2	Ø	10

Potential BUOW Burrows:

NS - Not suitable

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-9	RMARW020	N	Y		4			None	IA	
D-9	RMARW014	N	N		4			None	NS	Constricts to ~3" at 10" deep. Under creosote
D-9	RMARW013	N	N		4			W	PA	Cobwebs. No recent activity
D-9	RMARW011	N	N		4		18?	P	PA	No recent activity. Shallow burrow - probably NS.
C-9	RKBJH002	N	Didn't	Approach	4			Didn't Approach →	NS ~~PA~~	Occupied Kit Fox burrow. *2 adult + 4 pups observed at burrow. Good obs from pt 004
C-9	RKBJJ001	N	Y		4			W	PA	No recent BUOW use
C-9	RKBRW003	N	Y		4			W	PA	No recent BUOW use
C-9	RKBJH001	N	Y		4			W small, P	PA	No recent BUOW use
C-10	RKBKD003	N	Y		4			W, P	PA	Pellets inside burrow with cobwebs. Abundant W.
C-10	RBBKH001	N	N		4			W, P	PA	No recent activity
C-10	RKFGL003	—	Heather	Collected	Data					
C-10	RDBAD003	N	Y		4			W	PA	No recent BUOW activity

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 5/14/09 *Approved by team leader (initials, date):* JKR 5/19/09

Project: SM Site: Ridgecrest Date: 5/14/09 Surveyor: SJH GPS Unit: F

BUOW Detections: None

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

* Kit Fox at RKBJH002. 2 adults + 4 pups observed at burrow. Behavior: grooming, pups playing, chewing on creosote, walking around burrow area. observed at 6:30 AM

HOLA

Sage Sparrow

CORA

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 5/14/09 Approved by team leader (initials, date): JKR 5/19/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Ridgecrest Date: 5/14/09 (PM)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	H	HL Valentine

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	1747	80	3	None	2
End	1905	85	2	None	5

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C14	RKBAH022	N	Y	—	4	—	—	NONE	IA	no recent sign of any kind
D8	RMASH004	N	N	—	4	—	—	W	PA	no recent sign
F7	RKBJK004	N	Y	—	4	—	—	W	PA	no recent sign
F8	RKBSH006	N	Y	—	4	—	—	W potential P	PA	no recent sign
F8	RKBSH005	N	Y	—	4	—	—	potential P	PA	"
F9	RKBSH004	N	Y	—	4	—	—	W	PA	only small spot of W no recent sign
G8	RMASH003	N	N	—	4	—	—	W	PA	no recent sign
G8	RMASH002	N	N	—	4	—	—	W	PA	no recent sign

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code

[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected

[3] **Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy)

Reviewed by surveyor (initials, date): HRV ***Approved by team leader (initials, date):*** JKR 5/19/09

Project: SM Site: Ridgecrest Date: 5/14/09 PM Surveyor: Heather Valentine GPS Unit: H

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Reviewed by surveyor (initials, date): HR ✓ *Approved by team leader (initials, date):* JKR 5/19/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 5/14/09 PM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:47pm	92	3	NONE	3
End	7:27pm	80	3	NONE	3

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E-5	RKBRW006	N	Y	—	4	—	—	NONE	IA	
E-4	RMAKD028	N	N	—	4	—	—	NONE	IA	under creosote
E-4	RKBRW009	N	Y	—	4	—	—	?(old)	PA	2nd visit. No new sign.
E-4	RKBRW011	N	Y	—	4	—	—	p(old)	PA	1 potential pellet. No new sign.
E-5	RKBJR006	N	Y	—	4	—	—	P, W	PA	Many pellets - some small and dark. Photo JR007/008. Abandoned old W. Main burrow faces E.
E-5	RKBRW012	N	Y	—	4	—	—	NONE	IA	No recent sign.
E-6	RKBMG014	N	Y	—	4	—	—	NONE	IA	No recent sign.
E-6	RBBJR001	N	N	—	4	—	—	W(old), p(old)	PA	No recent sign.

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes

[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code

[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected

[3] **Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy)

Reviewed by surveyor (initials, date): JKR 5/14/09 ***Approved by team leader (initials, date):*** JKR 5/19/09

Project: SM Site: Ridgecrest Date: 5/14/09 PM Surveyor: Julie Roth GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 5/14/09 *Approved by team leader (initials, date):* JKR 5/14/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Ridgecrest Date: 5/14/09 PM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:47 PM	59	3	Ø	5
End	7:38 PM	78	2	Ø	5

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-4	RKBRW004	N	Y		4			P	PA	
D-4	RMARW044	N	N		4			P	PA	
D-6	RDBMG032	N	N		4			W	PA	
D-7	RKBMG010	N	Y		4			W	PA	One spot of W.
E-7	RKBRW008	N	Y		4			W	PA	
E-7	RKBRW010	N	Y		4			None	IA	Cobwebs.
E-7	RDBMG053	N	N		4			W, F	PA	Cobwebs. Feathers inside burrow. Not recently active.
E-7	RKBKD010	N	Y		4			W, P	PA	Return for obs. follow up.
E-7	RDBRW044	N	N		4			W, P	PA	
E-7	RBBMG002	N	N		4			W, P	PA	Cobwebs.

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[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code

[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected

[3] **Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use, old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy)

Reviewed by surveyor (initials, date): SJH, 5/14/09 *Approved by team leader (initials, date):* JKR 5/19/09

Project: SM Site: Ridgecrest Date: 5/14/09 Surveyor: SJH GPS Unit: F

BUOW Detections: None

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

BTSP
CORA
CONI

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 5/14/09 Approved by team leader (initials, date): JKR 5/19/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Ridgecrest Date: 5/15/09 am

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth / Heather Valentine

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:40am	60	1	NONE	0
End	6:45am	70	1	NONE	0

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C-8	RBBJH001	N	Y	—	5	—	—	W, P	?	Observed this burrow for ~1hr. from the North ~100m & from east ~100m. No bird activity at all. Pellets didn't seem super fresh @ burrow entrance. Doesn't seem active for BUOW anymore.

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes

[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code

[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy)

Reviewed by surveyor (initials, date): JKR 5/19/09 *Approved by team leader (initials, date):* JKR 5/19/09

Project: SM Site: Ridgecrest Date: 5/15/09 am Surveyor: Julie Roth Heather Valentine GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Kit fox - 2 adults 3-4 pups @ burrow RKBJH002

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 5/19/09 Approved by team leader (initials, date): JKR 5/19/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Ridgecrest Date: 5/15/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:59 AM	60	1	Ø	0
End	7:27 AM	70	1	Ø	0

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-3	RKBAH020	N	Y		4 (Follow-up)			W, F	PA	observed burrow for ~20 mins. Also approached burrow. Saw downy feathers in vegetation at burrow entrance. Can observe burrow area from 0432827, 3937229. Burrow is 95°, 70 m from this location. Prior to observing burrow, scanned general vicinity of burrow from greater distance during approach, for ~30 mins.

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3] **Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 5/15/09 ***Approved by team leader (initials, date):*** JKP 5/19/09

ct: SM Site: Ridgecrest Date: 5/15/09 Surveyor: SJH GPS Unit: F

BUOW Detections: None

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

HoLA

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 5/15/09 Approved by team leader (initials, date): JKB 5/19/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/11/09 pm

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:42pm	83	2-3	NONE	70
End	8:46pm	75	3	NONE	20

NS = Not suitable for BUOW
K.f. = kit fox DT = desert tortoise

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-8	RMACG005	N	N	—	1	8wx 12H	24"+	W(some), P(old)	PA	Same burrow as RMASH004. Under senna shrub. 1 old degraded pellet but doesn't obstruct entrance.
										2nd degraded pellet at entrance.
D-8	RMACG007	N	N	—	1	8wx 9H	12"+	NONE	IA	Under creosote bush but branches only slightly obstruct entrance. Suitable burrow. Rabbit poop.
D-8	RKBCG004	N	Y	—	1	7wx 12H	24"+	F	PA	Cobwebs 5 entrances - tons of k.f. scat; dead dry poop(?) outside lots of recent K.f. tracks* a few feathers in one entrance with cobwebs - Sp?
D-8	RMAEE012	N	N	—	1	8wx 7H	12"+	NONE	IA	Under senna shrub.
D-8	RDBEE014	N	Y(2)	—	1	7wx 3H	18"+	NONE	NS	2 DT burrows. One with cobwebs. Both too small for BUOW.
C-7	RKBES003	N	Y	—	1	9wx 10H	24"+	W, P	PA	4 entrances, cobwebs @ 3. 1 old pellet under creosote** W in burrow entrance. Old coyote scat outside. Faces SE
C-7	RKBEE001	N	Y	—	1	7wx 11H	10"+	W, P	PA	5 entrances, 3 with some whitewash. A few degraded pellets @ entrance w/o cobwebs. Old K.F. scat. Faces WNW
C-7	RDBJR020	Y	N	3935695 432097	1	11wx 5H	12"	NONE	NS	Cobwebs - got smaller as it went in. (Give to DETO crew)
C-7	RDBRW049	N	N	—	1	6wx 3H	12"+	NONE	NS	Too small for BUOW. In between creosote shrubs.
C-7	RDBJL007	N	N	—	1	12wx 6H	12"+	NONE	IA	Cobwebs.
D-7	RMAEE005	N	N	—	1	—	—	NONE	NS	Collapsed DT burrow

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
[1]Does the Burrow ID represent a complex of multiple burrows? Y = Yes, multiple burrows forming a complex are represented by this IDENT Code; N = No, only one burrow is represented by this IDENT Code.
[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.
[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 6/11/09 *Approved by team leader (initials, date):* JKR 6/12/09

* Photos JR001, JR002 - dead ? JR003 - feather
** approach from South.

Project: SM **Site:** Ridgecrest **Date:** 6/11/09 pm **Surveyor:** Julie Roth **GPS Unit:** I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

DETO Carcass: RDCJR001: 432575E 3935718N 5"x6" nearly empty (old)

Photo JR004, — JR007 - Habitat shots taken in the C-7 map sheet area facing west.

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 6/11/09 *Approved by team leader (initials, date):* JKR 6/12/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/11/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	Steve Henderson

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:54 pm	83	2-3	Ø	95
End	8:46 pm	75	3	Ø	20

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
F-6	RDBJL001A	N	N		1	12x7	20+	P	PA	Active DETO burrow DETO scat + tracks
			↳ 2 DETO burrows							at Main burrow (S-face) in front of
										2nd burrow (N-face), BUOW pellet fragment
										found. 2nd burrow is shallow (<15")
										DETO burrow, partly obstructed by dead
										shrub. No whitewash observed. Pellet
										fragment is dark, fairly recent.
F-6	RMACG003A*	N	N			(see RMAHV008)		None	IA	*Same burrow as RMAHV008
E-7	RDBCG003	N	N		1	13x8	15+	None	IA	Cobwebs
↓	RDBJL011	N	N		1	10x5	15+	F, W	PA	Small feather, DETO scat. 1 spot whitewash (removed)
↓	RMARW025	N	N		1	8x4	8+	None	IA	Cobwebs. Under + facing creosote. Marginal.
↓	RBBJL001*	N	N		1	6x5	10+	W, B, T, P	A	Coyote scat. Burrow entrance wide (20x14), then narrows to 6x5 after 20" inside. Abundant whitewash
E-8	RMAJL005	N	N		1	7x7	12+	W? small speck	IA	under + on creosote branches, even branches 3' high. Hung flag ~15m to NE.
										Cobwebs. Under creosote. Sticks/twigs in front
										of + partly blocking entrance.

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[2] **BUOW or Sign: O-**Owl, **W-**Whitewash, **P-**Pellets, **T-** BUOW Tracks, **B-** Bones (from degraded pellets), **F-**Feathers, **Pr-**prey remains, **Ef-**Eggshell fragments, **St-**Sticks, **NONE-**no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 6/14/09 ***Approved by team leader (initials, date):*** JKR 6/22/09

Project: SM **Site:** Ridgecrest **Date:** 6/11/09 pm **Surveyor:** Steve Henderson **GPS Unit:** F

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
E-7			Likely RKBRW013/ RBBJL001 (~150m away) → west of these burrows	1	Unk	Unk	Flew + hovered above me + JR - dark outside + vocalized	

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****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Checked on RKBRW013 (Active) on E7. Bird tracks + Abundant dried bwo/sheep scat collected + placed inside burrow + round outside. Recent pellets. appears to have been

Reviewed by surveyor (initials, date): SJH 6/14/09 ***Approved by team leader (initials, date):*** JKC 6/22/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/11/09 PM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	Steve Henderson

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	see page 1				
End	8:46 pm	75	3	Ø	20

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E-8	RMAEE007	N	N		1	6x5	20+	P	PA	Cobwebs over entrance - Moved pellet to side of opening. looks like pellet inside, too
E-8	RMAESOOY	N	N		1	10x5	12+	W, P	PA	Abundant cobwebs Likely inactive. Under creosote

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[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 6/14/09 ***Approved by team leader (initials, date):*** JKR 6/22/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/12/09 Am

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:45am	61	1-2	NONE	50
End	11:15Am	70	2	NONE	40

Observation session @ RBBJH001 5:45am-6:30am

k.f = kit fox

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
(6:30 Am) B-10	RKBES005	N	Y	—	1	4wx11H 7wx14H	12"+ 24"+	NONE	IA	~10 entrances. Some small one quite large. No recent disturbance. Cobwebs. Old k.f. scat
C-10	RDBGL002	N	N	—	1	6wx3.5H	18"+	NONE	NS	pretty small for Buow!
B-11	RMARW078	N	N	—	1	8wx8H	12"+?	NONE	IA	Under scale shrub at edge of wash bank.
C-11	RDLGL003	N	N	—	1	6wx4H	12"+	NONE	IA	Active tortoise burrow - tracks (see DETO comments) under shrub - Partially obstructed by branches. probably too small for Buow.
C-13	RMARW081	N	N	—	1	4wx5H	12"+	NONE	IA	
C-13	RMARW082	N	Y	—	1	See RKBAH006		NONE	IA	Same burrow as RKBAH006 (already surveyed) Cobwebs. Not active.
C-13	RKBMG016	N	Y	—	1	See RKBWB003		NONE	IA	Same burrow as RKBWB003. Some old k.f. scat. Suitable burrow for Buow.
C-13	RKBMG017	N	Y	—	0	See RKBJR001		P(?) Not currently active	PA	Same burrow complex as RKBJR001. 4 visits complete. Really old degraded internal point. Nothing else seen.
C-13	RDBES012	N	Y	—	1	See RKBAH005		NONE	IA	Same as RKBAH005. Cobwebs old coyotes k.f. scat.
C-13	RDBRW053	N	N	—	1	10wx5.5H	24"+	NONE	IA	DETO Tracks. Active DETO burrow. Likely
C-13	RDBES010	N	N	—	1	9wx5H	~12-15"	NONE	NS	Under creosite. Too short for Buow. DETO scat found 20m north of this burrow!
C-7	RDBES009	N	N	—	1	12wx5.5H	15"+	NONE	IA	Under shrub. Partially obstructed
C-7	RDBEE007	N	N	—	1	5wx2.5H	10"+	NONE	NS	Gets smaller at larger end - looks active DETO for DETO tracks
C-7	RDBES008	N	N	—	1	5wx2.5H	6"+	NONE	NS	Entrance obstructed by branches. Too small
C-7	RDBRW051	N	N	—	1	9wx3H	6"+	NONE	NS	Under creosote. Partially obstructed by branches

end of page 2

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[2] BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3]Burrow Status: A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 6/12/09 *Approved by team leader (initials, date):* JKR 6/15/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/12/09 Am (1 out)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start					
End	11:15 Am				

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C-7	RMARW070	N	N	—	1	—	6"	—	NS	Just a dig in undershrub
C-7	RKBES002	N	Y	—	1	—	6" or less	—	NS	All shallow diggings or collapsed burrows.
C-7	RMAES003	N	N	—	1	6w x 8H	12"+	NONE	IA	entrance tarry creosote.
C-7	RDBES001	N	N	—	1	8w x 4H	6"	NONE	NS	Grown in with vegetation. Too shallow.
C-7	RDBRW047	N	N	—	1	10w x 4.5H	24"+	NONE	IA	8m SE of point in GPS, Looks active for DETO scat outside.
C-7	RDBES007	N	N	—	0	11w x 5.5H	18"+	P(old)	PA	lots of Cobrweebs, not open, 2 really old pellets. no soil disturbance - Not recently active. DETO scat 5m South.
						need to revisit for visit #1 during protocol.				

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[2]BUOW or Sign: O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

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Reviewed by surveyor (initials, date): JKR 6/12/09 *Approved by team leader (initials, date):* JKR 6/15/09

Project: SM **Site:** Ridgecrest **Date:** 6/12/09 **Surveyor:** Julie Roth **GPS Unit:** I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

White tailed antelope ground squirrel ~ B-10.
Coyote calling ~B-10
CA Whiptail
Desert Iguana D-11, C-7
Sage sparrow C-7
Kit fox (@ RBBJH001)

Photo JR008 - representative habitat in southern end of project area (C-13).

Comments/Notes:

Observed @ RBBJH001 this morning @ ~130-150m to NW (~330°) from burrow just south of a t-road on the way into the burrow. Observed from 5:45Am - 6:30 Am. At around 5:55Am I saw a family of kit fox (presumably the ones from last survey period in map sheet C-9 (burrow # RKBJH002). 3 pups and 1 adult seen. Pups were playing all over burrow mounds. By 6:30Am they were laying down. Not sure if kit fox family displaced owls or not. Return for another follow-up.

Reviewed by surveyor (initials, date): JRR 6/12/09 *Approved by team leader (initials, date):* 6/15/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/12/09 pm Protocol start time: 6:06 pm.

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:25 pm	78	3	Ø	30
End	8:40 pm	70	2-3	Ø	?

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C-5	RMARW072	N	N	—	1	14wx 5.5H	12"	NONE	NS	Burrow ends quickly. Entrance obstructed by creosote branches.
C-5	RDBJL008	N	N	—	1	10wx 5H	18"+	NONE	IA	looks like active DETO burrow. DETO Scat, Tracks out in open.
C-5	RDBEE001	N	N	—	1	12wx 6H	18"+	NONE	IA	Cobwebs. Entrance very obstructed by shrub branches. Kit fox scat.
C-5	RDBJL009	N	N	—	1	10wx 6H	18"+	W, P	PA	3-4 spots old whitewash. Burrow covered w/ cobwebs. No recent sign/disturbance. Not likely active.
	~6 pm - close enough to protocol start to count!									possible old big pellet. - not next to active burrow entrance.
										2nd pellet on opposite side of shrub. Coyote scat.
C-5	RDBEE003	N	N	—	1	6wx 5H	36"+	W, P	PA	Fair amount of old whitewash out from burrow entrance. 3-4 old pellets near burrow under nearby shrub. photo JR009/JR010.
										of burrow.
C-5	RMARW073	N	N	—	1	12wx 9H	36"	NONE	IA	Can see back of burrow. Under shrub in bank. Low suitability!
C-5	RDBEE008	N	N	—	1	5.5wx 3.5H	10"	NONE	NS	Too small.
C-5	RMARW071	N	N	—	1	11wx 6H	24"+	NONE	IA	Not likely suitable - branches obscure entrance. Several pieces DETO scat outside. DETO burrow!
C-5	RDBES004	N	N	—	1	8wx 5H	24"+	NONE	IA	entrance partially obscured by branches.
C-5	RDBEE002	N	N	—	1	8wx 5H	12"+	NONE	IA	In center of creosote clump. Cobwebs filling entrance. DETO scat.
C-5	RDBJL002	N	N	—	1	see RDBSH004		W (old)	PA	Same as RDBSH004 (already had 4 visits) few old spots whitewash.
C-5	RDBRW048	N	N	—	1	see RDBSH003		NONE	IA	Same as RDBSH003 (already surveyed 4 times)

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Reviewed by surveyor (initials, date): JKR 6/13/09 ***Approved by team leader (initials, date):*** JKR 6/15/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/12/09 PM (cont.)

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

for this datasheet

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:57 pm	78	3	Ø	40
End	8:30 pm				

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-8	RMAEE011	N	N	—	1	10w x 8H	24"+?	P(old)	PA	1 very old degraded pellet. Under shrub - branches form top of burrow for ~2". Not currently active.
D-8	RMAEE010	N	N	—	1	4w x 3H	?	NONE	NS	Under senna shrub. too small for BUOW.
D-8	RKBCG004	N	Y	—	2	—	—	F (still there (prey?))	IA	Probably Active by carnivore - pup? carcass gone / moved. - more dirt disturbance.
C-7	RKBEE001	N	Y	—	2	—	—	W, P (Same)	PA	No New sign - Same as last time. Not currently active.
C-7	RKBES003	N	Y	—	2	—	—	W, P	PA	No change from 6/11/09 pm.
C-7	RDBES007	N	N	—	1	See 6/12/09 AM data		P(old)	PA	No change from this morning.
C-6	RDBJL010	N	N	—	1	8w x 5.5H	18"+	P(old)	PA	1 old degraded pellet outside. Cobwebs Not currently active.
C-6	RMAEE003	N	N	—	1	8w x 4H	12"	NONE	NS	Looks like old DETO burrow. Raccoons quickly
C-6	RDBJL006	N	N	—	1	11w x 6H	30"+	NONE	IA	Cobwebs.
C-6	RMAEE002	N	N	—	1	4w x 7H	?	NONE	IA	At edge of wash under creosote. obstructive by branches.
C-6	RDBES005	N	N	—	1	11w x 4H	12"+	NONE	IA	Likely active DETO burrow. Pretty fresh DETO scat outside.
C-6	RDBEE006	N	N	—	1	6w x 3.5H	12"+	NONE	NS	Too small for BUOW. Cobwebs. Not currently active.
C-6	RDBJL001	N	N	—	1	10w x 4H	12"+	NONE	IA	DETO Scat outside - Active DETO?
C-6	RDBJL005	N	N	—	1	6w x 2.5H	10"+	NONE	NS	Too small.

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Reviewed by surveyor (initials, date): JKR 6/13/09 ***Approved by team leader (initials, date):*** JKR 6/15/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/12/09 pm

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Rith

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	See page 1 of 4				
End	8:40 pm	70	2-3	∅	?

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C-6	RDBES006	N	N	—	1	9 wx 5 H	6"	NONE	NS	Too shallow
C-6	RMARW167	N	N	—	1	7 wx 5 H	8"	NONE	NS	Just digging. Dead ends.

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Reviewed by surveyor (initials, date): JKR 6/13/09 ***Approved by team leader (initials, date):*** JKR 6/15/09

Project: SM **Site:** Ridgecrest **Date:** 6/12/09 Pm **Surveyor:** Julie Roth **GPS Unit:** I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Gopher snake ~ 8:45pm on walk back to car.

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 6/13/09 ***Approved by team leader (initials, date):*** JKR 6/15/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/12/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:35 AM	61	2	Ø	20
End	8:30 AM	68	2	Ø	20

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E-7	RKBRW013	N			5			BUOW-2	A	Follow up obs. Survey. See Notes →
E-7	RBBJL001	N			2			Obs survey - No BUOW, but ~150m from RKBRW013	A	Follow-up obs. Survey. See Notes →
	9:16 AM to 11:14 AM		Purpose Follow-up on burrows reported during phase 2 as burrows no BUOW signs.							
E-6	RMAEEC08	N	N		0	6x4	12+	None	IA	(~.75-1" long) Possible tracks DFTO signs present. See Photo
F-7	RMACG001A	N	N		0	~4x3.5	6+	None	NS	Under dense shrub. Burrow starts wide, then collapses to narrow hole
F-7	RMACG002A	N	N		0	~20x13	15+	None	IA	Cobwebs
E-8	RMARW077	N	N		0	~14x11	12+	W	PA	Burrow under creosote branches. Small amt. of old W. Not regularly active recently
E-8	RMAEE006	N	N		0	13x12	20+	None	IA	Under Creosote
E-8	RMAJL004	N	N		0	11x6	15	None	NS	Too shallow.
E-8	RDBEE011	N	N		0	13x7	20+	None	IA	
E-8	RMAES005	N	N		0	4x5	13	None	NS	Collapses inside
E-8	RMARW074	N	N		0	10x6	8	None	NS	
E-8	RMAJL003	N	N		0	8x9	~17	None	NS	Cobwebs. old pellet ~ 8m away - not at burrow

***IDENT Code:** the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O-**Owl, **W-**Whitewash, **P-**Pellets, **T-** BUOW Tracks, **B-** Bones (from degraded pellets), **F-**Feathers, **Pr-**prey remains, **Ef-**Eggshell fragments, **St-**Sticks, **NONE-**no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 6/14/09 ***Approved by team leader (initials, date):*** JKR

Project: SM **Site:** Ridgecrest **Date:** 6/12/09 **Surveyor:** SJH **GPS Unit:** F

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
E-7			RKBRW013	2	Assumed M+F	Assumed A, A	Perching at burrow entrance; hopping/short flights around burrow. One perched in creosote top near burrow, while other remained at burrow. One also flew to the N-NW out of site.	Observed from rock outcrop ~300 m away, also while obs. RBBJL001 ~150 m away. [Pair was [illegible] at RBBJL001 by DETO crew, could be same pair as at RKBRW013]

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

*LOSH perching in creosote.
BTSP
HoLA
CoRA

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 6/14/09 *Approved by team leader (initials, date):* JKR 6/22/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/12/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:30 pm	82	3-4	Ø	30
End	6:34 pm	80	3	Ø	30

Potential BUOW Burrows: *Follow-up on burrows reported during Phase 2 as having no sign (this entire sheet).

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C-5	RDBEE004	N	N		0	10x15	15	None	NS	Cobwebs
C-5	RDBJL004	N	N		0	11x7	15+	None	IA	Cobwebs
C-5	RMAEE004	N	N		0	14x5	18+	None	IA	
C-4	RDBRW050	N	N		0	12x3.5	15	None	NS	
C-4	RMAJL001	N	N		0	11x6	16+	None	IA	Cobwebs. Fresh digging.
C-4	RMAES001	N	N		0	12x9	12+	None	IA	Creosote branches obstructing entrance. Cobwebs.
C-4	RDBES002	N	N		0	12x6	12+	None	NS	Entrance blocked by dense branches (creosote) Cobwebs
C-4	RMAEE001	N	N		0	4x4	~8	None	NS	
C-4	RDBJL003	N	N		0	13x12	6+	None	NS	choked out by dense creosote branches.
C-4	RDBES003	N	N		0	10x6	11	None	NS	
C-4	RKBES001	N	Y		1	9x9	12+	P? W	PA	4 burrows suitable. Cobwebs. Possible old pellet fragment. Small amount of W. No recent regular activity. 6:25 pm (in protocol)
C-4	RMARW069	N	N		1	11x13	14	None	NS	

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O-**Owl, **W-**Whitewash, **P-**Pellets, **T-** BUOW Tracks, **B-** Bones (from degraded pellets), **F-**Feathers, **Pr-**prey remains, **Ef-**Eggshell fragments, **St-**Sticks, **NONE-**no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 6/14/09 ***Approved by team leader (initials, date):*** JKR 4/22/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/12/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	7:05 pm	78	3	Ø	30
End	8:29 pm	74	2	Ø	30

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E-7	RDBJL011	N	N		2			BUOW - 2	A	50 m S of flagging along road. More feathers at burrow than last night. Flushed 2 owls.
F-6	RDBJL001A	N	N (2 DETO burrows)		2			No new sign	PA	
E-8	RMAES004	N	N		2			W, P	PA	Abundant cobwebs - No recent activity
E-8	RMAEE007	N	N		2			P	PA	Cobwebs
E-8	RMARW077	N	N		1			W	PA	

***IDENT Code:** the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 6/14/09 ***Approved by team leader (initials, date):*** 6/22/09 JKR

Project: SM **Site:** Ridgecrest **Date:** 6/12/09 **Surveyor:** SJH **GPS Unit:** F

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
E-7			RDBJL011	2	Assumed M, F	Assumed A, A	Flushed from burrow giving cognitorial calls.	Creosote scrub. Brief view, but looked like adults. Unknown repro status.
							One hovered in flight + watched me.	(but breeding confirmed on 6/14/09)

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 6/14/09 *Approved by team leader (initials, date):* JKR 6/22/09

Project: SM **Site:** Ridgecrest **Date:** 6/12/09 **Surveyor:** SSH **GPS Unit:** F

BUOW Detections: None

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Mojave rattlesnake
White-tailed Antelope Squirrel
CORA

Comments/Notes:

Reviewed by surveyor (initials, date): 6/14/09 *Approved by team leader (initials, date):* 6/22/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/13/09 Am

out of protocol, but ok for any burrows that don't have Burrow Sign.

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	10:06 Am		3	0	5
End					

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-9	RDBEE013	N	N	—	1	6 W x 4 H	10"+	NONE	IA	Burrow filled w/ dirt beyond opening such that burrow size shrinks. Low quality burrow.
~~D-9~~	~~RMAEE009~~	~~N~~		—		~~[illegible]~~			~~IA~~	Also- entrance partially obstructed by shrub branches. Under shrub.
D-9	RMAEE009	N	N	—	1	hard to tell maybe 6 W x 5 H	?	NONE	IA	may just be digging under shrub. Low suitability for BUOW. entrance obstructed by branches. Doesn't look active by any animal.
C-5	RMAJL002	N	N	—	1	6 W x 5 H	12"+	NONE	IA	Out in open. Rabbit poop.
C-5	RDBEE010	N	N	—	1	10 W x 5 H	36"+	NONE	IA	Cobwebs. Fair amount of old DETD scat inside. Doesn't look active for any species.
?/n/a	RMACG004A	N	N	—	1	—	6"	NONE	NS	Not a burrow only a mammal digging.

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 6/13/09 ***Approved by team leader (initials, date):*** JKR 6/21/09

Project: SM **Site:** Ridgecrest **Date:** 6/13/09 **Surveyor:** June Roth **GPS Unit:** I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	*See Steve Henderson's notes about observations of burrows:						RKBRW013	
	Sum minimum of 4 BUOW (possible family?) - must return for						RBBJL001 RDBJL011	
				observation tomorrow				

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Desert Horned lizard
gopher snake
zebra-tailed lizard

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 6/13/09 *Approved by team leader (initials, date):* JKR 6/21/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/13/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	9:45 AM	77	3	Ø	0
End					

*No Protocol Survey on this sheet – follow-up on burrows reported during Phase 2 as having no sign.

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
F-9	RMARNO76	N	N		0	10×9	15+	None	IA	Smoke seen in burrow
D-9	RDBSH020	(Y)	N	0432800 3934394	0	12×5	22	None	IA	DITTO burrow – Not mapped previously. Looks like [illegible] no other sign
D-9	RDBEE012	N	N		0	12×6	24+	None	IA	Cobwebs
C-5	RDBEE005	N	N		0	10×3.5	24	None	IA	Entrance probably too short for owl, but close. Marginally suitable.

***IDENT Code:** the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O-**Owl, **W-**Whitewash, **P-**Pellets, **T-** BUOW Tracks, **B-** Bones (from degraded pellets), **F-**Feathers, **Pr-**prey remains, **Ef-**Eggshell fragments, **St-**Sticks, **NONE-**no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 6/22/09 ***Approved by team leader (initials, date):*** 6/22/09 JKR

Project: SM **Site:** Ridgecrest **Date:** 6/13/09 **Surveyor:** SJH **GPS Unit:** F

BUOW Detections: See separate data sheet for this morning during protocol.

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

HOLA
Horned lizard
Whiptail

Comments/Notes:

JKR

Reviewed by surveyor (initials, date): SJH, 6/22/09 *Approved by team leader (initials, date):* 6/22/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/13/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH, JKR

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:05 AM	60	3	Ø	0
End	9:10 AM	75	3	Ø	0

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E-7	RDBJL011				3			BUOW-3	A	Focal obs. from rock outcrop. See notes →
E-7	RBBJL001				3			No owls obs. at this location today, but present at other two nearby active burrows. → RDBJL011 RKBRW013	A	Focal obs. from rock outcrop. No good view of burrow.
E-7	RKBRW013				6			BUOW-1 to 2	A	Focal obs. from rock outcrop. See notes →

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 6/22/09 ***Approved by team leader (initials, date):*** JKR 6/22/09

Project: SM **Site:** Ridgecrest **Date:** 6/18/09 **Surveyor:** SJH / JKR **GPS Unit:** F

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
E-7			RDBJL011	3	Unk.	Unk.	Perching on rock near burrow; flying in/out of area.	Maximum of 3 BUOWs observed at same time. Initially flushed to from burrow
								from while approaching, then I retreated to view at a distance.
E-7			RKBRW013	1 to 2	Unk.	Unk.	Perching on ground at burrow.	Only one BUOW seen at a time, but suspect 2 different birds based on light/dark color differences.
								This bird(or birds) observed at same time as those at RDBJL011.

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 6/22/09 *Approved by team leader (initials, date):* JKR 6/22/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/13/09 pm

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:06 pm	79	3-4	Ø	5-10
End	8:20 pm	72	2-3	Ø	5-10

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.] List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-8	RMAEE011	N	N	—	2	—	—	p(old)	PA	No new sign. Same one old degraded pellet. Possible use as escape burrow at one time. Not currently active.
C-7	RKBEE001	N	Y	—	3	—	—	p(very old), W	PA	No New sign. W at burrows w/ cobwebs. not currently active. Cobwebs, 1 on apron
C-7	RDBES007	N	N	—	2	—	—	p(old)	PA	None sign. 2-3 old pellets. 2 near small shrub to South.
C-7	RKBES003	N	Y	—	3	—	—	p(few, old)	PA	No new sign. Only one burrow w/ cobwebs. Not currently active.
C-6	RDBJL010	N	N	—	2	—	—	p(old)	PA	No new sign. 1 old degraded pellet outside apron. Cobwebs. Not currently active.
D-6	RDBRW052	N	N	—	1	11 W x 6 H	24"+	NONE	IA	DETO scat - possibly active for DETO. Soil disturbance in entrance.
D-6	RKBES004	N	Y	—	1	7.5 x 6.5 H	24"+	NONE	IA	4 entrances - 2 w/ cobwebs. 2 DETO shaped. Old kit fox scat, DETO scat + rabbit poop. No Buow sign.
E-8	RMAEE007	N	N	—	3	—	—	p(1 old) W(little)	PA	No New sign. Evidence of some old whitewash, 1 old-large pellet near shrub. Not currently active by Badger.
E-8	RMARW077	N	N	—	2	—	—	NONE	IA	Some soil disturbance outside. Photos JR017, JR018, JR019 of burrows! No recent sign. Few small spots whitewash - possibly? maybe. Otherwise - burrow poor suitability - entrance fairly obstructed by oranges.

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[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign:** O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3] **Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use, old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 6/14/09 ***Approved by team leader (initials, date):*** JKR 6/21/09

Project: SM Site: Ridgecrest Date: 6/13/09 Pm Surveyor: Julie Roth GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Horned Lark C-7
Rock wren E-8

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 6/14/09 *Approved by team leader (initials, date):* JKR 6/21/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/13/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:06 pm	79	3-4	Ø	10
End	8:14 pm	74	2	Ø	10

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.] List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-8	RKBCG004	N	Y		3			F	PA	Feathers ~ 15" inside E-facing burrow, larger feathers in cobwebs at burrow entrance of another burrow. Abundant kit fox scat, possible fox tracks + fresh digging. Appears occupied by foxes. No BUOW whitewash.
C-5	RDBJL009	N	N		2			P, W	PA	Abundant cobwebs. Not used recently
C-5	RDBEE003	N	N		2			P, W	PA	
C-4	RKBES001	N	N		2			W	PA	No new sign
C-4	RDBAH010	N	N		Follow-up (5)			W	PA	Cobwebs. BUOW (2) Flushed 3:38°, ~150 m from RDBAH010. See Notes →
F-6	RDBJL001A	N	N		3			P (old) + no recent fragment of P	PA	No fresh or new burrows sign. Occupied by DETO.
E-6	RBBJR001	N	N		Follow-up			~~P~~ W	PA	No fresh sign. Some cobwebs.

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[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code

[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use, fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy)

Reviewed by surveyor (initials, date): SJH, 6/13/09 ***Approved by team leader (initials, date):*** JKP 6/22/09

Project: SM Site: Ridgecrest Date: 6/13/09 Surveyor: SJH GPS Unit: F

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
C-4	RBBSH001		RBBSH001 (recorded during follow-up on 6/14/09)	2	Assumed M, F	Assumed A, A	Flushed, both landed on creosote. At least one giving agitation call. Flushed while I was approaching ROBAH010, I was ~150m from pair when flushed	Assumed pair - reprod. status unknown. Will follow up. (Breeding confirmed on 6/14/09)

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

NONE

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 6/22/09 *Approved by team leader (initials, date):* JKE 6/22/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/14/09 AM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:15 am	63	1	Ø	<1
End	7:14 am	66	1	Ø	<1

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C-7	RKBEE001	N	Y	—	4	—	—	W	PA	No change since last visit. No fresh sign. Not currently active.
C-7	RDBES007	N	N	—	3	—	—	P(fresh)	PA	No change - No fresh sign. Not currently active.
C-7	RKBES003	N	Y	—	4	—	—	P(fresh) W(old)	PA	No change - No fresh sign. Not currently active.
C-6	RDBJL010	N	N	—	3	—	—	P(fresh old)	PA	No change. No fresh sign. Cobwebs inside. Not currently active.
C-5	RDBJL009	N	N	—	3	—	—	P(1 old), W(old)	PA	No change. No fresh sign. Cobwebs all over entrance. Not currently active.
C-5	RDBEE003	N	N	—	3	—	—	P(2 old recent), W(old)	PA	No change. No fresh sign. Not currently active by burr
Follow-ups →		N/10:30am - pretty hot and already								
C-8	RBBJH001	N	Y	—	?	—	—	→		all known signed. K-fox family continued to have moved into this complex. Burrows displaced or predated upon. A few feathers seen in burrow entrance. Photos JR023, JR024
C-9	RKBJH002	N	Y	—	?					Appears this kit fox family moved to the old burrow? - RBBJH001. No recent tracks.
C-10	RKBKD003	N	Y	—	5	—	—	W	IA	No recent sign. Some old white wash @ burrow w/ cobwebs. No recent soil disturbance.
C-10	RKBKD002	N	Y	—	5	—	—	NONE	IA	Inactive burrow complex. Cobwebs, no recent soil disturbance.
D-7	RBBKD001	N	N	—	5	—	—	W(old), P(very old)	IA	Not active currently, W - P - very old. No cobwebs.
	Private parcel habitat description →				Private parcel that borders Project footprint to Southeast contains very open					
			Creosote shrub habitat		very similar			to that in	map sheet	C-8 where RBBJH001 is.

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[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code

[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected

[3] **Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy)

Reviewed by surveyor (initials, date): JKR 6/22/09 ***Approved by team leader (initials, date):*** JKR 6/22/09

Project: SM Site: Ridgecrest Date: 6/14/09 am Surveyor: Julie Roth GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE!							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Horned Lark
Black-tailed jackrabbit
Desert horned lizard - photos JK (JK020, JK021, JK022)

Comments/Notes:

Reviewed by surveyor (initials, date): 6/21/09 Approved by team leader (initials, date): JKG 6/21/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/14/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH, JKR

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:27 AM	60	1	Ø	Ø
End	8:30 AM	64	1	Ø	Ø

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.] List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C-4	RBBSH001	Y	N	0431602 3937106	1	12 x 11	20+	BUOW, P, F, W	A	First conducted observational survey, then approached burrow. 2 adults plus unknown # juveniles (juvs. heard inside burrow). See Notes →

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[1]**Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code

[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3]**Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy)

Reviewed by surveyor (initials, date): SJH, 6/23/09 ***Approved by team leader (initials, date):*** JKR 6/24/09

Project: SM Site: Ridgecrest Date: 6/14/09 Surveyor: SJH / JKR GPS Unit: F

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
C-4	RBBSH001	0431602 3937106	RBBSH001	3+	M, F, Plus unk.	A, A, Plus ≥1 J	Male: perching in creosote during observation period. Female: occasional agitation calls from burrow area. Flushed from burrow when I approached. After	
						burrow,	female flushed, I heard "fluttering" sound from inside presumably from 1 or more juveniles. I left immediately	
E-7			RDBJL011	4 (confirmed) Possibly 5	M, F, unk.	A, A, J, J	Flushed 4 BUOWs from burrow area, including juveniles. Juveniles fledged & flew well. Owls headed west & perched near RKBKD010 + RDBRW044 (likely satellite burrows)	
							After group of 4 flushed, a juvenile was observed on a creosote at RDBJL011. It then flew west to other owls. Unknown if this was a 5th BUOW or part of the original 4 that re-appeared.	

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**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

E-7			RKBRW013	1	Unk.	A	Adult BUOW perched on creosote near burrow, at same time BUOWs from RDBJL011 flushed and remained to the west. Adult at RKBRW013 eventually flew from burrow, but did not appear to be associated with group from RKBRW013.

Note: BUOW detections on E-7 were made during follow-ups to confirm # of pairs among RDBJL011, RKBRW013, and RBBJL001. No BUOWs detected at RBBJL001 today.

Comments/Notes:

Conclusions: During Phase 2 and 3 surveys, BUOW pairs have been observed regularly at RKBRW013, twice + with fledglings at RDBJL011, and once at RBBJL001 (by DETO crew during Phase 2, but not during Phase 3). Likely that at least two pairs occupy this area, with one pair confirmed to nest successfully + fledge young at RDBJL011.
Likely main burrows: RDBJL011 + RKBRW013, and RBBJL001. Likely satellites include: RKBKD010, RDBRW044 due to sign, proximity to main burrows, + obs. of owls from RDBJL011 flushing to that area.

Reviewed by surveyor (initials, date): SJH, 6/23/09 Approved by team leader (initials, date): JKR 6/24/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM Site: Ridgecrest Date: 6/14/09 PM

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:10 pm	75	3-4	Ø	35-40
End					

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-5	RMAMG035	N	N	—	4	—	—	NONE	IA	Really nice burrow suitable for Buow. No recent sign. No sign at all observed. Cobwebs.
D-8	RMAEE011	N	N	—	3	—	—	P(1, old)	PA	Burrow ~ like it ends after ~ 2' straight back w/ shrub branches as burrow roof. Not likely to be suitable as a nest burrow for Buows. 1 old degraded pellet on burrow apron.
										No new sign. Not currently active by Buow
E-8	RMAES004	N	N	—	3	—	—	W(old) P(old)	PA	No fresh sign. Cobwebs. Fair amount old whitewash. 3-4 old pellets. Not currently active for Buow.
E-8	RMAEE007	N	N	—	4	—	—	P(few, old) W(few)	PA	No new sign, little bit of old degraded whitewash. Cobwebs. Not currently active. Very nice burrow.
E-8	RMARW077	N	N	—	3	—	—	W(?)	IA	No new sign. Not currently active for Buow. questionable Buow sign (whitewash).
	NO Buow observations									
	NO incidental sightings									

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[2] **BUOW or Sign: O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected.

[3] **Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 6/15/09 ***Approved by team leader (initials, date):*** JKR 6/26/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/14/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	6:05 PM	83	3-4	Ø	15
End	7:09 PM	77	3	Ø	15

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
C-4	RKBES001	N	Y		3			None?	PA	Focal obs. from ~100 m away
D-8	RKBCG004	N	Y		4			F, P	PA	Active kit fox complex. Looks like more feathers outside complex, but no fresh w/ or P (now observed at all). Feathers likely kit fox prey remains.
F-6	RDBJL001A	N	N		4			P (No new sign)	PA	

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[3]**Burrow Status: A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 6/14/09 ***Approved by team leader (initials, date):*** 6/22/09 JKR

Project: SM **Site:** Ridgecrest **Date:** 6/14/09 **Surveyor:** SJH **GPS Unit:** F

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

***IDENT Code:** the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
****Behavior** (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

CORA
TUVU

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 6/14/09 *Approved by team leader (initials, date):* JCR 6/22/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/15/09 Am

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	I	Julie Roth

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:57 Am	61	1	Ø	Trace
End	7:26 Am	65	1	Ø	3%

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
E-8	RMAES004	N	N	—	4	—	—	P(old) W(old)	PA	No change - old sign. Not active. Cobwebs.
C-6	RDBJL010	N	N	—	4	—	—	P(old) W(old)	PA	No change in condition. No fresh sign. Not active for BUOW.
C-7	RDBES007	N	N	—	4	—		P(old)	PA	No change in condition. No recent sign. Not active for BUOW. Still lots of cobwebs.
C-6	RDBJR021	Y	N	393581 0N 432133	1	9wx 4.5H	12"+	NONE	NS.	Faces small shrub. Burrow gets progressively smaller as you look back. Too small for BUOW.
D-8	RMAEE011	N	N	—	4	—	—	P (old)	PA	No change in condition. Not currently active.
	Follow-up →									
D-8	RKBCG004	N	Y	—	5	—	—	—	NS	Approached only up to ~ 100-130m. Saw 3 kit fox pups. Confirmed active kit fox burrow.

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[2] **BUOW or Sign:** O-Owl, W-Whitewash, P-Pellets, T- BUOW Tracks, B- Bones (from degraded pellets), F-Feathers, Pr-prey remains, Ef-Eggshell fragments, St-Sticks, NONE-no sign detected.

[3] **Burrow Status:** A = Active (live owl observed at burrow, or sign of recent use; fresh sign), PA = Potentially Active (evidence of previous, but not recent, use; old sign), IA = Inactive (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): JKR 6/15/09 ***Approved by team leader (initials, date):*** JKR 6/28/09

Project: SM Site: Ridgecrest Date: 6/15/09 Am Surveyor: Julie Roth GPS Unit: I

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs; reproductive status)
	NONE							

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

Horned Lark (many @ C-6, C-7)

Comments/Notes:

Reviewed by surveyor (initials, date): JKR 6/15/09 *Approved by team leader (initials, date):* JKR 6/22/09

BURROWING OWL (BUOW) FIELD SURVEY DATA SHEET

Project: SM **Site:** Ridgecrest **Date:** 6/15/09

Survey Type (Phase 2/3)	GPS Unit	Surveyor(s)
3	F	SJH

	Time	Temp (°F)	Wind (Beaufort)	Precip.	Cloud Cover (%)
Start	5:54 AM	61	1	~~0~~	0
End	7:26 AM	65	1	~~0~~	10

Potential BUOW Burrows:

Map Sheet	Burrow ID (GPS IDENT Code*)	New Burrow? (Y/N)	Burrow complex?[1] (Y/N)	GPS Coordinates for New Burrows (NAD 83 Zn 11N)	Visit #	Burrow Width and Height (in.)	Est. Burrow Depth (in.)	BUOW or Sign Present[2] (list all that apply)	Burrow Status[3] (A, PA, IA)	Comments (Note burrow/complex characteristics and sign condition [fresh, etc.]. List photo references here. If present, # owls, pair status, age, sex, etc. and go to page 3.)
D-8	RMARW077	N	N		4			W (old)	PA	No new sign
C-4	RKBES001	N	Y		4			None	PA	Observed from ~100 m away to avoid
C-5	RDBEE003	N	N		4			W, P (old)	PA	disturbing BUOWS at RBBSH001.
C-5	RDBJL009	N	N		4			W, P (old)	PA →	Abandoned cobbles.

*IDENT Code: the unique 8-digit code that identifies the individual burrow or burrow complex within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.

[1] **Does the Burrow ID represent a complex of multiple burrows? Y = Yes**, multiple burrows forming a complex are represented by this IDENT Code; **N = No**, only one burrow is represented by this IDENT Code.

[2] **BUOW or Sign**: **O**-Owl, **W**-Whitewash, **P**-Pellets, **T**- BUOW Tracks, **B**- Bones (from degraded pellets), **F**-Feathers, **Pr**-prey remains, **Ef**-Eggshell fragments, **St**-Sticks, **NONE**-no sign detected

[3] **Burrow Status**: **A = Active** (live owl observed at burrow, or sign of recent use; fresh sign), **PA = Potentially Active** (evidence of previous, but not recent, use; old sign), **IA = Inactive** (no evidence of use by burrowing owls, but is of suitable size for occupancy).

Reviewed by surveyor (initials, date): SJH, 6/15/09 ***Approved by team leader (initials, date):*** JCC 6/22/09

Project: SM Site: Ridgecrest Date: 6/15/09 Surveyor: SJH GPS Unit: F

BUOW Detections:

Map Sheet	Detection ID (GPS IDENT Code*)	GPS Coordinates (NAD 83 Zn 11N)	Associated Burrow ID (GPS IDENT Code*), if applicable	# of BUOWs Detected	Sex (M/F/Unk.)	Age (A/J/Unk.)	Behavior**	Comments (include habitat description within 50 m; identify owl pairs, reproductive status)
C-4		0431602 3737106	RBBS4001	2	M, F	A A	Perching in creosote, one gave agitation call	observed from near RKBES001.

*IDENT Code: the unique 8-digit code that identifies the detection within the project site (e.g., PBBSD001). See page 4 for nomenclature and codes.
**Behavior (e.g., courtship, copulation, foraging, resting, alarm, territorial, parental, juvenile, etc.)

Other Species Detected (list ALL wildlife species and sensitive plants detected. For special-status, record IDENT Code, GPS Coordinates, and relevant notes [e.g., nesting]):

HoLA
W-T Antelope Squirrel
Sage Sparrow
MoDO
Whiptail

Comments/Notes:

Reviewed by surveyor (initials, date): SJH, 6/15/09 *Approved by team leader (initials, date):* JKR 6/22/09

ATTACHMENT L

MOHAVE GROUND SQUIRREL HABITAT ASSESSMENT

SOLAR MILLENNIUM RIDGECREST SOLAR POWER PROJECT
MOHAVE GROUND SQUIRREL HABITAT ASSESSMENT

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September 2009

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INTRODUCTION

I have been asked by AECOM Environment to conduct a detailed assessment of Mohave ground squirrel (*Spermophilus mohavensis*) habitat quality for 4,920 acres of land southwest of Ridgecrest, Kern County, California (Figure 1 [All figures referred to herein are included in Attachment 1]). This area encompasses the proposed site of Solar Millennium's Ridgecrest Solar Power Project and consists of public land within the U.S. Bureau of Land Management (BLM) Right-of-Way Lease #CACA-49016. This report describes the habitat on this block of land with particular emphasis on the disturbance area associated with the solar facility footprint itself and evaluates its suitability for the state-listed Mohave ground squirrel. The report also discusses the potential value of these lands for connectivity among Mohave ground squirrel populations in the larger region.

METHODOLOGY

The findings and conclusions in this report are based upon field visits to the area in December 2008 and June 2009. I spent a total of 2.5 days in the field conducting a habitat assessment of an area encompassing the entire BLM Right-of-Way (ROW). I conducted this assessment by driving all unpaved access roads and walking through selected areas. In addition, I visited all 24 locations where Mohave ground squirrels have been recorded within 5 miles of the ROW boundaries. This helped me to understand the actual habitat conditions associated with occurrences of the species in this region. During all habitat assessment activities, I focused on the species composition and physical structure of the vegetation as well as on soil conditions.

Mohave ground squirrels are closely associated with desert shrub vegetation, which provides cover from predators and temperature extremes as well as suitable forage in the form of leaves and seeds. Higher quality habitat is generally characterized by a diversity of shrub species, including larger shrubs that provide shade and safer burrow locations. Native herbaceous plants form an important part of the diet, especially in reproductive years when adult females and young have high energy and moisture requirements. Higher quality habitat supports an abundant and diverse array of native herbs. Mohave ground squirrels avoid sites with rocky soils and are almost always found where alluvial soils provide suitable substrate for burrow construction. Higher quality habitat has sandy or loamy soils, often with large soil accumulations at the bases of shrubs.

Many of the locations of historic occurrences of the Mohave ground squirrel within 5 miles of the ROW boundaries were obtained from the California Department of Fish and Game (CDFG)

California Natural Diversity Database (CNDDB) (California Department of Fish & Game 2008). I also utilized other records of Mohave ground squirrel occurrence that I collected for a comprehensive database covering the period 1998-2007 (Leitner 2008). I also reviewed a map prepared for the BLM West Mojave Plan that indicates the locations of lands designated for the Mohave Ground Squirrel Conservation Area (U.S. Bureau of Land Management 2005).

I assessed the regional context of the BLM ROW from the perspective of connectivity among known MGS populations by referring to the distributional data presented in a recent publication (Leitner 2008).

RESULTS

General Description of the Project Area

The project area is located within 4,920 acres of public land on BLM ROW Lease #CACA-49016 approximately 5 miles southwest of the City of Ridgecrest. The solar power plant facilities are proposed to be sited on ~1,440 acres within the BLM ROW just southwest of US Highway 395. Brown Road, a paved county road, roughly bisects the project area, running WNW from its junction with US Highway 395. The ground disturbance limits (i.e., disturbance area) associated with the proposed solar power plant facilities cover approximately 1,738 acres. Elevations range from 2,600 ft at the north end of the ROW (Section 14) to 2,800 ft at the southern edge of the project area (Section 35). The ROW is located on an alluvial apron that slopes northward from the base of the El Paso Mountains toward Indian Wells Valley. This alluvial slope is traversed by desert washes that carry runoff from south to north across the project area.

Almost the entire ROW supports Mojave Creosote Bush Scrub, a common desert vegetation community dominated by creosote bush (*Larrea tridentata*) and white bur-sage (*Ambrosia dumosa*). In the washes, these dominant species are often joined by two other shrubs, desert senna (*Senna armata*) and cheesebush (*Hymenoclea salsola*), forming a vegetation community referred to as Desert Wash Scrub. The washes and adjacent areas characteristically have higher shrub density and cover than the intervening upland areas. In the upland strips between the washes, there are two vegetation subtypes. Only creosote bush is found in patches of gravelly soil, with the shrubs widely spaced and low diversity annual plant growth. However, much of the upland habitat has sandier soil and is characterized by both creosote bush and white bur-sage and by more abundant growth of annuals. The highest shrub species diversity was observed in the southern portion of Section 35, where spiny hop-sage (*Grayia spinosa*) and winterfat

(*Krascheninnikovia lanata*) were quite common. The foliage of these two shrubs is important in the Mohave ground squirrel diet.

The ROW has been subject to a number of human land uses in the past. It has been leased for livestock grazing and because of its proximity to the Ridgecrest area has been used for public recreation, including OHV trails and target shooting. The property is traversed by 2 paved highways, US Highway 395 and Brown Road, as well as electric transmission lines and access roads.

Habitat Types

I have identified 4 habitat types that are present within the disturbance area. The distribution of these habitat units is shown on Figure 1.

Rocky Terrain **Unsuitable Habitat**

Steep, rocky terrain is present on the eastern edge of the disturbance area north of Brown Road, where there is a group of granitic hills. These rocky areas are unsuitable for occupancy by Mohave ground squirrels, although dispersing juveniles could possibly traverse them.

Monotypic Creosote Bush Scrub **Low Quality Habitat**

Within the disturbance area are expanses of flat terrain between washes that support only widely-spaced creosote bushes. No other shrub species are present, although some of these patches display abundant herbaceous annuals such as goldfields (*Lasthenia californica*) following good winter rainfall. There is little or no buildup of fine soil around the bases of the creosote bushes and the soil between shrubs has a layer of small gravel. These monotypic creosote bush stands have low habitat value for Mohave ground squirrels because of lack of adequate food resources and cover. They are very unlikely to support resident Mohave ground squirrels, but could be used by animals moving between patches of better habitat.

Low Diversity Creosote Bush Scrub **Medium Quality Habitat**

Much of the disturbance area supports a Low Diversity Creosote Bush Scrub, strongly dominated by creosote bush and white bur-sage. Other shrub species are very uncommon, but occasionally silver cholla (*Opuntia echinocarpa*) and desert senna are present. Herbaceous annuals include species belonging to common Mojave genera such as *Chaenactis*, *Coreopsis*, *Phacelia*, and

Erodium. Soils are sandy, often with small gravel on the surface; sandy mounds around the bases of shrubs provide good potential for burrows. The low diversity creosote bush scrub provides medium quality habitat for Mohave ground squirrels. This habitat type is capable of sustaining resident reproductive Mohave ground squirrel populations.

Desert Washes and Adjacent High Diversity Creosote Bush Scrub **High Quality Habitat**

Two major washes traverse the disturbance area, supporting Desert Wash Scrub, a diverse plant community with high shrub density and cover. Areas adjacent to these washes are characterized by High Diversity Creosote Bush Scrub. The dominant shrub species in the washes and adjacent areas are creosote bush, white bur-sage, and desert senna, but a variety of other shrubs are present. These include cheesebush, scale-broom (*Lepidospartum squamatum*), Cooper's boxthorn, Anderson's boxthorn (*Lycium andersonii*), indigo bush (*Psorothamnus arborescens*), winterfat, and spiny hop-sage. The washes and adjacent habitat also have abundant populations of herbaceous annual plants representing a number of species. Soils in the washes consist of loose sandy material, with more compacted loamy soils on adjacent slopes. The desert washes and adjacent High Diversity Creosote Bush Scrub provide high quality habitat for Mohave ground squirrels, with excellent shrub cover, soils suitable for burrow construction, and diversity of food resources. They are capable of supporting relatively abundant resident Mohave ground squirrel populations. However, in the absence of data from trapping surveys within the disturbance area, it is not possible to be certain about the actual Mohave ground squirrel abundance at this time.

Regional Status of the Mohave Ground Squirrel

The locations of the 24 documented Mohave ground squirrel occurrences within 5 miles of the ROW boundaries are shown on Figure 2. Records derived from the CNDDB are identified by the CNDDB Occurrence Number, while records that have not yet been incorporated into the CNDDB are given a letter designation. Detailed descriptions of the ecological setting of each occurrence are given in Attachment 2, along with the date of the record. Attachment 3 provides the date of each occurrence, a legal description of the location, and the associated habitat type.

An analysis of the habitat associated with these Mohave ground squirrel occurrences indicates that the species has been detected in both Low and High Diversity Creosote Bush Scrub and in Desert Wash Scrub. Twelve of the 24 occurrences were at locations that support Low Diversity Creosote Bush Scrub, while 9 were recorded in High Diversity Creosote Bush Scrub. The

remaining 3 records were in Desert Wash Scrub habitat south of Inyokern along Little Dixie Wash. No occurrences were recorded in rocky terrain or in Monotypic Creosote Bush Scrub.

The general region around Ridgecrest is notable for the abundance of Mohave ground squirrel records (Leitner 2008). The broad valley to the southwest of Inyokern along Little Dixie Wash has been identified as 1 of only 4 known Mohave ground squirrel core areas. Core areas are defined by 3 criteria: (1) there must be evidence that Mohave ground squirrel populations have persisted for at least 20-30 years, (2) the species must currently be present at $\geq$6 locations, and (3) there must be records of >30 individuals since 1998. This core area extends to within 2-3 miles of the western edge of the ROW. Another population has been documented from Ridgecrest east along State Route 178, based on records at 11 locations since 1998. Although Mohave ground squirrel abundance varies greatly from year to year in response to variation in winter rainfall, the Ridgecrest area appears to support populations that are important for the conservation of the species.

Habitat Fragmentation

Mohave ground squirrel occurrences in the vicinity of the proposed Ridgecrest Solar Power Project area are concentrated in Indian Wells Valley, located north of the site (Figure 2). The species is expected to occur elsewhere in this valley, although much of the area has not been surveyed. Indian Wells Valley is the location of an extensive urbanized area that extends from Inyokern east to Ridgecrest (Figure 3). Past development in this valley has fragmented occupied and potential Mohave ground squirrel habitat and created barriers between the core Mohave ground squirrel population southwest of Inyokern and the known population to the east of Ridgecrest. The project could lead to further fragmentation of Mohave ground squirrel habitat in this region and contribute to the isolation of remaining populations.

CONCLUSIONS

Although there are no Mohave ground squirrel records for the lands included in BLM ROW #CACA-49016, there have been 24 detections within 5 miles of the ROW boundaries. This strongly suggests that the species is likely to occur in habitat on the disturbance area. However, it is not possible to specify the particular level of abundance because Mohave ground squirrel numbers vary dramatically from year to year.

Based upon my observations of habitat quality, almost all of the disturbance area should be considered as suitable habitat for the Mohave ground squirrel. Only 2 small areas of rocky

terrain are not suitable for the species. However, the quality of the habitat within the disturbance area varies greatly. Monotypic Creosote Bush Scrub does not provide the resources needed for a resident population, although individuals may use it in moving between patches of higher quality habitat. Low Diversity Creosote Bush Scrub and the Desert Wash Scrub with adjacent High Diversity Creosote Bush Scrub can support resident Mohave ground squirrel populations. However, it is very likely that the carrying capacity of the latter 2 habitat types would be higher. In the absence of reliable, long-term population data for different habitat types in the region, it is not possible to specify the range of actual population densities that would be expected. Table 1 summarizes the amounts of acreage within the disturbance area that would be assigned to each habitat type.

Table 1
The 4 habitat types present within the disturbance area of the Ridgecrest Solar Power Project, Indicating the Quality of Each Habitat Type for Mohave Ground Squirrels and the Acreage Present

Habitat Type	Habitat Quality	Acreage
Rocky Terrain	Unsuitable	12.6
Monotypic Creosote Bush Scrub	Low	383.0
Low Diversity Creosote Bush Scrub	Medium	1,107.9
Desert Wash Scrub & adjacent High Diversity Creosote Bush Scrub	High	234.7
Total Acreage		**1,738.2**

This assessment of habitat value is strongly supported by the record of Mohave ground squirrel occurrences within 5 miles of the ROW boundaries. There were no records in rocky terrain or in Monotypic Creosote Bush Scrub, providing support for the conclusion that these kinds of habitat are not occupied by resident Mohave ground squirrels. All 24 of the occurrences were associated with Low Diversity Creosote Bush Scrub, High Diversity Creosote Bush Scrub, or Desert Wash Scrub. This provides evidence that these same habitats within the disturbance area are likely to be occupied by Mohave ground squirrels.

Finally, the geographic position of the Ridgecrest Solar Power Project indicates that development here would add to existing anthropogenic barriers between Mohave ground squirrel populations in the region. The project could increase habitat fragmentation and contribute to isolation of remaining populations.

REFERENCES

California Department of Fish and Game. 2008. Rarefind 3. California Natural Diversity Database, California Department of Fish and Game, Sacramento, CA.

Leitner, P. 2008. Current status of the Mohave ground squirrel. Transactions of the Western Section of The Wildlife Society 44:11-29.

U.S. Bureau of Land Management. 2005. Final Environmental Impact Report and Statement for the West Mojave Plan. U.S. Bureau of Land Management, Moreno Valley, CA.

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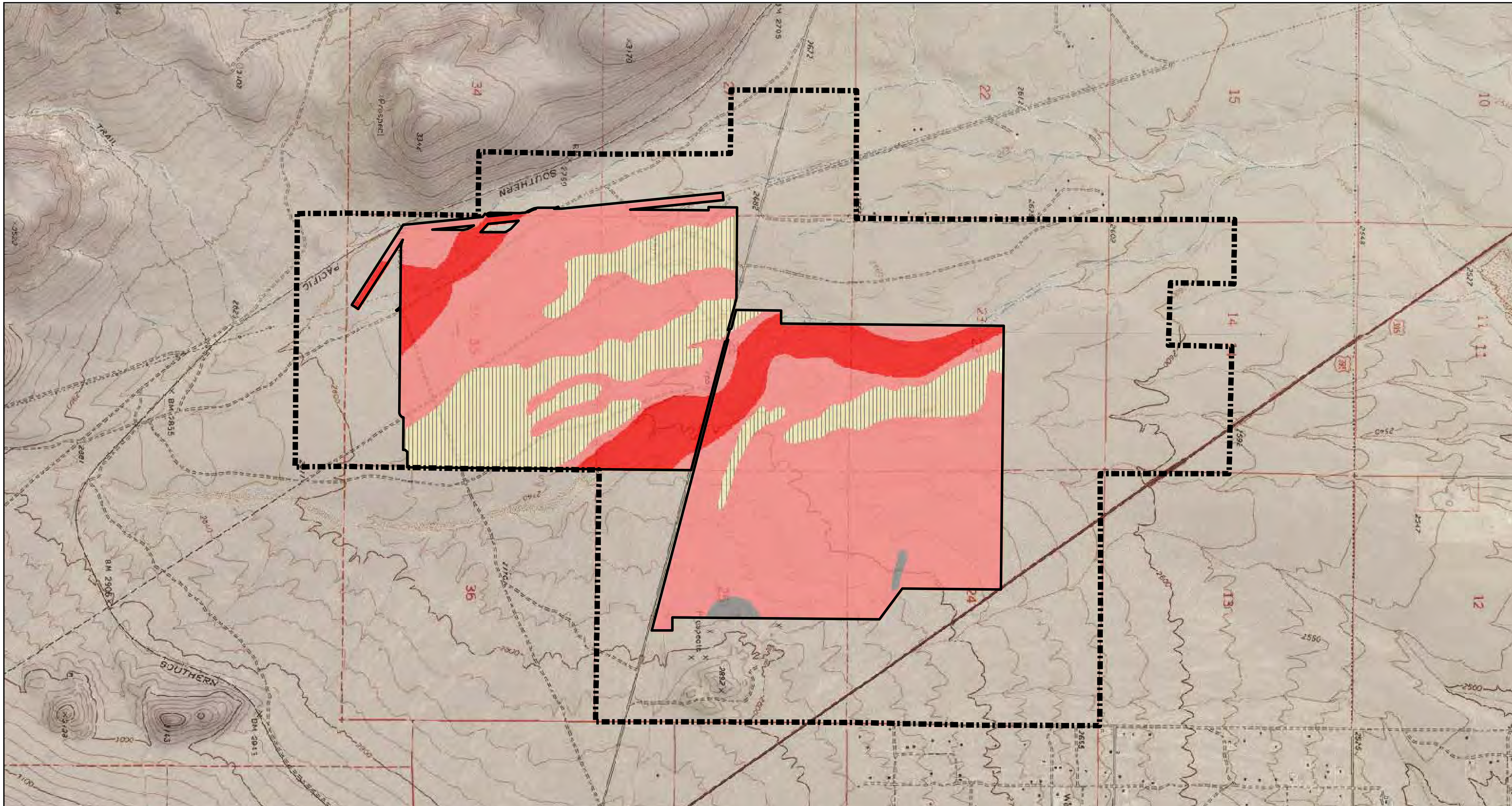
ATTACHMENT 1

FIGURES



Map Location

Legend

ROW

Disturbance Area

Habitat Quality for Mohave Ground Squirrel [1]

- High - Desert Washes and Adjacent High Diversity Creosote Bush
- Medium - Low Diversity Creosote Bush
- Low - Monotypic Creosote Bush
- Unsuitable - Rocky Terrain

Source: USGS; NAIP 2005; Leitner 2009

[1] NOTE: Vegetation descriptions for the purposes of MGS habitat quality does not correspond to mapped vegetation communities

1 inch = 2,000 feet

0 2,000 4,000 Feet

Ridgecrest Solar Power Project

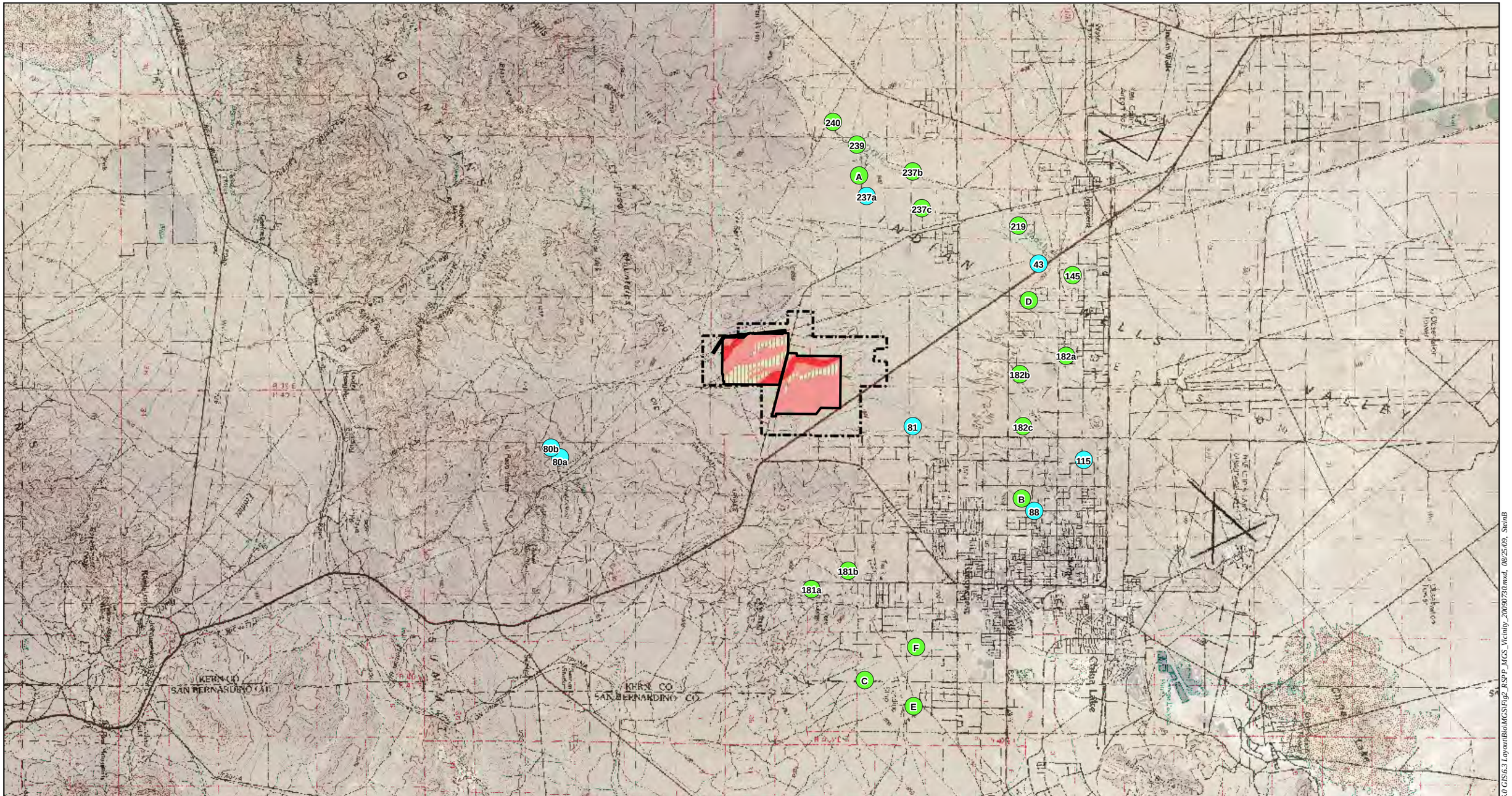
Figure 1
Habitat Quality
Mohave Ground Squirrel

Solar Millennium

AECOM

Date: September 2009

Path: P:\2009\09080080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Bio\MGS\Fig1_RSPP_MGS_Habitat_20090825.mxd, 08/25/09, SteinB



Map Location

Legend

ROW

Disturbance Area

CNDDB Occurrences

Label Prior to 1988

Label 1988 to Present

Habitat Quality

Mohave Ground Squirrel

High - Desert Washes and Adjacent High Diversity Creosote Bush

Medium - Low Diversity Creosote Bush

Low - Monotypic Creosote Bush

Unsuitable - Rocky Terrain

Source: USGS; NAIP 2005; CNDDB; Leitner 2009;

W S N E

1 inch = 2 miles

0 2 4 Miles

Ridgecrest Solar Power Project

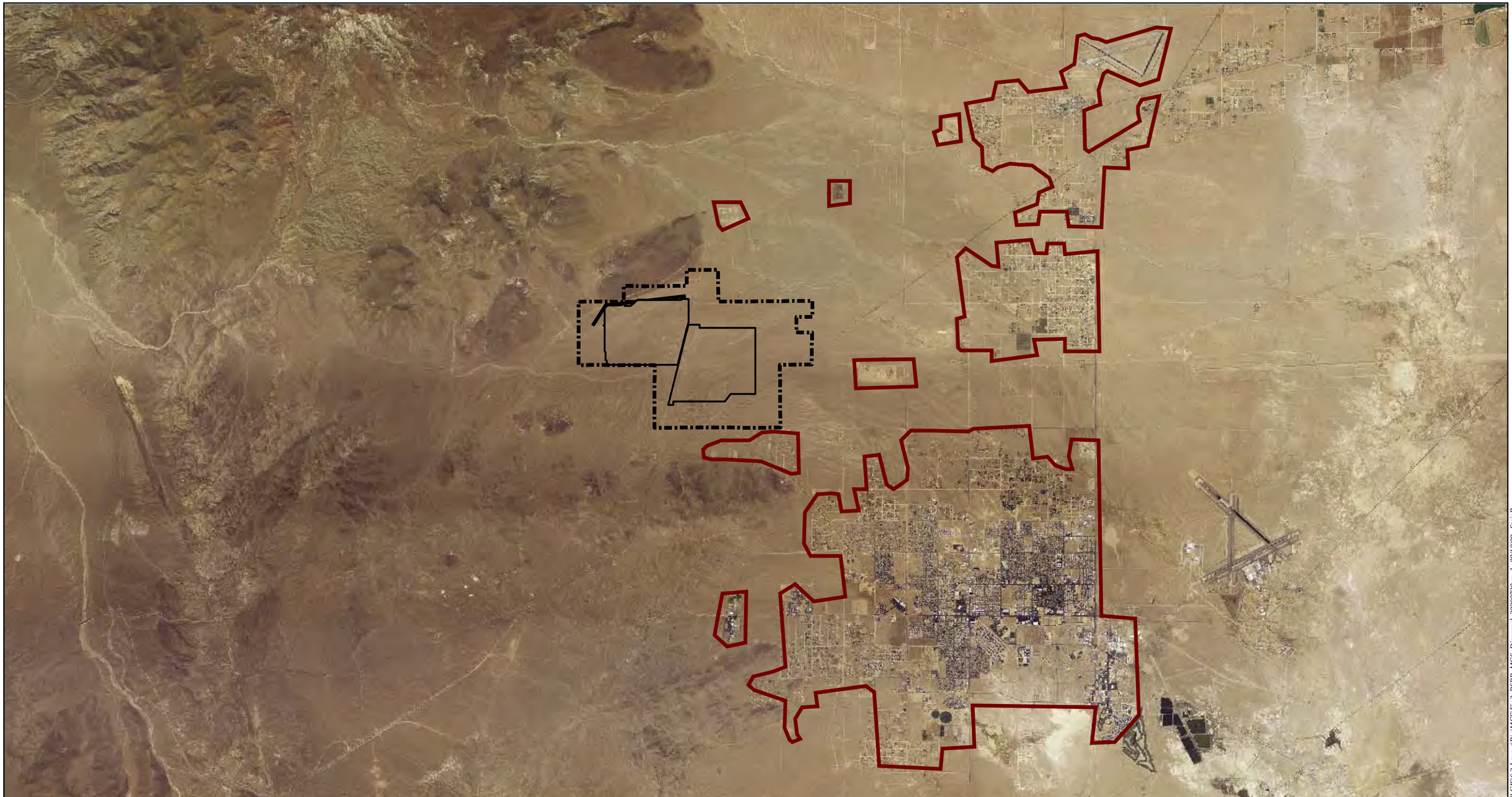
Figure 2
Overview Mohave Ground Squirrel Records within 5 Miles of ROW

Solar Millennium

AECOM

Date: September 2009

Path: P:\20090908080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Bio\MGS\Fig2_RSPP_MGS_Vicinity_20090730.mxd, 08/25/09, SteinB



Map Location

Legend

- ROW
- Project Footprint
- Developed and Disturbed Areas

Source: NAIP 2005; AECOM 2009; GoogleEarth 2009; Philip Leitner 2009

W N S E

1 inch = 2 miles

0 1.5 3 Miles

Ridgecrest Solar Power Project

Figure 3
Ridgecrest Solar Power Project in relation to existing developed areas

Solar Millennium

AECOM

Date: September 2009

Path: P:\2009\09080080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Bio\MGS\Fig3_RSPP_MGS_Dispersal_20090730.mxd, 08/10/09, SteinB

ATTACHMENT 2

MGS OCCURRENCES WITHIN 5 MILES OF THE SOLAR MILLENNIUM BLM ROW LEASE #CAC-49016 – ECOLOGICAL SETTING

ATTACHMENT 2

MOHAVE GROUND SQUIRREL OCCURRENCES WITHIN 5 MILES OF THE SOLAR MILLENNIUM BLM ROW LEASE #CACA-49016

Ecological Setting

CNDDB #43. 1967. Location is ~2 mi southeast of Inyokern. Dominant shrubs are creosote bush and white bur-sage, plus some cheesebush and allscale (*Atriplex polycarpa*). Some native annuals are present. Soil is sandy.

CNDDB #80a. 1975. Location is steep alluvial fan on northwest shoulder of El Paso Peak. Dominant shrubs are creosote bush and white bur-sage, with high diversity of other shrubs including cheesebush, bladder-sage (*Salazaria mexicana*), indigo bush, spiny hop-sage, and Cooper's boxthorn. Native annuals are very abundant and diverse. Soil is coarse sand with small rocks and gravel.

CNDDB #80b. 1975. Location is steep alluvial fan on northwest shoulder of El Paso Peak. Dominant shrubs are creosote bush and white bur-sage, with high diversity of other shrubs including cheesebush, bladder-sage, indigo bush, spiny hop-sage, and Cooper's boxthorn. Native annuals are very abundant and diverse. Soil is coarse sand with small rocks and gravel.

CNDDB #81. 1978. Location is ~3 mi southwest of Ridgecrest. Dominant shrubs are creosote bush and white bur-sage, with some desert senna and cheesebush in small washes. Abundant native annuals are present, especially goldfields. Soil is sandy.

CNDDB #88. 1978 & 1988. Location is vacant land in Ridgecrest, near intersection of Mahan St. and Las Flores Ave. Dominant shrubs are creosote bush and white bur-sage; some areas only creosote bush and some almost all white bur-sage. Few native annual plants are present. Soil is silty sand.

CNDDB #115. 1978, Location is vacant land on the west side of Ridgecrest. Dominant shrubs are creosote bush and low density white bur-sage, plus a few silver chollas. Few native annual plants are present. Soil is silty sand.

CNDDB #145. 1990, Location is in Little Dixie Wash, about 1.75 southeast of Inyokern. Dominant shrubs are creosote bush and white bur-sage; no other shrubs observed. Some native annuals present, especially *Chaenactis*. Soil is sandy.

CNDDB #181a. 1988. Location is on the bajada near Cerro Coso College. Dominant shrubs are creosote bush and white bur-sage, with some cheesebush, goldenhead, Anderson's boxthorn, and indigo bush. Abundant native annuals are present, especially *Chaenactis* sp., *Coreopsis bigelovii*, and *Phacelia* sp. Soil is sandy with small gravel on the surface.

CNDDB #181b. 1990. Location is on the bajada near Cerro Coso College. Location is on the bajada near Cerro Coso College. Dominant shrubs are creosote bush and white bur-sage, with some cheesebush, goldenhead (*Acamptopappus sphaerocephalus*), Anderson's boxthorn, and indigo bush. Abundant native annuals are present, especially *Chaenactis* sp., *Coreopsis bigelovii*, and *Phacelia* sp. Soil is sandy with small gravel on the surface.

CNDDB #182a. 1990. Location is about 1.5 mi west of Jacks Ranch Road. Dominant shrubs are creosote bush and white bur-sage; no other shrubs observed. Some native annuals present. Soil is silty sand.

CNDDB #182b. 1988. Location is about 1.25 mi west of Jacks Ranch Road. Dominant shrubs are creosote bush and white bur-sage, with some cheesebush. Some native annuals present. Soil is silty sand.

CNDDB #182c. 1990. Location is about 0.25 mi west of Jacks Ranch Road. Dominant shrubs are creosote bush and white bur-sage. Some native annuals present. Soil is silty sand.

CNDDB #219. 1988 & 1989. Location is near Little Dixie Wash. Dominant shrubs are creosote bush and white bur-sage, plus some cheesebush, silver cholla (*Opuntia echinocarpa*), and spiny hop-sage. Abundant native annuals are present, especially *Chaenactis* sp. Soil is silty sand.

CNDDB #237a. 1983. Location is on large bajada ~0.75 mi east of Little Dixie Wash. Dominant shrubs are creosote bush and white bur-sage, plus some goldenhead, cheesebush, silver cholla, and Cooper's boxthorn. Abundant native annuals are present, especially *Chaenactis* sp. and *Amsinckia tessellata*. Soil is sandy.

CNDDB #237b. 1988. Location is in Little Dixie Wash, near Inyo Dry Well. Dominant shrubs are creosote bush and allscale, plus some white bur-sage. Abundant native annuals are present, especially *Chaenactis* sp. and *Eriogonum* sp. Soil is loose fine sand.

CNDDB #237c. 1988. Location is on large bajada ~0.25 mi east of Little Dixie Wash. Dominant shrubs are creosote bush and white bur-sage, plus some cheesebush, silver cholla, allscale, and Cooper's goldenbush. Some native annuals are present, especially *Chaenactis* sp. Soil is silty sand.

CNDDB #239. 1988. Location is in Little Dixie Wash, with creosote bush and allscale as dominant shrubs, plus some fourwing saltbush, white bur-sage, scale-broom, and cheesebush. Abundant native annuals are present, especially *Chaenactis* sp. and *Amsinckia tessellata*. Soil is very loose fine sand.

CNDDB #240. 1990. Location is in Little Dixie Wash, with creosote bush and allscale as dominant shrubs, plus some fourwing saltbush, white bur-sage, silver cholla, and cheesebush. Abundant native annuals are present, especially *Chaenactis* sp. Soil is very loose fine sand.

Site A. 2003. Location is on the upland bench just east of Little Dixie Wash. Dominant shrubs are creosote bush and white bur-sage, plus some allscale, goldenhead, Anderson's boxthorn, silver cholla, and spiny hop-sage. Abundant native annuals are present, especially *Chaenactis* sp. and *Amsinckia tessellata*. Soil is sandy.

Site B. 2006. Location is vacant land in Ridgecrest, near intersection of Mahan St. and Las Flores Ave. Dominant shrubs are creosote bush and white bur-sage; some areas only creosote bush and some almost all white bur-sage. Few native annual plants are present. Soil is silty sand.

Site C. 2006. Location is on a bajada at the southeast edge of Ridgecrest. Dominant shrubs are creosote bush and white bur-sage, with some cheesebush, desert senna, and indigo bush. Some native annuals are present. Soil is sandy.

Site D. 2006. Location is near a large wash, about 2.5 mi southeast of Inyokern. Dominant shrubs are creosote bush and white bur-sage; no other shrubs are present. Some native annuals are present, especially *Chaenactis* sp. Soil is silty sand.

Site E. 2006. Location is on a bajada at the southeast edge of Ridgecrest. Dominant shrubs are creosote bush and white bur-sage. Site is somewhat disturbed. Some native annuals are present. Soil is sandy.

Site F. 2006. Location is on a bajada at the southeast edge of Ridgecrest. Dominant shrubs are creosote bush and white bur-sage. Site is highly disturbed and shrub density is low. Few native annuals are present. Soil is sandy.

ATTACHMENT 3

MGS OCCURRENCES WITHIN 5 MILES OF THE SOLAR MILLENNIUM BLM ROW LEASE #CAC-49016 – LEGAL DESCRIPTION, OCCURRENCE YEAR, AND HABITAT TYPE

ATTACHMENT 3

MGS OCCURRENCES WITHIN 5 MILES OF THE SOLAR MILLENNIUM BLM ROW LEASE #CACA-49016

Legal Description, Occurrence Year, and Habitat Type

CNDDB Occurrence No.	Legal Description	Year	Habitat Type
43	T26S, R39E, Sect. 33	1967	Low Diversity Creosote Bush Scrub
80a	T28S, R40E, NW1/4 Sect. 19	1975	High Diversity Creosote Bush Scrub
80b	T28S, R40E, SW1/4 Sect. 19	1975	High Diversity Creosote Bush Scrub
81	T27S, R39E, Sect. 12	1978	Low Diversity Creosote Bush Scrub
88	T26S, R40E, Sect. 32	1978 & 1988	Low Diversity Creosote Bush Scrub
115	T26S, R40E, Sect. 30	1978	Low Diversity Creosote Bush Scrub
145	T26S, R39E, SE1/4 Sect. 28	1990	Low Diversity Creosote Bush Scrub
181a	T27S, R40E, SW1/4 Sect. 22	1988	High Diversity Creosote Bush Scrub
181b	T27S, R40E, NE1/4 Sect. 21	1990	High Diversity Creosote Bush Scrub
182a	T26S, R39E, SW1/4 Sect. 26	1990	Low Diversity Creosote Bush Scrub
182b	T26S, R39E, SE1/4 Sect. 35	1988	Low Diversity Creosote Bush Scrub
182c	T26S, R39E, SE1/4 Sect. 36	1990	Low Diversity Creosote Bush Scrub
219	T26S, R39E, SE1/4 Sect. 32	1988-1989	High Diversity Creosote Bush Scrub
237a	T27S, R39E, SW1/4 Sect. 17	1983	High Diversity Creosote Bush Scrub
237b	T27S, R39E, SE1/4 Sect. 7	1988	Desert Wash Scrub
237c	T27S, R39E, SW1/4 Sect. 8	1988	High Diversity Creosote Bush Scrub
239	T27S, R39E, NW1/4 Sect. 19	1988	Desert Wash Scrub
240	T27S, R38E, SE1/4 Sect. 24	1990	Desert Wash Scrub

Non-CNDDB Occurrence	Legal Description	Year	Habitat Type
Site A	T27S, R39E, SE1/4 Sect. 18	2003	High Diversity Creosote Bush Scrub
Site B	T26S, R40E, SW1/4 Sect. 32	2006	Low Diversity Creosote Bush Scrub
Site C	T27S, R40E, SE1/4 Sect. 14	2006	High Diversity Creosote Bush Scrub
Site D	T26S, R39E, SW1/4 Sect. 34	2006	Low Diversity Creosote Bush Scrub
Site E	T27S, R40E, SE1/4 Sect. 11	2006	Low Diversity Creosote Bush Scrub
Site F	T27S, R40E, SW1/4 Sect. 11	2006	Low Diversity Creosote Bush Scrub

ATTACHMENT M

REGULATORY AGENCY CORRESPONDENCE

EDAW | AECOM

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1420 Kettner Boulevard, Suite 500, San Diego, California 92101
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February 20, 2009

Julie Vance
California Department of Fish and Game
1234 East Shaw Avenue
Fresno, CA 95630

Dear Ms. Vance:

Subject: Biological Survey Methodologies for the Solar Millennium Projects

On behalf of Solar Millennium, LLC, EDAW/AECOM is submitting to the California Department of Fish and Game (CDFG) the attached summary of biological resource survey studies and methodologies for Solar Millennium's three proposed solar thermal power plant sites in the Mojave and Colorado Desert areas of California. The three plant sites include the Ridgecrest site located south of Ridgecrest in Kern County, the Palen and Blythe plant sites located near Desert Center and Blythe, respectively.

The AECOM Team is undertaking technical surveys and studies necessary to support Applications for Certification (AFC) submittals and related environmental documentation to be provided to the California Energy Commission (CEC) and the Bureau of Land Management (BLM). These studies will also be used to develop environmental baseline information to support applications to other federal, state, and local agencies.

Key to obtaining the approvals described above is the collection of data concerning the occurrence and distribution of biological resources on the three project sites. The biological site surveys and data collection must, of course, take into account the physical characteristics of the project sites, the life histories of the target species, and the guidelines and protocols promulgated by the resource agencies.

The data resulting from these surveys will be used for characterizing existing biological resource conditions on the project sites. Some modifications to solar plant component configurations may occur as a result of survey findings. The survey results will of course also be used to make determinations regarding project impacts, to formulate mitigation requirements, and to provide specific data needs of reviewing agencies.

A conference call meeting was held with representatives of CDFG, the US Fish and Wildlife Service (USFWS), the BLM, Solar Millennium, LLC, and the AECOM team on February 11, 2009. At that time EDAW/AECOM provided a summary of the biological surveys and protocols proposed for each of the three plant sites. After some discussion of the proposed survey protocols, it was requested by the agencies that a written summary of the survey methodologies, together with more detailed mapping of the proposed projects, be submitted. This letter provides the materials requested during the February 11, 2009 meeting.

In submitting this information, it is our hope to gain timely review and comment by CDFG and the other resource management agencies that participated in the meeting. It is Solar Millennium's desire to

share its expectations and comments in the planning stage for these studies so that the ensuing study bases and work products reflect the Department's input. This review, and ultimate survey protocol concurrence, is critical to meeting temporal requirements of various surveys and project delivery schedules.

During our call on February 11th, it was indicated that the agencies would review these materials during the week of February 23rd. It was further indicated that combined feedback from the agencies would be received during the first week in March. I will be contacting you shortly to establish a forum for receiving your feedback.

Please do not hesitate to contact me if I can provide any needed information in the interim.

Sincerely,

William Graham
Principal

bill.graham@edaw.com
ph. 619.233.1454

Protocal Trans Letter 2 20 09.doc

Proposed Survey Protocols for the Solar Millennium Parabolic Trough Solar Thermal Power Projects 2009

Desert Tortoise

- Surveys will be conducted according to the U.S. Fish and Wildlife Service (USFWS) *Field Survey Protocol For Any Federal Action That May Occur Within the Range of the Desert Tortoise* (January 1992), and modified to exclude the survey of Zone of Influence transects, as recommended by Ray Bransfield of the USFWS, Ventura Field Office. The rationale for this modification is that ZOI transect surveys would not provide much additional information for the forthcoming Section 7 consultation process, and that effects to the tortoise would be addressed through the consultation process. Although this recommendation was specific to the Ridgecrest site, the Solar Millennium project team is proposing that this modification to the standard survey methodology be applied to all three sites (i.e., applied to the Ridgecrest, Palen, and Blythe sites), since all would be going through similar consultation processes, and the projects are located on lands under the jurisdiction of the BLM. Although the CDFG has raised concerns regarding indirect effects of potential increases in raven and other predator populations due to the use of evaporation ponds in the project design, it should be noted that all three sites, with the possible exception of one unit at the Blythe site, will be using dry cooling, and that evaporation ponds will not be used in conjunction with dry cooling. There will be stormwater retention ponds, but they will hold water only for a few days of the year, and thus should not affect raven populations. Therefore, the Solar Millennium team is proposing that no ZOI transect surveys be conducted (including forgoing ZOI surveys along the CEC 0.75-mile and 1.0-mile buffer transects).
- Habitat assessments will be initiated in February and will be conducted by qualified biological teams. A Presence-or-Absence Survey (100 percent survey) over the entire project area will be conducted. Surveys will be initiated in mid-March, after it has been determined that desert tortoises are active and will continue roughly until the end of May.
- Intensive Surveys will be conducted at the completion of focused surveys to determine survey quality.
- While conducting biological surveys, all tortoise sign (live tortoises, shells, bones, scutes, limbs, scat, burrows, pallets, tracks, egg shell fragments, drinking sites etc.) will be mapped using GPS units and on field maps (scale 1”=200’). Other sensitive biological resources will be mapped during desert tortoise focused surveys (see General Biological Survey Details below).

Burrowing Owl

- Biologists will conduct focused surveys for the western burrowing owl (*Athene cunicularia)* according to the *BURROWING OWL SURVEY PROTOCOL AND MITIGATION GUIDELINES* prepared by The California Burrowing Owl Consortium (April 1993).
- The habitat assessment (Phase I Survey) for burrowing owl will be conducted in February by qualified biologists. The project site and surrounding 500’ buffer zone will be evaluated for the suitability for burrowing owl. Suitable habitat will be mapped in the field using high resolution field maps and GPS units. Any burrowing owls or burrowing owl sign observed during the Phase I survey will be recorded and mapped.
- The Phase II Burrow Survey will be initiated in mid-March and will be conducted concurrently with focused desert tortoise surveys. The burrow survey will consist of pedestrian transects spaced at

a maximum of 10 meters apart within suitable desert tortoise habitat and in any areas not suitable for tortoise may extend up to 30 meters. Biologists conducting tortoise surveys will map any burrowing owls, potential burrowing owl burrows and burrowing owl sign.

- Phase III surveys (burrowing owl surveys, census and mapping) will be initiated at the height of the breeding season (April 15th until July 15th) and will continue until all potential burrowing owl locations have been visited on four separate survey periods. Potential burrowing owl locations will be viewed initially using the vehicle as a blind (if possible) and in all cases, will be surveyed by biologists approaching the burrows on foot. Burrows will be assessed for any fresh burrowing owl activity and sign. Any sensitive species observed during these surveys will be recorded.

Mohave Ground Squirrel (Ridgecrest Site Only)

- Protocol-level surveys to be conducted per CDFG's Mohave Ground Squirrel Survey Guidelines (revised January 2003). Since the site acreage is greater than 180 acres a specialized survey methodology will need to be developed through consultation with CDFG, the project proponent and the lead agency
- The Ridgecrest site consists of monotypic creosote bush scrub that is generally open with large patches of shrubless areas. Preliminary analysis of the site by MGS expert Bill Vanherweg indicates that the site consists of marginal MGS habitat due to the scarcity of food plants.
- EDAW proposes to that MGS surveys consist of one trapping grid per Section of land (4 grids) plus two additional grids along the CEC buffers (at 0.75 and 1 mile from the outer edge of the proposed disturbance footprint) for a total of 6 grids. No trapping is proposed within the MGS Conservation Area south of Brown Road. All of the linear features for this site are within the site footprint, so no trapping grids are proposed for these items.

Botanical Surveys

Rare plant surveys will be conducted according to CNPS Survey Guidelines.

- Vegetation mapping of plant footprints and linear project features (per Holland 1986)
- Vegetation mapping of 1-mile buffer around plant footprint 1,000-foot buffer along linear features, per the *California Energy Commission – Recommended Biological Resources Field Survey Guidelines for Large Solar Projects* (May 2007)
- Focused surveys for special-status species (see species table provided separately)

General Biological Survey Details

While conducting surveys for desert tortoise, burrowing owl and rare plants, biologists will also be looking for and recording occurrences of other sensitive and listed wildlife species.

- **Burrowing Owl Burrow Data** – Phase II of the Burrowing Owl survey (mapping potential burrowing owl burrows) is to be conducted concurrently with the Desert Tortoise focused survey by the biologists conducting the desert tortoise survey. All potential burrowing owl burrows and any potential burrowing owl sign, including owl observations, white wash, pellets, feathers etc. will be recorded
- **Desert Tortoise Training** – All surveyors will be given Desert Tortoise Awareness training.
- **Rare Plants –** All surveyors will be briefed on potential rare plants within their survey area, including descriptions and photographs/drawings. Biologists will record co-ordinates and take

photographs of any potential occurrences of rare plants and communicate this information to an EDAW botanist for verification immediately.

- **Other Special Status Wildlife Species** – During desert tortoise, rare plant and burrowing owl surveys, any of the following biological resources will be noted and locations recorded:
    - Any observations of sensitive and/or listed mammal species sign including but not limited to:
        - Potential bat roosting sites – caves, abandoned buildings, cliffs etc.
        - Nelson's bighorn sheep or sign
        - American badger
        - Mojave ground squirrel
        - Desert kit fox burrows
    - Any observations of Mojave fringe-toed lizard (in dunes)
    - Any observations of sensitive and/or listed bird species including but not limited to:
        - Loggerhead shrike
        - LeConte's thrasher
        - Bendire's thrasher
        - Crissal's thrasher
        - Gilded flicker
        - Gila woodpecker
        - Raptors
            - Northern harrier
            - White-tailed kite
            - Cooper's hawk
            - Peregrine falcon
            - Prairie falcon
            - Swainson's hawk
            - Golden eagle
            - Ferruginous hawk

EDAW Inc
1420 Kettner Boulevard, Suite 500, San Diego, California 92101
T 619.233.1454 F 619.233.0952 www.edaw.com

March 2, 2009

Mr. Hector Villalobos
Field Manager
Ridgecrest Field Office CA650
Bureau of Land Management
300 S. Richmond Road
Ridgecrest, California 93555

Subject: Solar Millennium AFCs – Ridgecrest Solar Plant Project, Species List Request

Dear Mr. Villalobos:

On behalf of Solar Millennium, LLC, EDAW, Inc. (EDAW) is submitting this letter as a request for information to support the biological investigations associated with a site feasibility study for a proposed solar energy project located southwest of the town of Ridgecrest, in northeastern Kern County, California (Figures 1 and 2). The study area is located within portions of the USGS 7.5-minute Inyokern SE and Ridgecrest South quadrangles.

Please provide our office with a list of any additional listed or proposed species, or designated or proposed critical habitats that may not be addressed by the attached species list, or the ten-mile CNDDB search of the feasibility study area (Figure 3).

We are requesting these actions to facilitate inclusive special-status species surveys in order to assess potential biological impacts of the proposed project, which is located within the Indian Wells Valley northeast of the El Paso Mountains. Your support in expediting this matter is greatly appreciated. Should you have any questions or concerns, please contact me at (916) 414-5813 or email at Leo.Edson@edaw.com.

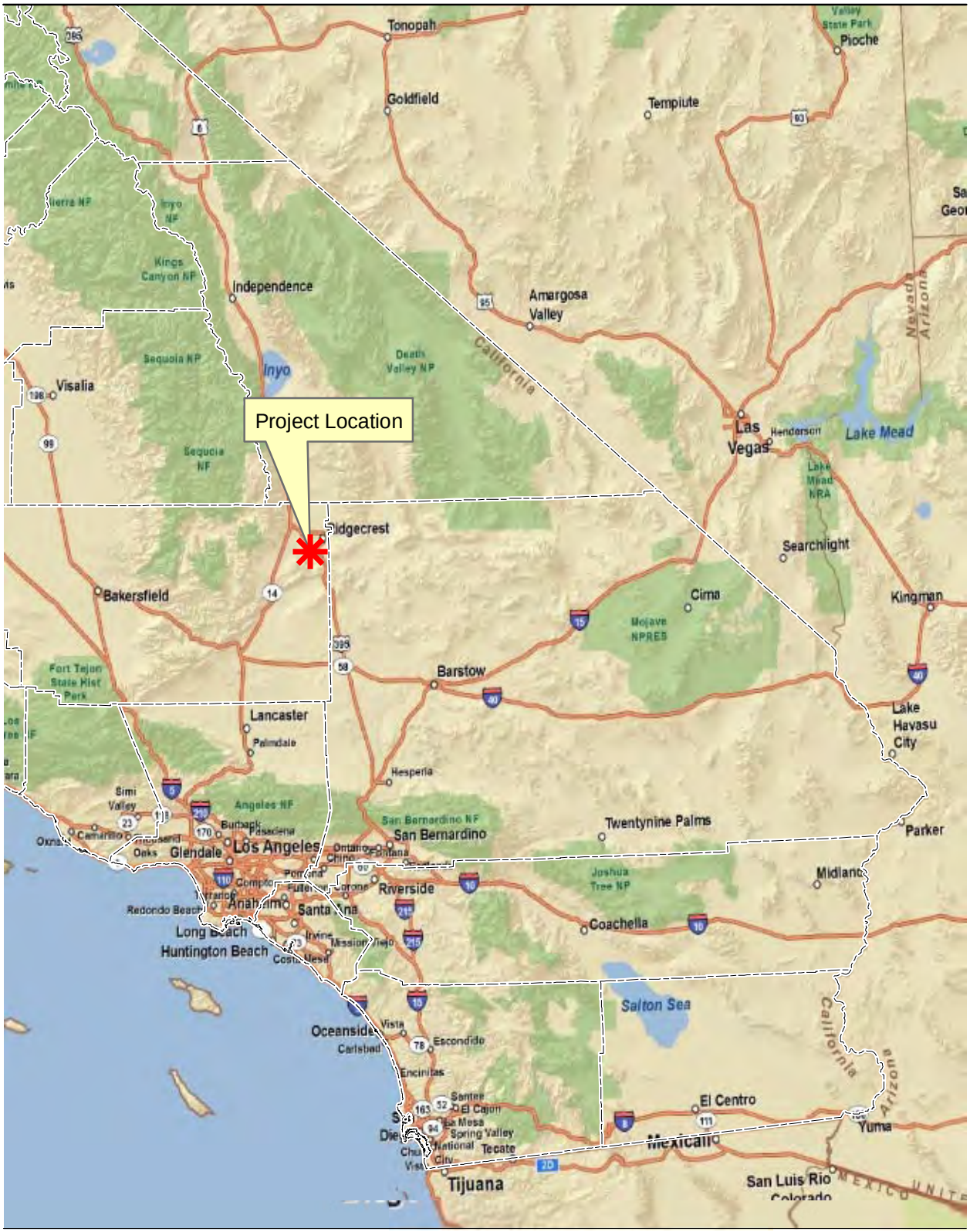
Sincerely,

Leo Edson
Senior Wildlife Biologist

Enclosure – Project Area Map, CNDDB 5-mile Search, Species List, Proposed Survey Protocol

cc: Shelley Ellis, Larry LePre

09080080 Ridgecrest BLM Ltr



Source: ESRI; SolarMillennium 2009

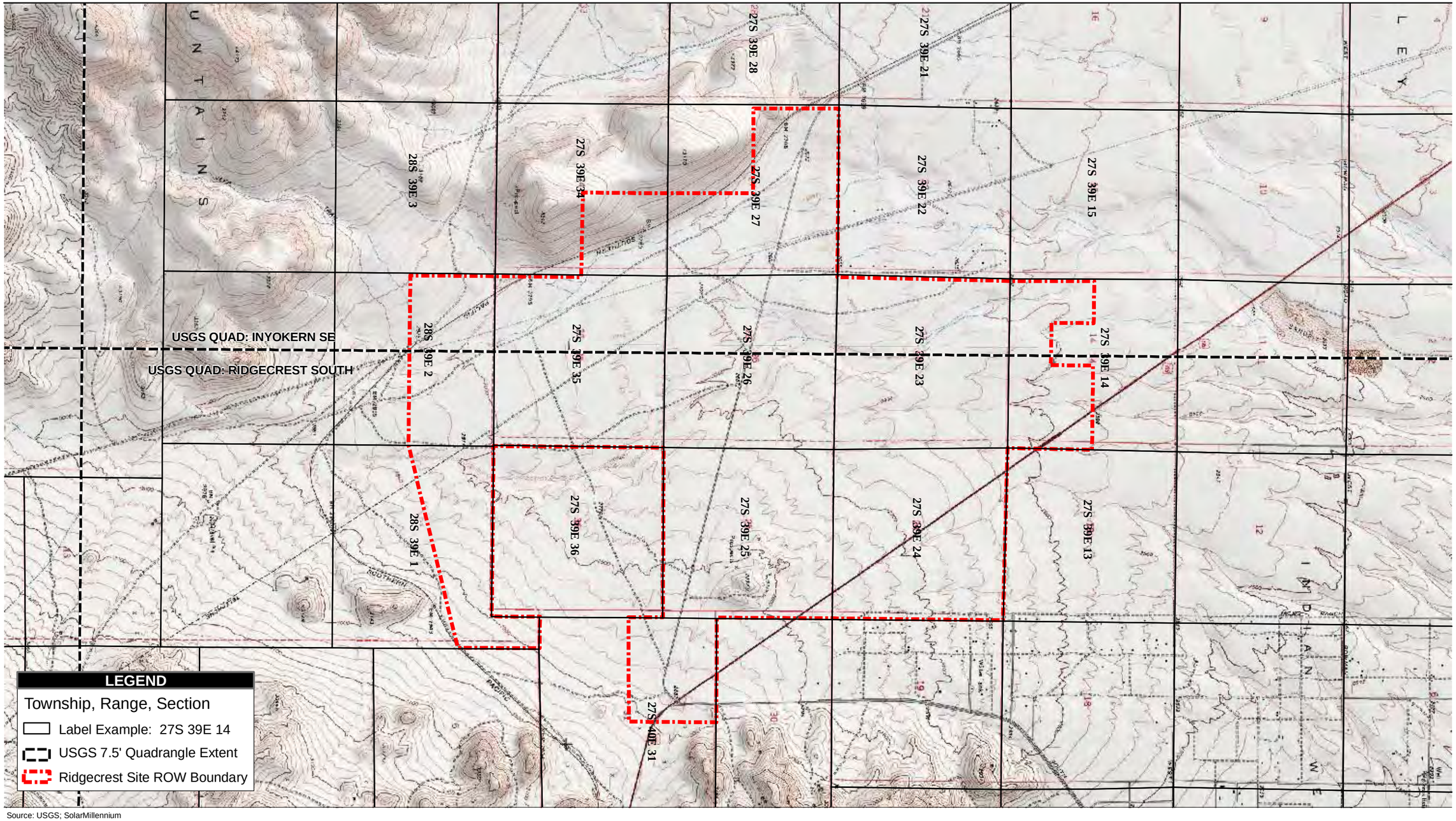
50 25 0 50 Miles

Scale: 1:3,168,000; 1 inch = 50 mile(s)

Figure 1
Project Location

Solar Millennium - Ridgecrest Site

Path: P:\2009\09080080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Bio\Agency_Species_Request_figs\RSPP_figure1_project_location.mxd, 02/26/09, SteinB



Source: USGS; SolarMillennium

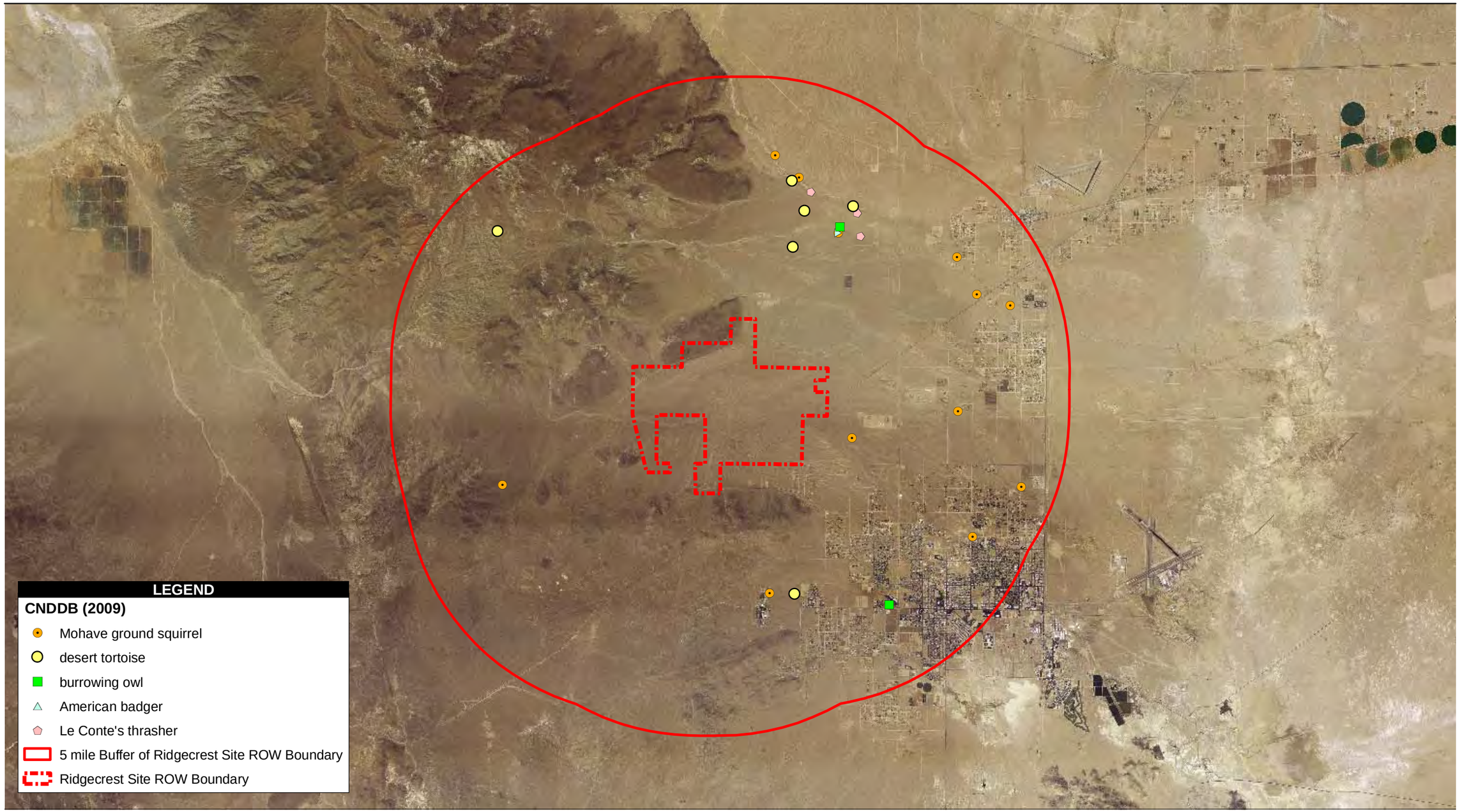
3,000 1,500 0 3,000 Feet

Scale: 1:36,000; 1 inch = 3,000 feet

Figure 2
Project Vicinity Map

Solar Millennium - Ridgecrest Site

Path: P:\2009\09080080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Bio\Agency_Species_Request_figs\RSPP_Project_PLSS_for_agency_request_letter.mxd, 02/26/09, SteinB



Source: USGS; SolarMillennium

0 1 2 4 Miles

Scale: 1:126,720; 1 inch = 2 mile(s)

Figure 3
California Natural Diversity Database (CNDDB) 5-mile Search

Proposed Survey Protocols for the Solar Millennium Parabolic Trough Solar Thermal Power Projects 2009

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        - Raptors
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            - White-tailed kite
            - Cooper's hawk
            - Peregrine falcon
            - Prairie falcon
            - Swainson's hawk
            - Golden eagle
            - Ferruginous hawk

Special Status Species Known to Occur Within or Near the Ridgecrest Solar Millennium Project Areas

Common Name	Scientific Name	Status	Optimal Survey Period
Ridgecrest			
Plant Species			
Mojave tarplant	*Deinandra mohavensis*	SE, CNPS List 1B	July–Sept
Red Rock tarplant	*Deinandra arida*	SR, CNPS List 1B	April–Nov
Charlotte's phacelia	*Phacelia nashiana*	CNPS List 1B	March–June
Red Rock poppy	*Eschscholzia minutiflora* ssp. twisselmannii	CNPS List 1B	May–Nov
creamy blazing star	*Mentzelia tridentata*	CNPS List 1B	March–May
Latimer's woodland-gilia	*Saltugilia latimeri*	CNPS List 4	March–June
Brown fox sedge	*Carex vulpinoidea*	CNPS List 2	May-June
Muir's tarplant	*Carlquistia muirii*	CNPS List 1B.3	July-Aug
Alkali mariposa-lily	*Calochortus striatus*	CNPS List 1B.2	Apr-June
Animal Species			
Desert tortoise	*Gopherus agassiz*	FT, ST	March 15-May 31
Burrowing owl	*Athene cunicularia*	FSC, SSC	March-May
Mohave ground squirrel	*Spermophilus mohavensis*	ST	March 15-July 15
Peregrine falcon	*Falco peregrines anatum*	SE, FSC	
Prairie falcon	*Falco mexicanus*	FSC	
Swainson's hawk	*Buteo swainsoni*	ST, FSC	
Golden eagle	*Aquila chysaetos*	SSC, fully protected, BLM:S, FSC	
Loggerhead shrike	*Lanius ludovicianus*	SSC, FSC	
Le Conte's thrasher	*Toxostoma leconei*	SSC, FSC	
Northern harrier	*Circus cyaneus*	SSC	
Ferruginous hawk	*Buteo regalis*	FSC	
Bendire's thrasher	*Toxostoma bendirei*	SSC, FSC	
Nelson's bighorn sheep	*Ovis canadensis nelsoni*	BLM:S	Avoid Feb-Jun
American badger	*Taxidea taxus*	SSC	Year-round
Big-free tailed bat	*Tadarida macrotis*	SSC	Mar-Aug
Arizona myotis	*Myotis occultus*	SSC	Mar-Aug
Townsend's big eared bat	*Plecotus townsendii*	SSC, BLM:S	Mar-Aug
Western mastiff bat	*Eumops perotis californicus*	SSC, BLM:S	Mar-Aug
Pallid bat	*Antrozous pallidus*	SSC, BLM:S	Mar-Aug
Spotted bat	*Euderma maculatum*	SSC, BLM:S	Mar-Aug

U.S. Fish & Wildlife Service	FE - Federally listed as endangered FSC – Federal species of concern
State of California	SE - State listed as endangered SSC – State species of concern SR - State listed as rare SWL – State watch list
California Native Plant Society (CNPS)	List 1B - Rare, threatened, or endangered in California and elsewhere. Fairly endangered in California List 2 - Rare threatened, or endangered in California, but more common elsewhere List 3 - Plants for which more information is needed (a review list). Fairly endangered in California List 4 - Plants of limited distribution (a watch list). Fairly threatened in California
Northern & Eastern Colorado Desert Coordinated Mgmt. Plan (NECO)	The approved NECO utilizes a comprehensive approach to managing 60 special status species within the Plan area

EDAW Inc
1420 Kettner Boulevard, Suite 500, San Diego, California 92101
T 619.233.1454 F 619.233.0952 www.edaw.com

March 2, 2009

Mr. Rick York
California Energy Commission
1516 Ninth Street, MS-40
Sacramento, CA 95814-5512

Subject: Solar Millennium AFCs - Ridgecrest Solar Plant Project, Species List Request

Dear Mr. York:

On behalf of Solar Millennium, LLC, EDAW, Inc. (EDAW) is submitting this letter as a request for information to support the biological investigations associated with a site feasibility study for a proposed solar energy project. The study area is located southwest of the town of Ridgecrest, in northeastern Kern County, California (Figures 1 and 2) within portions of the USGS 7.5-minute Inyokern SE and Ridgecrest South quadrangles, within the Indian Wells Valley northeast of the El Paso Mountains.

Please provide our office with a list of any additional listed or proposed species, or designated or proposed critical habitats that may not be addressed by the attached species list, or the ten-mile CNDDB search of the feasibility study area (Figure 3).

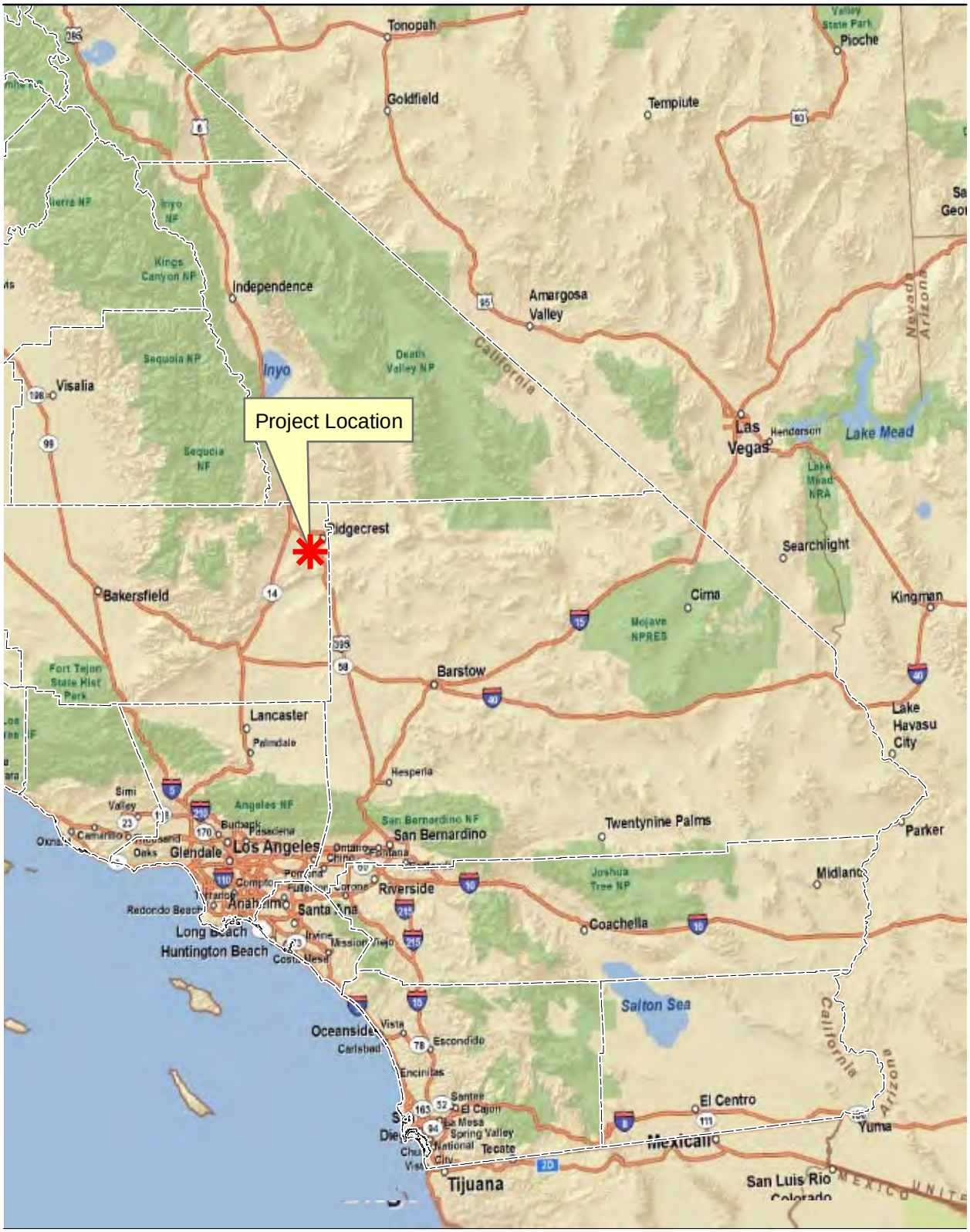
We are requesting these actions to facilitate inclusive special-status species surveys in order to assess potential biological impacts of the proposed project, which is located within the Indian Wells Valley northeast of the El Paso Mountains. Your support in expediting this matter is greatly appreciated. Should you have any questions or concerns, please contact me at (916) 414-5813 or email at Leo.Edson@edaw.com.

Sincerely,

Leo Edson
Senior Wildlife Biologist

Enclosure – Project Area Map, CNDDB 5-mile Search, Species List, Proposed Survey Protocol

09080080 CEC Ltr



Source: ESRI; SolarMillennium 2009

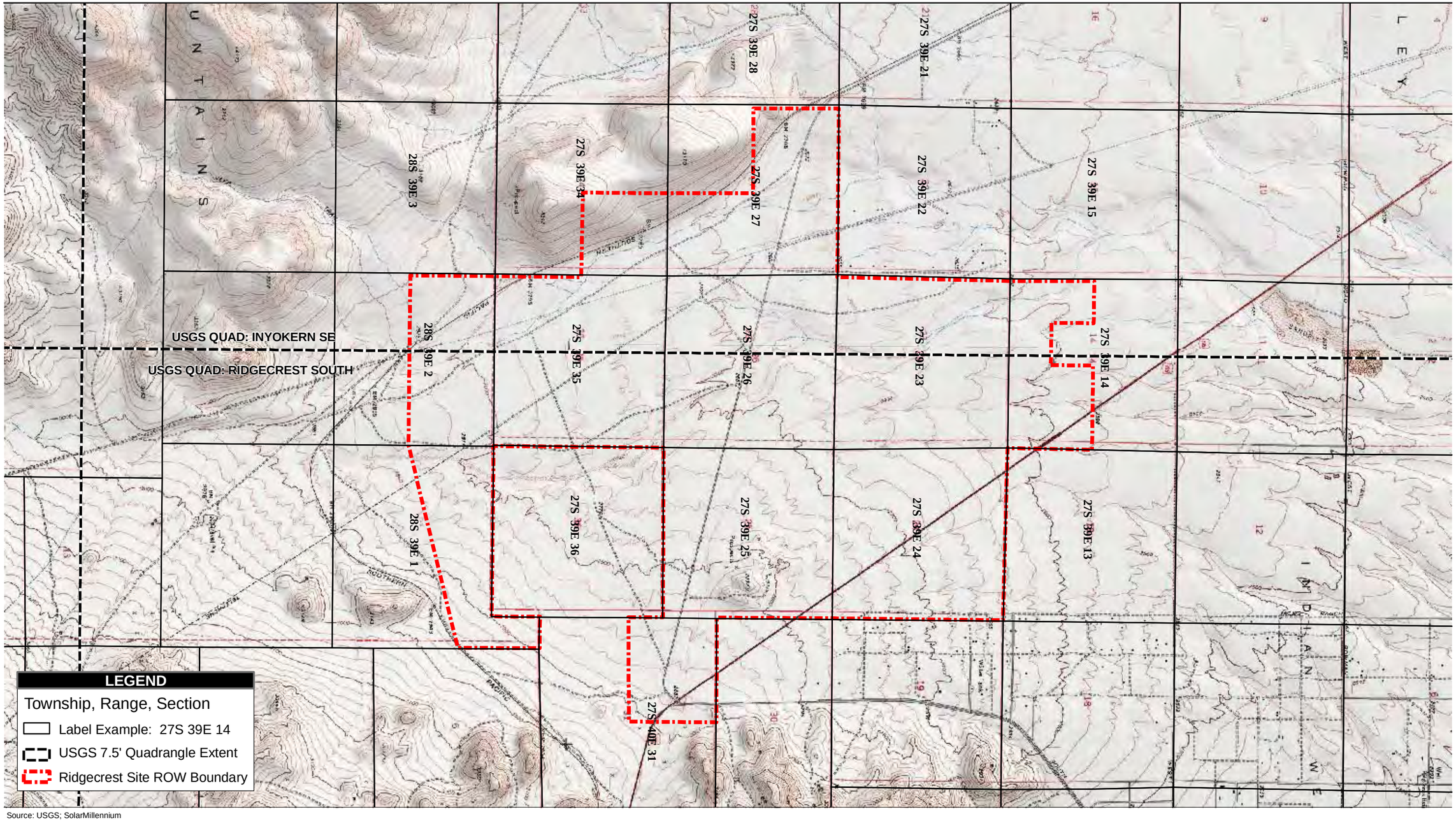
50 25 0 50 Miles

Scale: 1:3,168,000; 1 inch = 50 mile(s)

Figure 1
Project Location

Solar Millennium - Ridgecrest Site

Path: P:\2009\09080080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Bio\Agency_Species_Request_figs\RSPP_figure1_project_location.mxd, 02/26/09, SteinB



Source: USGS; SolarMillennium

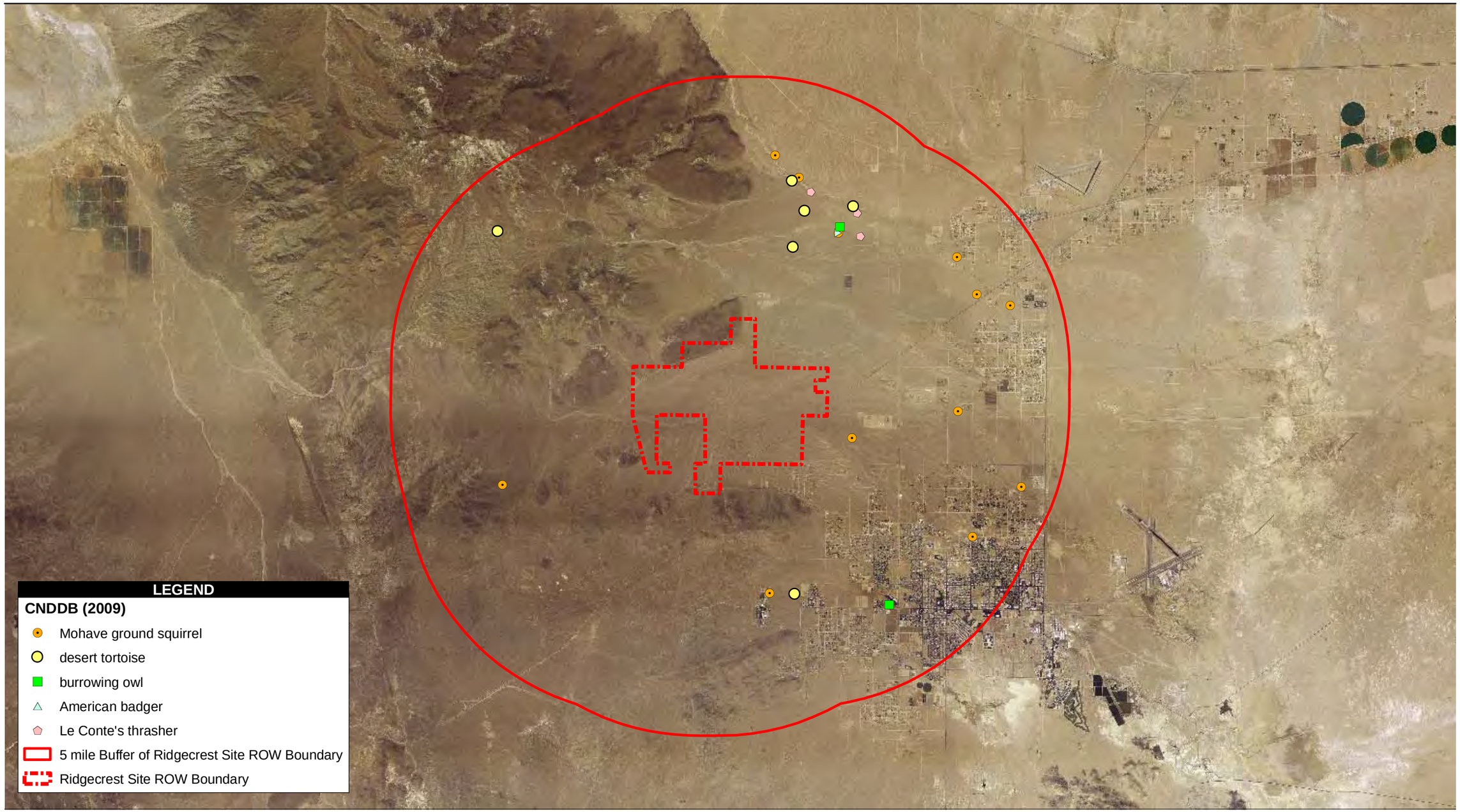
3,000 1,500 0 3,000 Feet

Scale: 1:36,000; 1 inch = 3,000 feet

Figure 2
Project Vicinity Map

Solar Millennium - Ridgecrest Site

Path: P:\2009\09080080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Bio\Agency_Species_Request_figs\RSPP_Project_PLSS_for_agency_request_letter.mxd, 02/26/09, SteinB



Source: USGS; SolarMillennium

0 1 2 4 Miles

Scale: 1:126,720; 1 inch = 2 mile(s)

Figure 3
California Natural Diversity Database (CNDDB) 5-mile Search

Proposed Survey Protocols for the Solar Millennium Parabolic Trough Solar Thermal Power Projects 2009

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Mohave Ground Squirrel (Ridgecrest Site Only)

- Protocol-level surveys to be conducted per CDFG's Mohave Ground Squirrel Survey Guidelines (revised January 2003). Since the site acreage is greater than 180 acres a specialized survey methodology will need to be developed through consultation with CDFG, the project proponent and the lead agency
- The Ridgecrest site consists of monotypic creosote bush scrub that is generally open with large patches of shrubless areas. Preliminary analysis of the site by MGS expert Bill Vanherweg indicates that the site consists of marginal MGS habitat due to the scarcity of food plants.
- EDAW proposes to that MGS surveys consist of one trapping grid per Section of land (4 grids) plus two additional grids along the CEC buffers (at 0.75 and 1 mile from the outer edge of the proposed disturbance footprint) for a total of 6 grids. No trapping is proposed within the MGS Conservation Area south of Brown Road. All of the linear features for this site are within the site footprint, so no trapping grids are proposed for these items.

Botanical Surveys

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- Focused surveys for special-status species (see species table provided separately)

General Biological Survey Details

While conducting surveys for desert tortoise, burrowing owl and rare plants, biologists will also be looking for and recording occurrences of other sensitive and listed wildlife species.

- **Burrowing Owl Burrow Data** – Phase II of the Burrowing Owl survey (mapping potential burrowing owl burrows) is to be conducted concurrently with the Desert Tortoise focused survey by the biologists conducting the desert tortoise survey. All potential burrowing owl burrows and any potential burrowing owl sign, including owl observations, white wash, pellets, feathers etc. will be recorded
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- **Other Special Status Wildlife Species** – During desert tortoise, rare plant and burrowing owl surveys, any of the following biological resources will be noted and locations recorded:
    - Any observations of sensitive and/or listed mammal species sign including but not limited to:
        - Potential bat roosting sites – caves, abandoned buildings, cliffs etc.
        - Nelson's bighorn sheep or sign
        - American badger
        - Mojave ground squirrel
        - Desert kit fox burrows
    - Any observations of Mojave fringe-toed lizard (in dunes)
    - Any observations of sensitive and/or listed bird species including but not limited to:
        - Loggerhead shrike
        - LeConte's thrasher
        - Bendire's thrasher
        - Crissal's thrasher
        - Gilded flicker
        - Gila woodpecker
        - Raptors
            - Northern harrier
            - White-tailed kite
            - Cooper's hawk
            - Peregrine falcon
            - Prairie falcon
            - Swainson's hawk
            - Golden eagle
            - Ferruginous hawk

Special Status Species Known to Occur Within or Near the Ridgecrest Solar Millennium Project Areas

Common Name	Scientific Name	Status	Optimal Survey Period
Ridgecrest			
Plant Species			
Mojave tarplant	*Deinandra mohavensis*	SE, CNPS List 1B	July–Sept
Red Rock tarplant	*Deinandra arida*	SR, CNPS List 1B	April–Nov
Charlotte's phacelia	*Phacelia nashiana*	CNPS List 1B	March–June
Red Rock poppy	*Eschscholzia minutiflora* ssp. twisselmannii	CNPS List 1B	May–Nov
creamy blazing star	*Mentzelia tridentata*	CNPS List 1B	March–May
Latimer's woodland-gilia	*Saltugilia latimeri*	CNPS List 4	March–June
Brown fox sedge	*Carex vulpinoidea*	CNPS List 2	May-June
Muir's tarplant	*Carlquistia muirii*	CNPS List 1B.3	July-Aug
Alkali mariposa-lily	*Calochortus striatus*	CNPS List 1B.2	Apr-June
Animal Species			
Desert tortoise	*Gopherus agassiz*	FT, ST	March 15-May 31
Burrowing owl	*Athene cunicularia*	FSC, SSC	March-May
Mohave ground squirrel	*Spermophilus mohavensis*	ST	March 15-July 15
Peregrine falcon	*Falco peregrines anatum*	SE, FSC	
Prairie falcon	*Falco mexicanus*	FSC	
Swainson's hawk	*Buteo swainsoni*	ST, FSC	
Golden eagle	*Aquila chysaetos*	SSC, fully protected, BLM:S, FSC	
Loggerhead shrike	*Lanius ludovicianus*	SSC, FSC	
Le Conte's thrasher	*Toxostoma leconei*	SSC, FSC	
Northern harrier	*Circus cyaneus*	SSC	
Ferruginous hawk	*Buteo regalis*	FSC	
Bendire's thrasher	*Toxostoma bendirei*	SSC, FSC	
Nelson's bighorn sheep	*Ovis canadensis nelsoni*	BLM:S	Avoid Feb-Jun
American badger	*Taxidea taxus*	SSC	Year-round
Big-free tailed bat	*Tadarida macrotis*	SSC	Mar-Aug
Arizona myotis	*Myotis occultus*	SSC	Mar-Aug
Townsend's big eared bat	*Plecotus townsendii*	SSC, BLM:S	Mar-Aug
Western mastiff bat	*Eumops perotis californicus*	SSC, BLM:S	Mar-Aug
Pallid bat	*Antrozous pallidus*	SSC, BLM:S	Mar-Aug
Spotted bat	*Euderma maculatum*	SSC, BLM:S	Mar-Aug

U.S. Fish & Wildlife Service	FE - Federally listed as endangered FSC – Federal species of concern
State of California	SE - State listed as endangered SSC – State species of concern SR - State listed as rare SWL – State watch list
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Northern & Eastern Colorado Desert Coordinated Mgmt. Plan (NECO)	The approved NECO utilizes a comprehensive approach to managing 60 special status species within the Plan area

EDAW Inc
1420 Kettner Boulevard, Suite 500, San Diego, California 92101
T 619.233.1454 F 619.233.0952 www.edaw.com

March 2, 2009

Mr. Jeffrey Single
Regional Manager
California Department of Fish and Game
Central Region Headquarters Office
1234 E. Shaw Avenue
Fresno, California 93710

Subject: Solar Millennium AFCs - Ridgecrest Solar Plant Project, Species List Request

Dear Mr. Single:

On behalf of Solar Millennium, LLC, EDAW, Inc. (EDAW) is submitting this letter as a request for information to support the biological investigations associated with a site feasibility study for a proposed solar energy project. The study area is located southwest of the town of Ridgecrest, in northeastern Kern County, California (Figures 1 and 2) within portions of the USGS 7.5-minute Inyokern SE and Ridgecrest South quadrangles, within the Indian Wells Valley northeast of the El Paso Mountains.

Please provide our office with a list of any additional listed or proposed species, or designated or proposed critical habitats that may not be addressed by the attached species list, or the ten-mile CNDDB search of the feasibility study area (Figure 3).

We are requesting these actions to facilitate inclusive special-status species surveys in order to assess potential biological impacts of the proposed project, which is located within the Indian Wells Valley northeast of the El Paso Mountains. Your support in expediting this matter is greatly appreciated. Should you have any questions or concerns, please contact me at (916) 414-5813 or email at Leo.Edson@edaw.com.

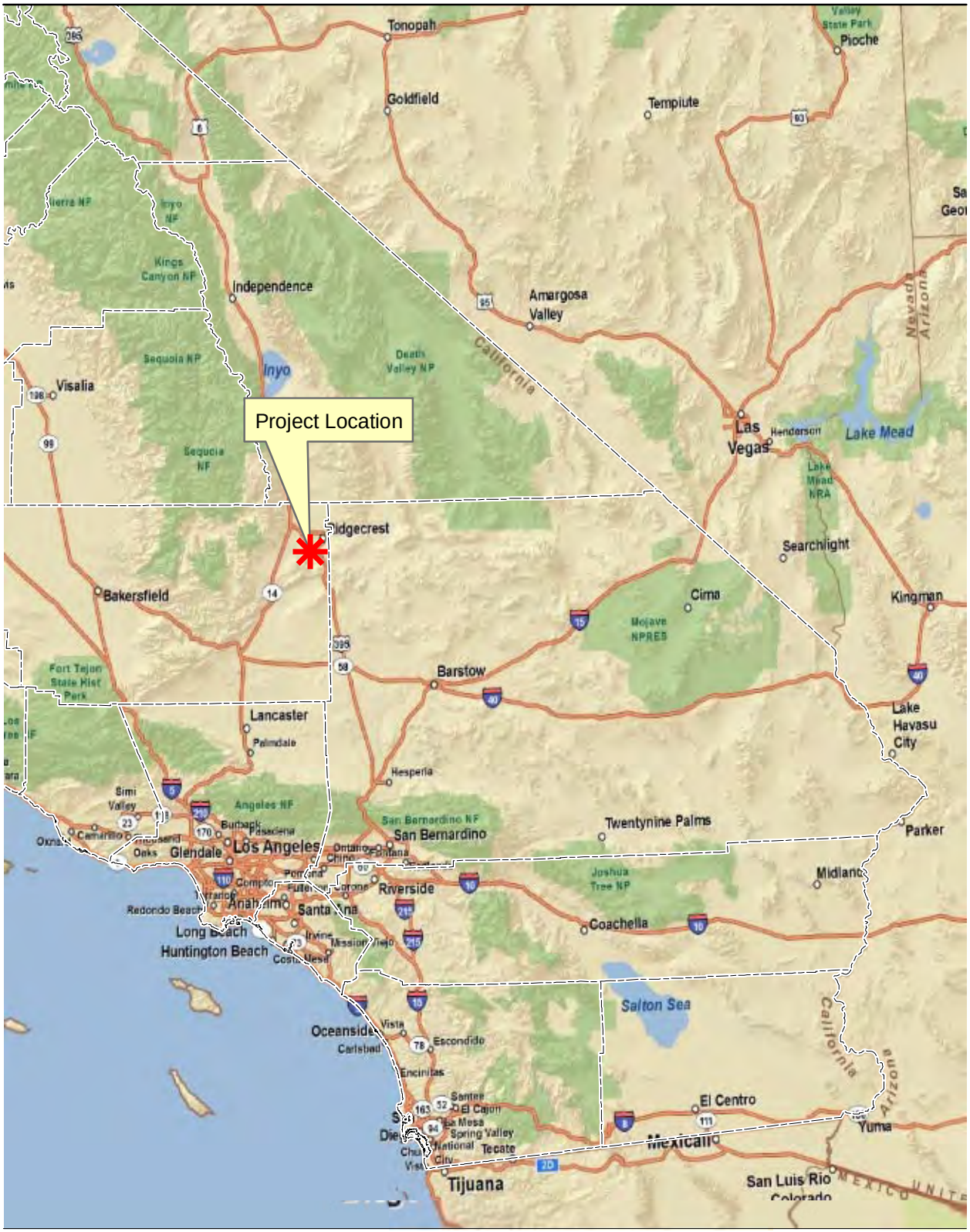
Sincerely,

Leo Edson
Senior Wildlife Biologist

Enclosure – Project Area Map, CNDDB 5-mile Search, Species List, Proposed Survey Protocol

cc: Julie Vance, David Hacker

09080080 DFG Ltr



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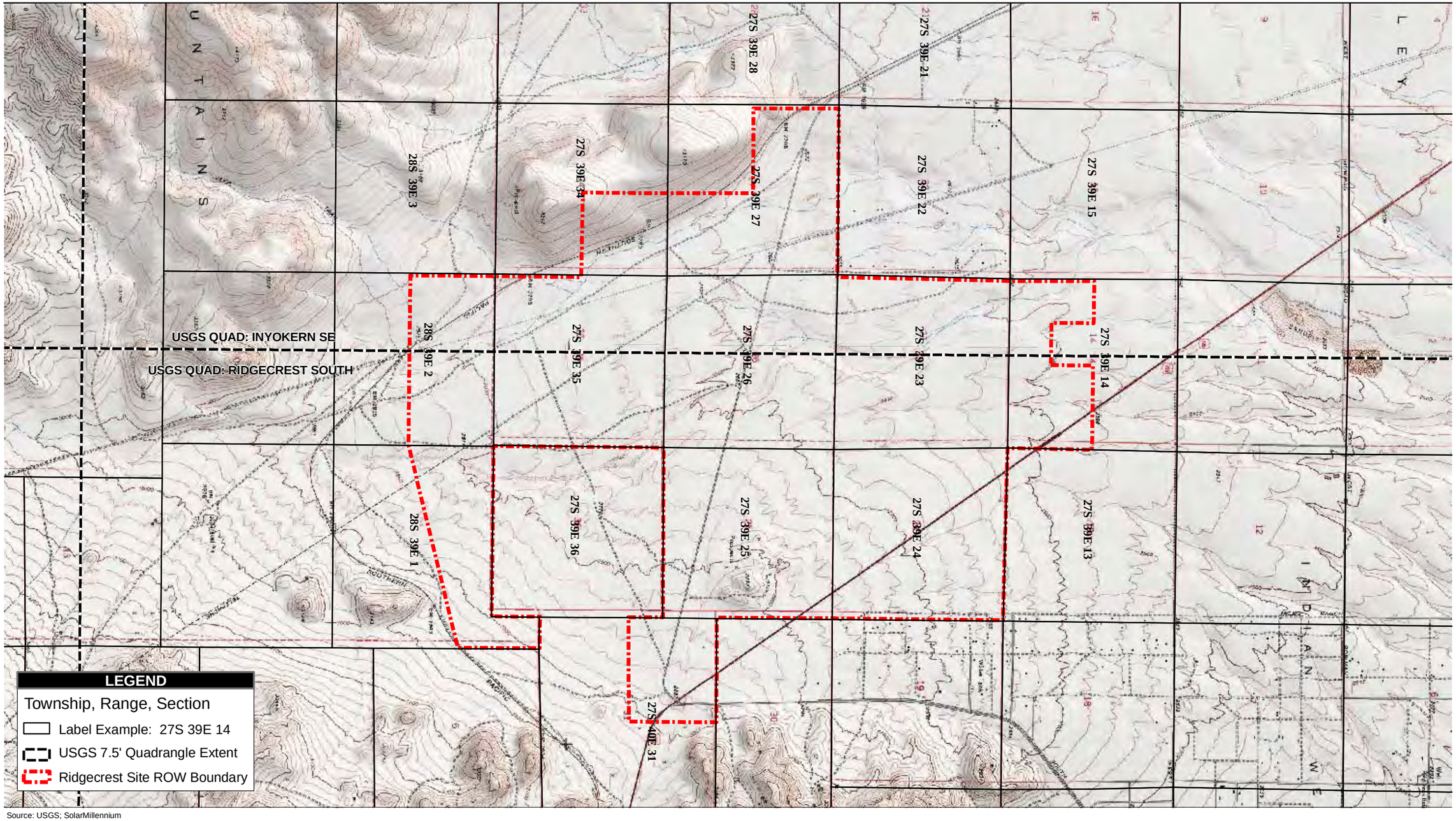

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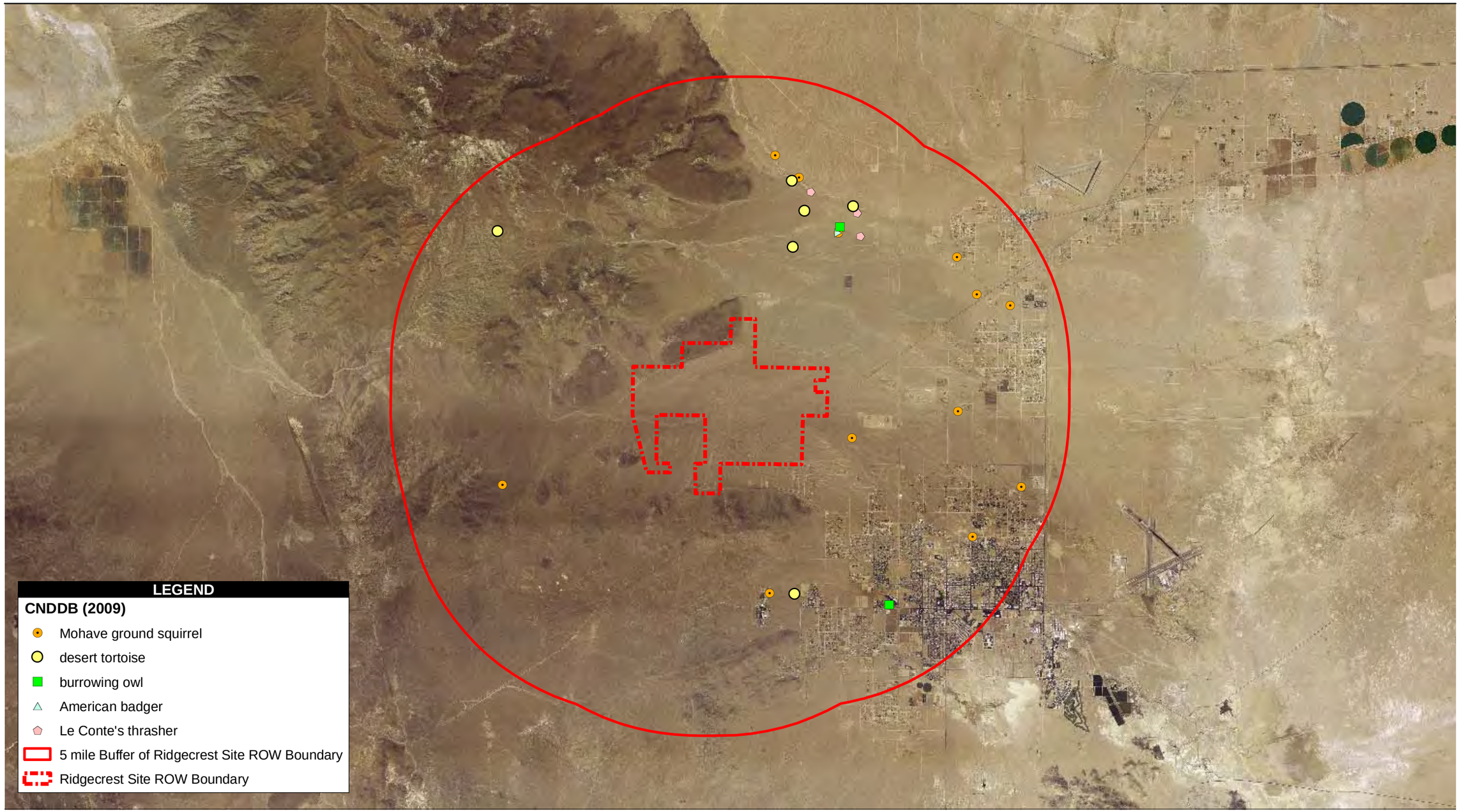

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EDAW Inc
1420 Kettner Boulevard, Suite 500, San Diego, California 92101
T 619.233.1454 F 619.233.0952 www.edaw.com

March 2, 2009

Mr. Carl Benz
Assistant Field Supervisor, Desert Region
U.S. Fish and Wildlife Service
2493 Portola Road, Suite B
Ventura, California 93003

Subject: Solar Millennium AFCs - Ridgecrest Solar Plant Project, Species List Request

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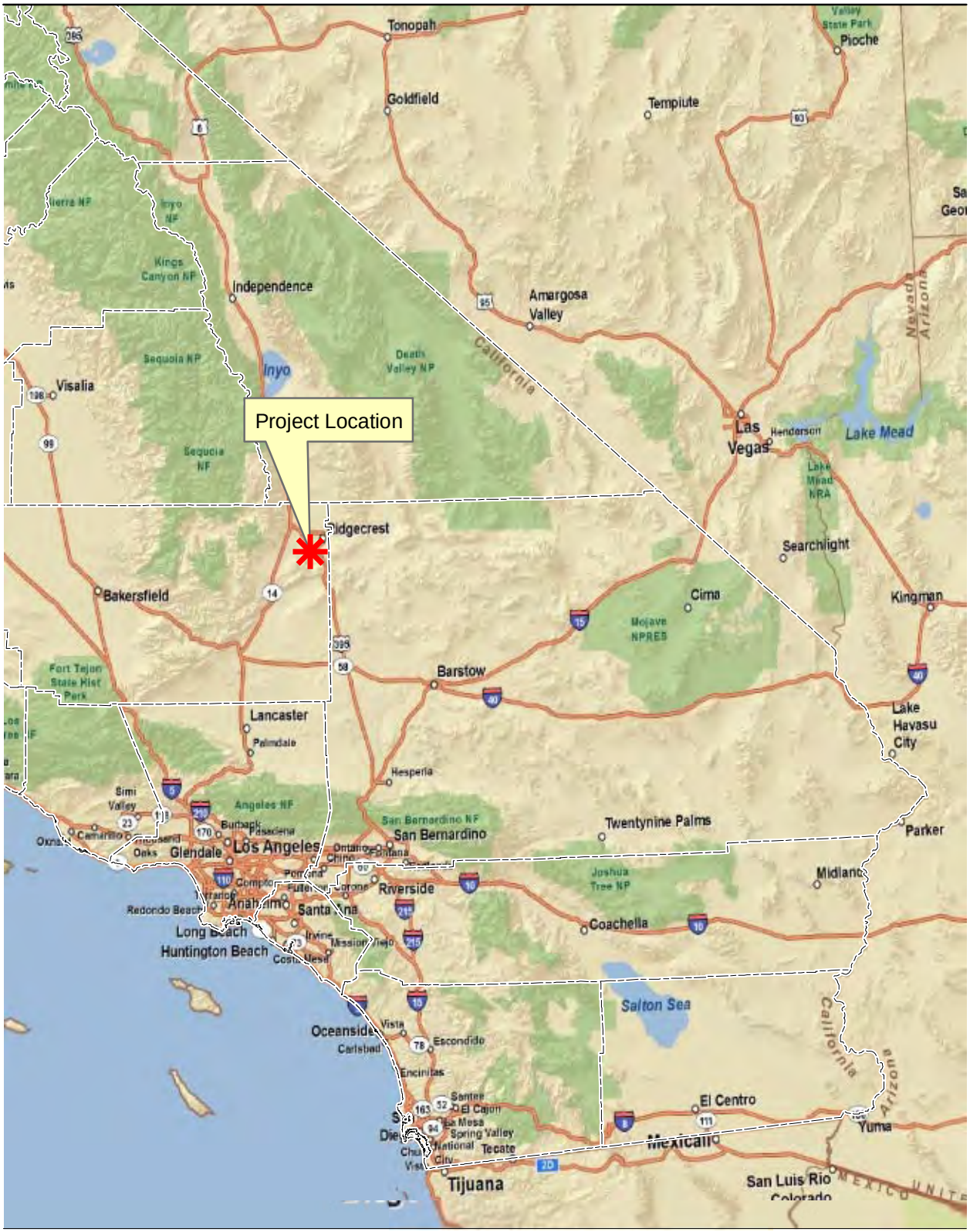
Senior Wildlife Biologist

Enclosure – Project Area Map, CNDDB 5-mile Search, Species List, Proposed Survey Protocol

cc: Ray Bransfield

09080080 USFWS Ltr



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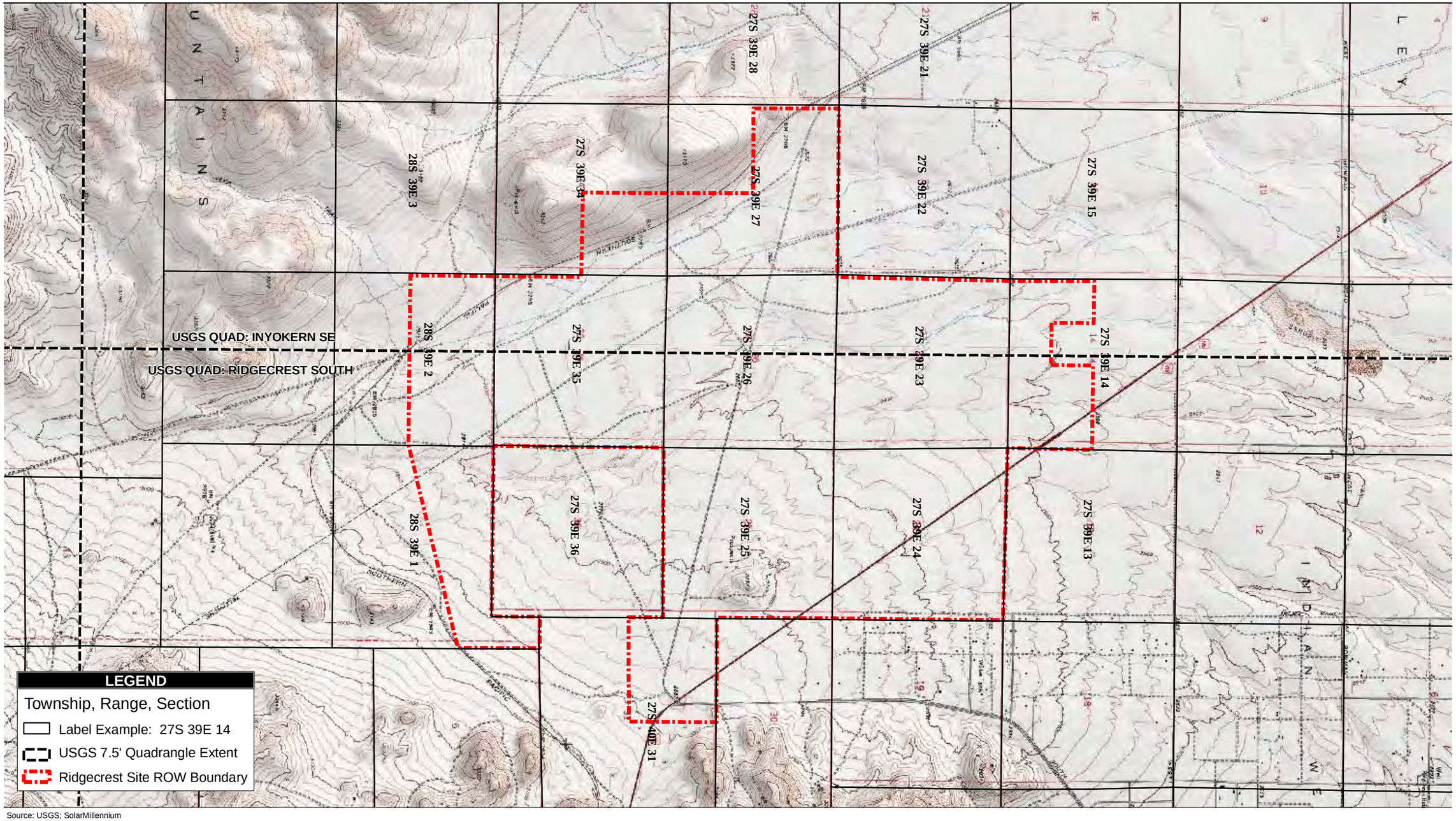

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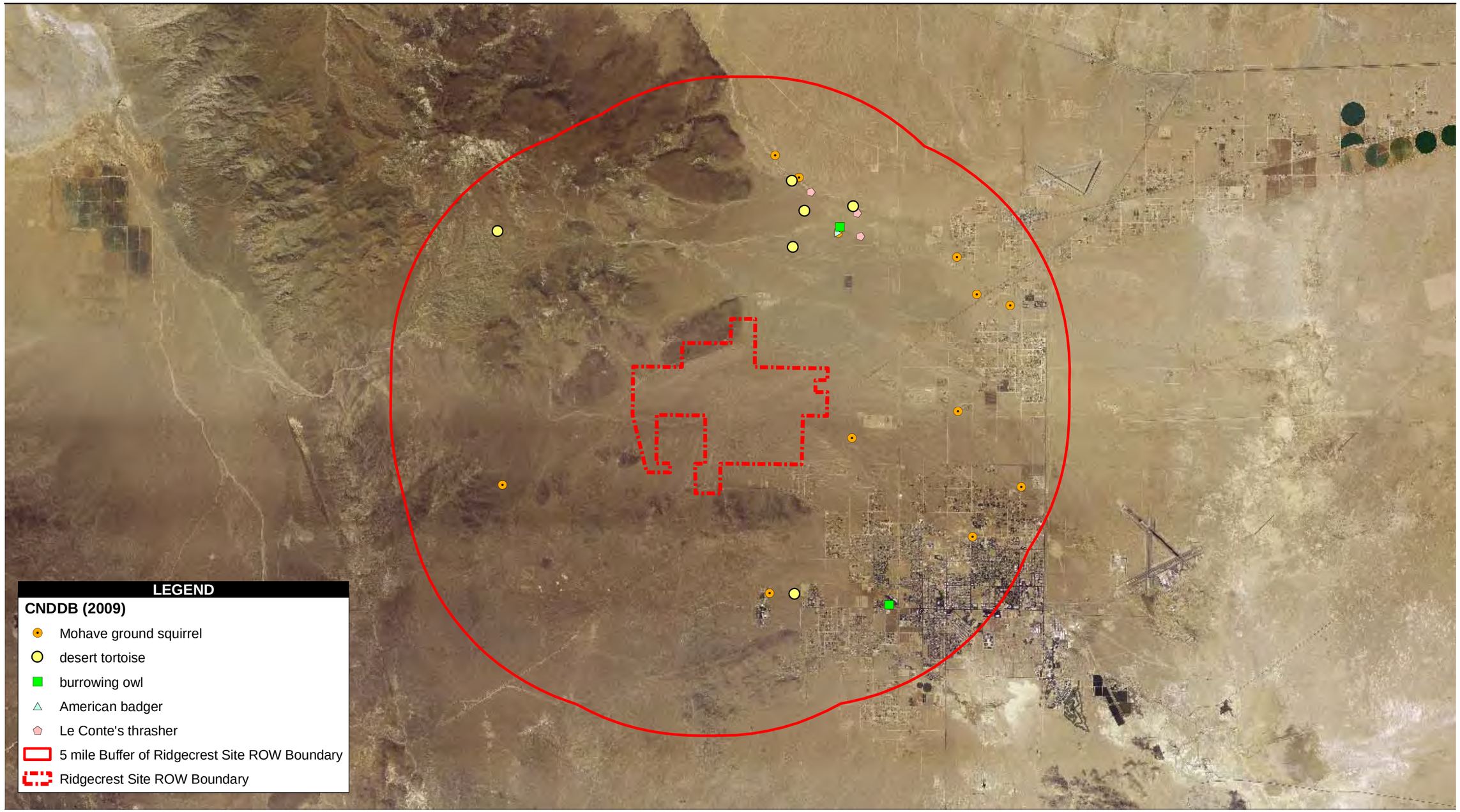
Project Vicinity Map

Solar Millennium - Ridgecrest Site

Path: P:\2009\09080080 Sol Mil Ridgecrest\6.0 GIS\6.3 Layout\Bio\Agency_Species_Request_figs\RSPP_Project_PLSS_for_agency_request_letter.mxd, 02/26/09, SteinB



Source: USGS; SolarMillennium

0 1 2 4 Miles

Scale: 1:126,720; 1 inch = 2 mile(s)

Figure 3
California Natural Diversity Database (CNDDB) 5-mile Search

Proposed Survey Protocols for the Solar Millennium Parabolic Trough Solar Thermal Power Projects 2009

Desert Tortoise

- Surveys will be conducted according to the U.S. Fish and Wildlife Service (USFWS) *Field Survey Protocol For Any Federal Action That May Occur Within the Range of the Desert Tortoise* (January 1992), and modified to exclude the survey of Zone of Influence transects, as recommended by Ray Bransfield of the USFWS, Ventura Field Office. The rationale for this modification is that ZOI transect surveys would not provide much additional information for the forthcoming Section 7 consultation process, and that effects to the tortoise would be addressed through the consultation process. Although this recommendation was specific to the Ridgecrest site, the Solar Millennium project team is proposing that this modification to the standard survey methodology be applied to all three sites (i.e., applied to the Ridgecrest, Palen, and Blythe sites), since all would be going through similar consultation processes, and the projects are located on lands under the jurisdiction of the BLM. Although the CDFG has raised concerns regarding indirect effects of potential increases in raven and other predator populations due to the use of evaporation ponds in the project design, it should be noted that all three sites, with the possible exception of one unit at the Blythe site, will be using dry cooling, and that evaporation ponds will not be used in conjunction with dry cooling. There will be stormwater retention ponds, but they will hold water only for a few days of the year, and thus should not affect raven populations. Therefore, the Solar Millennium team is proposing that no ZOI transect surveys be conducted (including forgoing ZOI surveys along the CEC 0.75-mile and 1.0-mile buffer transects).
- Habitat assessments will be initiated in February and will be conducted by qualified biological teams. A Presence-or-Absence Survey (100 percent survey) over the entire project area will be conducted. Surveys will be initiated in mid-March, after it has been determined that desert tortoises are active and will continue roughly until the end of May.
- Intensive Surveys will be conducted at the completion of focused surveys to determine survey quality.
- While conducting biological surveys, all tortoise sign (live tortoises, shells, bones, scutes, limbs, scat, burrows, pallets, tracks, egg shell fragments, drinking sites etc.) will be mapped using GPS units and on field maps (scale 1”=200’). Other sensitive biological resources will be mapped during desert tortoise focused surveys (see General Biological Survey Details below).

Burrowing Owl

- Biologists will conduct focused surveys for the western burrowing owl (*Athene cunicularia)* according to the *BURROWING OWL SURVEY PROTOCOL AND MITIGATION GUIDELINES* prepared by The California Burrowing Owl Consortium (April 1993).
- The habitat assessment (Phase I Survey) for burrowing owl will be conducted in February by qualified biologists. The project site and surrounding 500’ buffer zone will be evaluated for the suitability for burrowing owl. Suitable habitat will be mapped in the field using high resolution field maps and GPS units. Any burrowing owls or burrowing owl sign observed during the Phase I survey will be recorded and mapped.
- The Phase II Burrow Survey will be initiated in mid-March and will be conducted concurrently with focused desert tortoise surveys. The burrow survey will consist of pedestrian transects spaced at

a maximum of 10 meters apart within suitable desert tortoise habitat and in any areas not suitable for tortoise may extend up to 30 meters. Biologists conducting tortoise surveys will map any burrowing owls, potential burrowing owl burrows and burrowing owl sign.

- Phase III surveys (burrowing owl surveys, census and mapping) will be initiated at the height of the breeding season (April 15th until July 15th) and will continue until all potential burrowing owl locations have been visited on four separate survey periods. Potential burrowing owl locations will be viewed initially using the vehicle as a blind (if possible) and in all cases, will be surveyed by biologists approaching the burrows on foot. Burrows will be assessed for any fresh burrowing owl activity and sign. Any sensitive species observed during these surveys will be recorded.

Mohave Ground Squirrel (Ridgecrest Site Only)

- Protocol-level surveys to be conducted per CDFG's Mohave Ground Squirrel Survey Guidelines (revised January 2003). Since the site acreage is greater than 180 acres a specialized survey methodology will need to be developed through consultation with CDFG, the project proponent and the lead agency
- The Ridgecrest site consists of monotypic creosote bush scrub that is generally open with large patches of shrubless areas. Preliminary analysis of the site by MGS expert Bill Vanherweg indicates that the site consists of marginal MGS habitat due to the scarcity of food plants.
- EDAW proposes to that MGS surveys consist of one trapping grid per Section of land (4 grids) plus two additional grids along the CEC buffers (at 0.75 and 1 mile from the outer edge of the proposed disturbance footprint) for a total of 6 grids. No trapping is proposed within the MGS Conservation Area south of Brown Road. All of the linear features for this site are within the site footprint, so no trapping grids are proposed for these items.

Botanical Surveys

Rare plant surveys will be conducted according to CNPS Survey Guidelines.

- Vegetation mapping of plant footprints and linear project features (per Holland 1986)
- Vegetation mapping of 1-mile buffer around plant footprint 1,000-foot buffer along linear features, per the *California Energy Commission – Recommended Biological Resources Field Survey Guidelines for Large Solar Projects* (May 2007)
- Focused surveys for special-status species (see species table provided separately)

General Biological Survey Details

While conducting surveys for desert tortoise, burrowing owl and rare plants, biologists will also be looking for and recording occurrences of other sensitive and listed wildlife species.

- **Burrowing Owl Burrow Data** – Phase II of the Burrowing Owl survey (mapping potential burrowing owl burrows) is to be conducted concurrently with the Desert Tortoise focused survey by the biologists conducting the desert tortoise survey. All potential burrowing owl burrows and any potential burrowing owl sign, including owl observations, white wash, pellets, feathers etc. will be recorded
- **Desert Tortoise Training** – All surveyors will be given Desert Tortoise Awareness training.
- **Rare Plants –** All surveyors will be briefed on potential rare plants within their survey area, including descriptions and photographs/drawings. Biologists will record co-ordinates and take

photographs of any potential occurrences of rare plants and communicate this information to an EDAW botanist for verification immediately.

- **Other Special Status Wildlife Species** – During desert tortoise, rare plant and burrowing owl surveys, any of the following biological resources will be noted and locations recorded:
    - Any observations of sensitive and/or listed mammal species sign including but not limited to:
        - Potential bat roosting sites – caves, abandoned buildings, cliffs etc.
        - Nelson's bighorn sheep or sign
        - American badger
        - Mojave ground squirrel
        - Desert kit fox burrows
    - Any observations of Mojave fringe-toed lizard (in dunes)
    - Any observations of sensitive and/or listed bird species including but not limited to:
        - Loggerhead shrike
        - LeConte's thrasher
        - Bendire's thrasher
        - Crissal's thrasher
        - Gilded flicker
        - Gila woodpecker
        - Raptors
            - Northern harrier
            - White-tailed kite
            - Cooper's hawk
            - Peregrine falcon
            - Prairie falcon
            - Swainson's hawk
            - Golden eagle
            - Ferruginous hawk

Special Status Species Known to Occur Within or Near the Ridgecrest Solar Millennium Project Areas

Common Name	Scientific Name	Status	Optimal Survey Period
Ridgecrest			
Plant Species			
Mojave tarplant	*Deinandra mohavensis*	SE, CNPS List 1B	July–Sept
Red Rock tarplant	*Deinandra arida*	SR, CNPS List 1B	April–Nov
Charlotte's phacelia	*Phacelia nashiana*	CNPS List 1B	March–June
Red Rock poppy	*Eschscholzia minutiflora* ssp. twisselmannii	CNPS List 1B	May–Nov
creamy blazing star	*Mentzelia tridentata*	CNPS List 1B	March–May
Latimer's woodland-gilia	*Saltugilia latimeri*	CNPS List 4	March–June
Brown fox sedge	*Carex vulpinoidea*	CNPS List 2	May-June
Muir's tarplant	*Carlquistia muirii*	CNPS List 1B.3	July-Aug
Alkali mariposa-lily	*Calochortus striatus*	CNPS List 1B.2	Apr-June
Animal Species			
Desert tortoise	*Gopherus agassiz*	FT, ST	March 15-May 31
Burrowing owl	*Athene cunicularia*	FSC, SSC	March-May
Mohave ground squirrel	*Spermophilus mohavensis*	ST	March 15-July 15
Peregrine falcon	*Falco peregrines anatum*	SE, FSC	
Prairie falcon	*Falco mexicanus*	FSC	
Swainson's hawk	*Buteo swainsoni*	ST, FSC	
Golden eagle	*Aquila chysaetos*	SSC, fully protected, BLM:S, FSC	
Loggerhead shrike	*Lanius ludovicianus*	SSC, FSC	
Le Conte's thrasher	*Toxostoma leconei*	SSC, FSC	
Northern harrier	*Circus cyaneus*	SSC	
Ferruginous hawk	*Buteo regalis*	FSC	
Bendire's thrasher	*Toxostoma bendirei*	SSC, FSC	
Nelson's bighorn sheep	*Ovis canadensis nelsoni*	BLM:S	Avoid Feb-Jun
American badger	*Taxidea taxus*	SSC	Year-round
Big-free tailed bat	*Tadarida macrotis*	SSC	Mar-Aug
Arizona myotis	*Myotis occultus*	SSC	Mar-Aug
Townsend's big eared bat	*Plecotus townsendii*	SSC, BLM:S	Mar-Aug
Western mastiff bat	*Eumops perotis californicus*	SSC, BLM:S	Mar-Aug
Pallid bat	*Antrozous pallidus*	SSC, BLM:S	Mar-Aug
Spotted bat	*Euderma maculatum*	SSC, BLM:S	Mar-Aug

U.S. Fish & Wildlife Service	FE - Federally listed as endangered FSC – Federal species of concern
State of California	SE - State listed as endangered SSC – State species of concern SR - State listed as rare SWL – State watch list
California Native Plant Society (CNPS)	List 1B - Rare, threatened, or endangered in California and elsewhere. Fairly endangered in California List 2 - Rare threatened, or endangered in California, but more common elsewhere List 3 - Plants for which more information is needed (a review list). Fairly endangered in California List 4 - Plants of limited distribution (a watch list). Fairly threatened in California
Northern & Eastern Colorado Desert Coordinated Mgmt. Plan (NECO)	The approved NECO utilizes a comprehensive approach to managing 60 special status species within the Plan area

-----Original Message-----
From: Shelley_Ellis@ca.blm.gov [mailto:Shelley_Ellis@ca.blm.gov]
Sent: Tuesday, March 03, 2009 3:19 PM
To: Graham, Bill
Subject: your survey protocols

Bill,

I looked again at the protocol attachment you e-mailed for the biological surveys, and those protocols will be fine as far as BLM is concerned.

Thanks, Shelley

Shelley Ellis
BLM Wildlife Biologist
300 S. Richmond
Ridgecrest
CA 93555
760-384-5426

-----Original Message-----
From: Shelley_Ellis@ca.blm.gov [mailto:Shelley_Ellis@ca.blm.gov]
Sent: Tuesday, March 03, 2009 3:03 PM
To: Graham, Bill
Subject: Surveys

Hi Bill,

I called Ray Bransfield with USFWS, and we concluded that you need to follow the 1992 tortoise survey protocol. Do you have any questions about the botany survey? I can get you the BLM protocol, which I'm hoping is similar to the CEC protocol. We are not aware of any BLM special status plant species there. The area needs to be 100% surveyed for burrowing owls, their burrows, and sign. They usually nest a little later than this. But they generally use the old burrows from previous years. The only other biological survey is the Mojave Ground Squirrel. For that, you need to talk to CA DFG. They never contacted me. BLM will defer to whatever they require. This is a list of all the plants we are aware of that occur on our BLM lands. Let me know if you need other information.

(See attached file: Plants_Checklist_0107.doc)

Thanks, Shelley

Shelley Ellis
BLM Wildlife Biologist
300 S. Richmond
Ridgecrest, CA 93555
760-384-5426

-----Original Message-----
From: Shelley_Ellis@ca.blm.gov [mailto:Shelley_Ellis@ca.blm.gov]
Sent: Friday, March 06, 2009 2:42 PM
To: Graham, Bill
Subject: RE: Surveys

Hi Bill,
The agencies had a conference call and determined various small changes to your proposed surveys. Kim Nicol from CA DFG will send the finalized survey requirements to Solar Millennium early next week . I believe the '92 ZOI's are not necessary, as Ray mentioned at the conference call that you attended at the BLM. BLM requires bird Point Counts on proposed solar sites, but that will be covered in the information that you receive on Monday (hopefully, on Monday) from CA DFG. So I was a bit premature in saying anything so soon.
Thanks, Shelley

Shelley Ellis
BLM Wildlife Biologist
300 S. Richmond
Ridgecrest
CA 93555
760-384-5426

"Graham, Bill"
<Bill.Graham@edaw
.com>
03/06/2009 01:54
PM

To
<Shelley_Ellis@ca.blm.gov>
cc
Subject
RE: Surveys

Shelley:

Some clarification please. In your subsequent email you indicated our proposed survey methodologies were acceptable, but here you indicate a need to follow the complete protocol. Our proposed methodology would incorporate CEC buffers but not complete 92 protocol ZOIs. We're OK either way but I just need clarification, as we start on Monday.

Regards,

Bill G.

-----Original Message-----
From: Shelley_Ellis@ca.blm.gov [mailto:Shelley_Ellis@ca.blm.gov]
Sent: Tuesday, March 03, 2009 3:03 PM
To: Graham, Bill
Subject: Surveys

Hi Bill,

I called Ray Bransfield with USFWS, and we concluded that you need to follow the 1992 tortoise survey protocol. Do you have any questions about the botany survey? I can get you the BLM protocol, which I'm hoping is similar to the CEC protocol. We are not aware of any BLM special status plant species there. The area needs to be 100% surveyed for burrowing owls, their burrows, and sign. They usually nest a little later than this. But they generally use the old burrows from previous years. The only other biological survey is the Mojave Ground Squirrel. For that, you need to talk to CA DFG. They never contacted me. BLM will defer to whatever they require. This is a list of all the plants we are aware of that occur on our BLM lands. Let me know if you need other information.

(See attached file: Plants_Checklist_0107.doc)

Thanks, Shelley

Shelley Ellis
BLM Wildlife Biologist
300 S. Richmond
Ridgecrest
CA 93555
760-384-5426

-----Original Message-----
From: Larry_LaPre@ca.blm.gov [mailto:Larry_LaPre@ca.blm.gov]
Sent: Tuesday, March 10, 2009 3:18 PM
To: lflapre@ca.blm.gov
Cc: Colin_Grant@blm.gov; Christopher_Otahal@ca.blm.gov;
Mark_Massar@ca.blm.gov; Shelley_Ellis@ca.blm.gov; Jesse_Irwin@ca.blm.gov
Subject: message to consulting biologists re bird studies

This message has several biologists listed as bcc recipients.

As you know, BLM is requiring bird point count surveys on solar sites as part of the baseline environmental information. For many years BLM and other agencies have used bird abundance and diversity as a general measure of the quality and productivity of a particular site. In addition, knowing the birds present will help later with compliance with the Migratory Bird Treaty Act, which disallows destruction of any active bird nests.

Colin Grant and I have had many calls from consulting biologists about the methodology, which follows Ralph et al 1992, with some modifications. The general guidelines are provided In the attachment below.

Since I spoke to you, BLM has decided that:

1. Point count duration is 10 minutes. This will prevent double-counting and allow the surveys to be completd before 9 AM or so, at least before it gets too hot.

2. BLM will be flexible on the locations of each point count transect. The requirement is one per square mile. On a ten square mile site, the ten transects do not have to be evenly spaced within each section. They should be put in the best areas for birds or the areas most representative of each vegetation community type.

3. BLM will be flexible on the time period for completing the spring surveys. The requirement is March and April, but the surveys can continue into May if you can't meet the early schedule or if it is better to do so because of late-nesting species. The flexibility is with the word "consecutive."

Stick to the time period, the transect length, the transect spacing and the count circle radius so that the studies from each site are comparable.

Thank you for your efforts in obtaining environmental baseline information which will assist BLM in evaluating the solar applications.

(See attached file: BLM Solar Facility Point Count Protocol.docx)

Dr. Larry LaPre
District Wildlife Biologist
California Desert District
Bureau of Land Management
22835 Calle San Juan de los Lagos
Moreno Valley, CA 92553
Phone: (951) 697-5218
Fax: (951) 697-5299
E-mail: llapre@ca.blm.gov

From: Graham, Bill
Sent: Friday, March 13, 2009 12:56 PM
To: 'Danielle_Dillard@fws.gov'
Subject: RE: species list for Ridgecrest Solar Millennium project

Danielle-

No, your previous communication will suffice. We were just creating a paper trail. Thanks for the communication.

Regards,

Bill Graham

William Graham
Principal, Planning & Environment
EDAW
D 619.764.6806 C 619.302.7426
bill.graham@edaw.com

EDAW
1401 Kettner Blvd., Ste. 500
San Diego, CA 92101
T 619.233.1454 F 619.233.0952

From: Danielle_Dillard@fws.gov [mailto:Danielle_Dillard@fws.gov]
Sent: Friday, March 13, 2009 12:53 PM
To: Graham, Bill
Subject: species list for Ridgecrest Solar Millennium project

Hi Bill,

We had received a species list request on March 5 for the Solar Millennium, Ridgecrest Solar Plant Project. We had pointed out the listed species we were concerned about (desert tortoise) in the joint agency response email that was sent addressing the survey protocols. There are no additional species or habitat that need to be addressed. Do you still need a species list response letter from USFWS?

Thank you,
Danielle Dillard

Re: Solar Millennium Projects Biological Survey ProtocolsFrom: Graham, Bill
Sent: Tuesday, July 28, 2009 11:31 AM
To: MeyerLovell, Cecilia
Subject: FW: Solar Millennium Projects Biological Survey Protocols

Follow Up Flag: Follow up
Flag Status: Flagged

Bill Graham
Principal
D +1 619.764.6806 M +1 619.302.7426
New email: bill.graham@aecom.com

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www.edaw.com www.aecom.com

From: David Hacker [mailto:DHACKER@dfg.ca.gov]
Sent: Tuesday, March 17, 2009 4:00 PM
To: Julie Vance; Kimberly Nicol; Graham, Bill
Cc: Holly_Roberts@blm.gov; shelley_ellis@ca.blm.gov; Ryork@energy.state.ca.us; Luttrell, Mark; Ray_Bransfield@fws.gov; Tannika_Engelhard@fws.gov; Jessie Audette
Subject: RE: Solar Millennium Projects Biological Survey Protocols

Mr. Graham:

As we discussed on the February 10, 2009 WebEx meeting with CEC, DFG, BLM, and the USFWS, any predetermined mitigation under the West Mohave Plan pertains to BLM policy only. The State incidental take authorization requirement would be to "fully mitigate" the impacts of the Mohave ground squirrel taking, including all impacts on the species (14 CCR § 783.4). The location of those impacts relative to Brown Road would be important only if Brown Road is the boundary between areas of different habitat values. We look forward to working with you and your biologists to determine whether this is the case.

For Mohave ground squirrel survey methods, we've made recommendations in a forthcoming letter. The gist of it is that the proposed survey methods (1 trap grid per 640 acres) would be insufficient to determine absence, and that inferring presence based on habitat suitability and the nearby occurrences is an option. Trapping at the standard one grid per 80 acres is still an option as well. If you decide to forego trapping and pursue incidental take authorization, we'll work with you to develop mitigation based solely on habitat value. Please feel free to call with any questions.

Dave Hacker
Staff Environmental Scientist
California Department of Fish and Game
3196 South Higuera St., Suite A
San Luis Obispo, CA 93401
805.594.6152

>>> "Graham, Bill" <Bill.Graham@edaw.com> 3/13/2009 5:44 PM >>>
Kim:

Thank you very much for forwarding this joint agency review of our proposed biological survey protocols for the Solar Millennium projects at Ridgecrest, Palen and Blythe. We will implement this direction immediately in most cases. There are a few areas where we need some additional discussion. I summarize our understanding and short-term action items below, organized by species:

Desert Tortoise

We appreciate your collective acceptance of our DTO survey methodology. This will essentially conform to the 1992 USFWS protocol with the exception of ZOI surveys. We will survey the CEC required buffers.

We will endeavor to ensure that there are no violations of Section 9 of the ESA during survey activity.

We will forward you a complete list of desert tortoise surveyors, both EDAW AECOM employees and independent contractors, on Monday.

Burrowing Owl

It is our understanding that you desire additional detail regarding the criteria utilized for determining burrowing owl habitat. We will forward additional information concerning this issue shortly for the review of CDFG, BLM, and USFWS. You (Kim Nicol) will be our primary contact for any additional discussion of burrowing owl survey protocol.

You are correct in that, in the referenced passage, "desert tortoise" should be replaced with "burrowing owl."

Mojave Ground Squirrel

It is understood that the other agencies will defer to CDFG regarding MGS survey protocols. After discussions with senior CDFG staff, our thinking has changed regarding this issue. It is understood that MGS mitigation for the portion of the Ridgecrest site south of Brown Road, as a result of this areas location within the Western Mojave Plan's MGS Conservation Area, is predetermined. On remaining portions of the site, our current thinking is that a negotiated mitigation based on mutual assessment of habitat quality is appropriate. This strategy is largely a result of our being informed that negative survey results would not necessarily be regarded as evidence of a lack of MGS occupation.

Dave Hacker of CDFG will be our primary contact regarding MGS issues.

Botanical Surveys

It is understood that there is concurrence with the proposed botanical survey protocol, with the following additions:

1) Succulents/yucca/Joshua Trees/barrel cactus are to be mapped and counted. This will facilitate later salvage.

2) BLM sensitive species will be photodocumented.

General Biological Survey Details

There is general concurrence with our protocols.

All surveyors will attend Tortoise Awareness Training. It is understood that absolutely no handling of DTO is required.

Point Count Bird Surveys

Point Count Bird Surveys were not originally proposed by EDAW AECOM. We intend

to have additional discussions with BLM concerning whether these surveys are in fact warranted. It is understood that resolution must be obtained in the very near future as a result of survey windows.

The instructions included regarding the point count surveys are noted. We have subsequently received additional direction from Larry LaPre; it is our understanding that he will be the primary point of contact regarding point count surveys. We have had several discussions with Dr. LaPre, and in the process have reached agreement regarding some modifications (e.g., count locations per transect, duration of each point count, etc.) to the methodology. Our assumption is that, should these surveys be implemented, surveys conducted in accordance with Dr. LaPre's instructions will be acceptable to the BLM.

Please contact me if the above differs from your understanding in any respect.

William GrahamPrincipal, Planning & EnvironmentEDAWD 619.764.6806 C 619.302.7426bill.graham@edaw.com

From: Kimberly Nicol [mailto:KNICOL@dfg.ca.gov]
Sent: Tue 3/10/2009 9:32 AM
To: Julie Vance; Graham, Bill
Cc: shelley_ellis@ca.blm.gov; David Hacker; Ryork@energy.state.ca.us; Luttrell, Mark; Ray_Bransfield@fws.gov; Tannika_Engelhard@fws.gov; Jessie Audette
Subject: Re: Solar Millennium Projects Biological Survey Protocols
Bill,
This email serves as a joint agency response to Solar Millennium's request for review of their proposed biological survey protocols. The proposed survey protocol document, "Proposed Survey Protocols for the Solar Millennium Parabolic Trough Solar Thermal Power Projects, 2009" was provided to representatives of the following agencies via email on February 20, 2009, for review and concurrence: California Department of Fish and Game (CDFG), California Energy Commission (CEC), U.S. Bureau of Land Management (BLM), and U.S. Fish and Wildlife Service (FWS). The following agency review and concurrence applies to Solar Millennium's Ridgecrest, Palen, and Blythe project sites only.

DESERT TORTOISE
CDFG, BLM, and FWS concur with the proposed protocol for this species. CEC also concurs with the proposed protocol with the addition of the following requirement:

CEC Data Adequacy Regulations require project applicants to ". . . include a list of species actually observed and those with a potential to occur within 1 mile of the project site and 1000 feet from the outer edge of linear facility corridors".

Please note the FWS' concurrence on the survey protocol design does not authorize the take of desert tortoises. Take, as described in section 9 of the Endangered Species Act of 1973 (ESA), as amended, and the FWS' regulations is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harassment is defined by the FWS as intentional or negligent action that creates the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is further defined by the FWS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR 17.3). Also note that, pursuant to the ESA and its implementing regulations, desert tortoises may not be handled in any manner without prior ESA authorization.

To ensure the quality of the protocol survey, we recommend that you provide the names and qualifications of the surveyors to FWS, CDFG, and BLM for review prior to initiating surveys.

BURROWING OWL
CEC, BLM, and FWS defer to CDFG regarding survey protocol for this species. CDFG has the following comments on the proposed survey protocol:

The survey protocol should describe what criteria will be used to determine suitable burrowing owl habitat. This should be presented to CDFG, CEC, and BLM, prior to initiating the surveys.

The proposed survey protocol states “The burrow survey will consist of pedestrian transects spaced at a maximum of 10 meters apart within suitable desert tortoise habitat and in any areas not suitable for tortoise may extend up to 30 meters.” Should this say within suitable burrowing owl habitat? It is not clear why Phase II surveys would only occur in suitable tortoise habitat and not burrowing owl habitat.

Solar Millennium should contact Kim Nicol of CDFG for additional discussion on the survey protocol for burrowing owl.

MOHAVE GROUND SQUIRREL
CEC, BLM, and FWS defer to CDFG regarding survey protocols for this species. Solar Millennium should contact Dave Hacker of CDFG Region 4 for additional discussion on the survey protocol for this species at the Ridgecrest project site.

BOTANICAL SURVEYS
CDFG, CEC, and FWS concur with the proposed botanical survey protocols. BLM also concurs with the proposed protocols with the addition of the following:

Solar Millennium should abide by BLM guidance/requirements regarding mapping/surveying for succulents/yucca/barrel cactus. If solar development of any of the sites is approved, BLM will require salvage and transplantation of the succulents. A count of the number of barrel cacti, Joshua trees, or Mojave yuccas should be compiled.

BLM requests photographic documentation of any BLM sensitive species found.

GENERAL BIOLOGICAL SURVEY DETAILS
CDFG, CEC, BLM, and FWS concur with the proposed survey protocols/actions outlined in this section with the following clarifications/additions:

Desert Tortoise Training: please ensure that all surveyors attending Desert Tortoise Awareness training are aware that handling of desert tortoise during protocol surveys is not authorized and implementation of the survey protocol, as described by Solar Millennium does not require handling of desert tortoises in any manner.

Other Special Status Wildlife Species: BLM requires point count bird surveys on all solar development sites on their lands using the following protocol:
-one point count transect per square mile
-eight point count locations per transect
-point counts must be 250 meters apart
-one day a week for four consecutive weeks between March and April (breeding)

-one day a week for four consecutive weeks between November and January (wintering)
-each point count will be twenty minutes long with a 100 meter radius
-concentrate on areas where there will be birds (washes, high vegetation areas, ect)
-point counts will be conducted between 5-9 am
Solar Millennium should contact the local BLM office for additional discussion on the bird survey protocol.

If you have any questions, please feel free to contact the above people.
Kim

Kimberly A. Nicol
Environmental Program Manager
Department of Fish and Game
Inland Deserts Region
78078 Country Club Dr. Suite 109
Bermuda Dunes, CA 92203
(760) 200-9178
(760) 200-9358 fax

>>> "Graham, Bill" <Bill.Graham@edaw.com> 2/20/2009 6:38 PM >>>
Julie:

A cover letter and a memo summarizing the biological survey methodologies and protocols are attached. During the web meeting last week, you also requested more detailed site plans. These maps will be forwarded on Monday.

Regards,

William Graham

Principal, Planning & Environment

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ATTACHMENT N

CUMULATIVE PROJECTS LIST

ATTACHMENT N
List of Cumulative Projects

Project Name/ Applicant	Location/Jurisdiction	Project Description	Biological Resources that Occur or Potentially Occur Onsite
CEC Energy Projects			
Beacon Solar Energy Project (BSEP) (08-AFC-2)	Kern County along the California SR-14 corridor, located on an approximately 2,012 acre site 25 miles southeast of RSPP	The BSEP is a 250-MW solar thermal project using parabolic trough solar thermal technology. The BSEP will be connected to the Los Angeles Department of Water and Power (LADWP) transmission system by constructing a single-circuit three phase 230-kV transmission line that would interconnect to the Inyo-Barren Ridge 230 kV line approximately 1,900 feet west of SR-14. Construction is scheduled to begin in the third quarter of 2009, with start-up and testing the second quarter of 2011 and commercial operation by the third quarter of 2011 over a 25 month period. Construction employment is expected to average approximately 477 workers and to peak at approximately 836 workers in Month 15. Total operational employment will be approximately 66 full time workers.	Special-status species on the site include desert tortoise, Mohave ground squirrel (although it is poor quality tortoise and ground squirrel habitat), and burrowing owl.
Ivanpah Solar Electric Generating System (07-AFC-5)	Located on approximately 3,400 acres of BLM land located west of Ivanpah Dry Lake and the California/Nevada border, approximately 125 miles from the RSPP	The Ivanpah Solar Electric Generating System (SEGS) is a combined 400-MW solar thermal project. Three separate facilities, including two 100-MW facilities and one 200-MW facility, are proposed for development under the SEGS project. The SEGS project will be connected to Southern California Edison's (SCE) transmission system through an upgraded SCE 115-kV line passing through the site on a northeast-southwest ROW. Construction and operation will be phased annually for the three facilities, with the second (Ivanpah 2) and third (Ivanpah 3) units' construction initiated one year and two years, respectively, after initiation of construction for the first unit (Ivanpah 1). Construction is expected to take place over a 48-month period, beginning the first quarter of 2009 and continuing through the fourth quarter of 2012. Construction employment is expected to average approximately 474 workers and to peak at approximately 959 workers in Month 32. Total operational employment will be approximately 90 full time workers, with 35 workers for Ivanpah 1 and 3 and 20 workers for Ivanpah 2.	Special-status species on the site include desert tortoise and burrowing owl.

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Stirling Energy Systems (SES) Solar One Project (08-AFC-13)	Located on an approximate 8,230-acre site located in San Bernardino County, California, approximately 86 miles southeast of RSPP	The SES Solar One project is an 850-MW solar thermal project utilizing concentrating solar power. The project applicant intends to connect to the SCE Pisgah Substation, although several substation upgrades, including a 500kV switchyard, two initial 500/230kV transformers (ultimate design for four) and other ancillary facilities will be required to provide the additional transmission capacity necessary for the project. Removal and replacement of the existing 65-mile Lugo-Pisgah 220kV No. 2 Transmission Line with a new 500 kV transmission line and looping the existing Eldorado-Lugo 500kV in and out of the new Pisgah 500kV Switchyard as well as a new right-of-way into the Lugo Substation will also be necessary to accommodate power produced by the proposed solar facility. The project has been proposed in two phases: a 500-MW Phase I, which will utilize 5,838 acres of the proposed site, and a 350-MW Phase II, utilizing 2,392 acres of the proposed site. Construction is scheduled to begin mid- to late- 2010 and span a 41-month period. Construction employment is expected to average approximately 477 workers and to peak at approximately 703 workers in Month 7. Once operational, the facility will employ 180 full time workers.	Special-status species on the site include desert tortoise and Nelson's bighorn sheep. Although no bighorn sheep were detected during biological surveys, suitable habitat was noted along project boundaries.
City of Palmdale Hybrid Power Plant (PHPP) (08-AFC-9)	Located on a 600-acre site owned by the City of Palmdale, south of East Avenue M in the northernmost areas of the City of Palmdale, approximately 70 miles from the RSPP	PHPP is a 570-MW hybrid power project using a combination of natural gas-fired combined-cycle generating equipment integrated with solar thermal generating equipment. The PHPP will connect to SCE's Vincent Substation south of the City through a new 35.6 mile long 230-kV line. Construction is expected to take place over a 27 month period utilizing an average of approximately 360 workers, with a peak in workforce of approximately 767 workers at Month 12. Total operational employment will be approximately 36 full time workers.	Special-status species on the site include desert tortoise and burrowing owl.

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Victorville 2 Hybrid Power Project (VV2 Project)	Located on a 275-acre site owned by the City of Victorville north of the Southern California Logistics Airport, approximately 75 miles southeast of the RSPP	The VV2 is a 570-MW hybrid power project. The proposed hybridized technology would incorporate a combination of natural gas-fired combined-cycle generating equipment integrated with solar thermal generating equipment. The VV2 Project plans to interconnect with SCE's Victor Substation approximately 10 miles south-southwest of the site. The transmission system will be built in three segments: Segment 1, which will include construction of 4.3 miles of new 230-kV transmission line in a new right-of-way; Segment 2, involving the addition of a second circuit to the existing Victor 230-kV line; and Segment 3, which would entail a system reliability upgrade that includes increasing transmission capacity. Project construction is anticipated to begin in the summer of 2008 and take place over a 27 month period, with commercial operation commencing late summer 2010. An average of approximately 360 workers will be utilized, with a peak in workforce of approximately 767 workers at Month 12. Total operational employment will be approximately 36 full time workers.	Special-status species documented occur on the site include desert tortoise and burrowing owl. Mohave ground squirrel was noted as having the potential to occur onsite, although none were noted during onsite biological surveys.
BLM Wind and Solar Projects[1]			
Brewer Energy Co.	Immediately west and south of the RSPP site, near the El Paso Mountains west of US Highway 395	Brewer Energy Co. proposes to perform wind site testing and monitoring on 3,200 acres. The application was submitted in May 2008, and the project proposes three MET towers of 50 or 154 feet high.	Need additional information.
Debeham Energy, LLC	Approximately three miles southeast from the RSPP	Debeham Energy, LLC proposes site testing on 8,096 acres for a potential wind energy project at Summit Range. An application was submitted to the BLM in August 2006. The project proposes up to eight MET towers.	Need additional information.
Renewergy, LLC	Approximately 2.5 miles south from the RSPP	Renewergy, LLC proposes site testing on 14,209 acres for a potential wind energy project at the Rand Mountain area near Laurel and El Paso Peaks. An application was submitted to the BLM in July 2006 and the BLM has deemed this application incomplete. The application proposed six mast towers. Construction of each mast is estimated to be one day with four construction workers. Total ground disturbance is estimated to be 364 square feet.	Need additional information.
Competitive Power Ventures, LLC (CACA 049547)	Approximately ten miles to the west of RSPP	Competitive Power Ventures, LLC proposes a wind monitoring project located in Bird Springs and Inyokern areas. The application was submitted to BLM in August 2007, and proposes testing on 42,542 acres.	Need additional information.

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Oak Creek Energy (CACA 48537)	Approximately 13 miles south of RSPP, located in the Rand Mountain area	Oak Creek Energy proposes a wind monitoring project. The application was submitted June 2006 and proposes three MET towers on 19,565 acres.	
Opti-Solar, Inc. (now First Solar) (CACA 49511)	Located on the east side of City of Ridgecrest, along the boundary of China Lake NWC, approximately six miles northeast of RSPP	Opti-Solar, Inc. (now First Solar) has proposed a photovoltaic facility on 7,183 acres. The application was rejected in early 2008 due to the potential extent of impacts to the Mojave Ground Squirrel Conservation Area (MGS CA). Opti-Solar subsequently filed an appeal, but due to impacts to the MGS CA, is it not a reasonably foreseeable project to include in the cumulative analysis.	Not applicable
Local Projects			
5.1.2.10 China Lake Naval Air Weapons Station (NAWS) 2005 Base Realignment and Closure (BRAC) realignment	NAWS at China Lake in Ridgecrest	The growth of households and population in Ridgecrest has historically been tied to the growth of military and civilian employment at the NAWS at China Lake. Population at Ridgecrest has grown and declined with NAWS employment. The 2005 BRAC plan of the U.S. Department of Defense, proposes to increase current test and training operations at the base, while achieving compliance with the California Desert Protection Act and the Sikes Act as amended. No construction or physical modifications to existing structures are proposed. Increases in operations would occur over a five year period (NAWS China Lake 2004). The final Environmental Impacts Statement (EIS) evaluated the impacts of the BRAC plan. No significant impacts to any resource area were identified.	Not applicable
City of Ridgecrest Super Wal-Mart	Located in the City of Ridgecrest, on a 28.5-acre site located immediately south of W. Bowman Road and east of S. China Lake Boulevard, approximately 5 miles north of RSPP.	Wal-Mart is proposing a new Super Wal-Mart store, along with a fueling station and two vacant out parcels. The Wal-Mart would be approximately 205,000 square feet in size, with all appurtenant structures and facilities, and would offer groceries and general retail merchandise. A draft EIR was published in May 2009. The 28.5 acre conversion of undeveloped natural open space could have biological resources impacts. No archaeological or cultural resources would be expected to be affected. Bowman Road will be widened from South China Lake Boulevard to Sunland Street, two new roads will be constructed, and Sunland Street will be paved from Upjohn Avenue to Dolphin Avenue.	While no sensitive plant species were found on site, burrowing owl and evidence of desert tortoise were observed on the site and Mohave ground squirrel has the potential to occur on the site.

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Inyokern Four-Lane Project, California Department of Transportation (CalTrans)	The proposed US Highway 395expansion is from post mile 13.9, 1.1 mile south of South China Lake Boulevard to post mile 30.55 near Ridgecrest in Kern County. This stretch highway is adjacent to and included within the proposed RSPP site boundary.	CalTrans is proposing to convert approximately 15.5 miles of the existing US Highway 395, a two-lane conventional highway, into a four-lane, divided, controlled-access expressway. An Initial Study with proposed Mitigated Negative Declaration and Environmental Assessment was circulated for a 180-day public review period on January 28, 2008. The CalTrans April 2009 "Status of Projects" report indicated that CalTrans anticipates approval of the final Environmental Document by July 1, 2010, and implementation of the Project Approval/Environmental Document (PA/ED) by October 10, 2010. CalTrans has indicated no timeline yet exists for the expansion project; and that the project will not occur for at least the next 10 years (Rosander 2009). No detailed design or engineering for the expansion has yet been initiated. Currently, two alternatives for the expansion have been discussed. The preferred alternative is to widen US Highway 395 on the west side and the other alternative is to widen the east side. The current intersection of US Highway 395 with China Lake Blvd and Brown Road would be relocated westward and reengineered as a traffic circle. The Applicant is working with CalTrans to ensure that the design of the Project will be compatible with the proposed highway expansion.	Need additional information.
West-Wide Energy Corridors PEIS Proposed Section 368 Energy Corridors	Energy corridors on federal lands in 11 Western states. No projects have currently been proposed near the Ridgecrest site.	In response to Section 368 of the Energy Policy Act of 2005, the BLM, DOE, and United States Forestry Service have prepared a West-Wide Energy Corridor Programmatic Environmental Impact Statement (PEIS), which evaluated issues associated with designation of energy corridors on federal lands in 11 Western states (DOE/DOI 2008). Section 368 energy corridors were designated in this document. The Project is located within one of these corridors, which have been designated as multi-modal. It is anticipated that, upon finalization of the Section 368 project application process, various transmission projects could be developed near the Ridgecrest site. However, no projects have currently been proposed near the Ridgecrest site.	Not applicable

[1] No Plans of Development have been submitted so only limited project information is available