

Appendix D-17

Burrowing Owl Survey 2010

**Burrowing Owl (*Athene cunicularia*)
Protocol Presence/Absence Survey for
Sun Creek Wind Resource Area,
Kern County, California**

Prepared for

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Executive Summary

At the request of CH2M Hill, Inc., Phoenix Ecological Consulting (Phoenix) initiated burrowing owl (*Athene cunicularia*) protocol surveys within a 992-acre survey area for the Sun Creek Wind Resource Area (SCWRA) project. Protocol methodology adhered to the California Burrowing Owl Consortium's Burrowing Owl Survey Protocol and Mitigation Guidelines (CBOC, 1993). The surveys were conducted during May 30th-July 15th, 2010. The project site consists of rolling hills with relatively undisturbed creosote bush scrub, Joshua-Juniper tree woodlands and Mojave-mixed woody scrub with ephemeral desert washes bisecting the project site.

The survey results were positive for burrowing owl sign, but negative for breeding burrowing owls during the 2010 survey efforts. Burrowing owl whitewash was detected at two burrows. Additionally, twenty-one suitable burrows were detected throughout the project site, but no owl sign (i.e.-pellets, feathers or whitewash) was associated with these burrows. One burrowing owl was incidentally detected on the eastern portion of the project site, during the point count surveys, conducted by Western Ecosystems Technology, Inc. (WEST) on March 19, 2010 (West, 2010); however, this individual was not observed during protocol surveys. Several incidental sensitive species detections occurred during the burrowing owl surveys. These detections included: a live desert tortoise, a prairie falcon, loggerhead shrikes and American badger sign.

Introduction and Purpose:

At the request of CH2M Hill Inc., Phoenix Ecological Consulting (Phoenix) initiated protocol burrowing owl surveys within a 992-acre biological survey area of the project site known as the Sun Creek Wind Resource Area (SCWRA). The entire SCWRA encompasses 4,143 acres. This report addresses the 992-acre biological survey area within the eastern portion of the site (Figure A). The project proponent, Alta Windpower Development, LLC, proposes to install up to 100, 3-MW wind turbines within the project footprint. The project site is located in unincorporated land west-northwest of the town of Mojave, CA. Due to the potential impacts associated with the wind project, phase II and III burrowing owl surveys were conducted to determine if owls are present and to assess alternatives available to mitigate the impacts.

Project Location:

The project site is situated south of highway 58 and the Atchison Topeka & Santa Fe Railroad. The Los Angeles Aqueduct is situated along the eastern edge of the project area. The town of Mojave is approximately 4 miles to the southeast. The project site includes portions of Sections 26-28 and 31-35, Township 32 South, 12 North and Range 35 East, within United States Geological Survey (USGS) 7.5 Series Mojave and Monolith Topographic Quadrangles (Figure A).

Habitat and Land Use:

The project site is situated along a middle-upper bajada with soils ranging from hard-packed granitic alluvium to sandy-loam at lower elevations. The general area is referred to as the Horned Toad Hills on the Mojave 7.5 minute quadrangle topographic map (Figure A). The drainages that bisect the project site tend to flow in a northwest to southeasterly direction.

Soils within existing washes consist of loose sand with low density cobble/pebble matrix. The aspect is southeasterly throughout the project site. The topography ranges from steep hills with a 70-100% slope on the northwestern edge, along Highway 58, to 20-40% slopes along the mid bajada, on the southeastern edge. Representative habitat photos of the polygons are provided in Figures F-G.

The vegetation communities on the site include creosote bush (*Larrea tridentata*)/Bursage (*Ambrosia dumosa*) scrub, Joshua tree woodland (*Yucca brevifolia*), juniper woodland/Mojave-mixed woody scrub and desert riparian wash communities. Dominant perennials include creosote bush (*Larrea tridentata*), Joshua tree (*Yucca brevifolia*), California juniper (*Juniperus californica*), cheesebush (*Ambrosia salsola*), Cooper's goldenbush (*Ericameria cooperii*) and California buckwheat (*Eriogonum fasciculatum*). Dominant annuals include Mojave spurge (*Euphorbia incisa*), filaree (*Erodium cicutarium*), fiddleneck (*Amsinckia tessellata*), *Cryptantha sp.* and distant phacelia (*Phacelia distans*). The entire list of vascular plants and vertebrate species, detected during the burrowing owl surveys, can be found on Table 2 & 3.

The elevation ranges from 3,215 feet, along the southeastern edge, to 4,040 feet along the northwestern edge. The evidence of human disturbance is noticeable within the project footprint in the form of off-highway vehicle (OHV) trails, occasional trash piles, livestock grazing, meteorological stations and abandoned concrete pads that were once associated with wind turbines. There are existing wind turbines located in Section 32, along the ridge of the Horned Toad hills, adjacent to Highway 58.

Burrowing Owl Species Description:

Burrowing owls (*Athene cunicularia*) are small, long-legged, ground-dwelling owls that occur from British Columbia, throughout North America and portions of Central and South America. They winter in the southern latitudes and many remain as year-long residents in

Southern California. At higher elevations and latitudes, they will only occur during breeding seasons. In California, high density owl populations have been documented in agriculture areas in the San Joaquin Valley and Imperial Valleys.

Burrowing owls occur in a variety habitat types throughout California; such as, annual and perennial grasslands, agriculture fields, deserts and scrublands characterized by low-growing vegetation (CBOC, 1993). Suitable owl habitat may also include areas with trees and shrubs where canopy cover is less than 30% of ground surface. Suitable burrows may include both artificial and natural burrows that provide shelter from the elements as well as protection from predators. Burrowing owls also use burrows for nesting during spring and early summer months. The California ground squirrel (CGS; *Spermophilus beecheyi*) is known to provide suitable burrows as well as inactive coyote, kit fox, badger and desert tortoise burrows. Burrowing owls can also create and/or modify existing burrows. Artificial burrows may include culverts, concrete pipes, irrigation boxes, wood debris piles and openings beneath cement or asphalt.

They are most active at night but are also known to be crepuscular (active dawn and dusk). Typical prey items include invertebrates, small mammals, lizards, snakes and small birds. They nest underground in burrows and clutches range between 4-9 eggs. Burrow entrances and nests area may be adorned with cow chips, feathers, grass, trash, food items and dog feces. They are typically monogamous and tend to exist in colonies. They exhibit high nest fidelity and will return to the same burrow nest site for multiple years.

In desert scrub habitat, they are usually associated with canid (i.e.-kit fox and coyote) and CGS burrows along mounds that provide vistas for viewing prey and predators. They are also found along washes and wash banks where small mammal and invertebrate abundance is higher. Burrowing owls are a BLM sensitive species and a California species of special concern. They are also protected under the Migratory Bird Treaty Act (MBTA) and within sections 3503, 3503.5 and 3800 of the California Department of Fish and Game Code which prohibits the take, possession, or destruction of birds, their nests or eggs (CBOC, 1993).

CNDDDB Rarefind Database Search Results:

A thorough literature review was conducted prior to the field work to determine the likelihood of burrowing owl encounters within the project footprint. The main database used in compiling known burrowing owl occurrences was the California Natural Diversity Database (CNDDDB). There are multiple owl occurrences in the area: (1) Occurrence #837 (approximately 6.2 miles to the southwest, along the railroad crossing at 90th Street West, 1 adult and 3 juvenile owls were flushed in 2005) (2) Occurrence #843 (approximately 6.9 miles to the southeast on private land, one adult and one juvenile were sighted at Hwy 14 and United Street) (3) Occurrence #991 (approximately 8.6 miles to the south, one adult was observed at a burrow west of Soledad Mountain; Figure D; CNDDDB, 2010). This burrow was also detected during the 2010 owl survey, record #33 on Table 1 & Figure B.

In summary, the project site lies within the range of the burrowing owl. There are known occurrences on the project site and in the CNDDDB database from 6.2-8.6 miles south of the project.

Justification, Methodology and Qualifications:

Due to the fact that the proposed project site is located within the range of the burrowing owl, suitable vegetation habitat types occur on site and recent owl detection was documented on the project site (WEST, 210) and within the vicinity, protocol surveys were implemented during the 2010 survey period. The surveys began on May 30th and ended on July 15th. Survey methodology incorporated the *Burrowing Owl Survey Protocol and Mitigation Guidelines* (CBOC, 1993). Field surveyors included: Ryan Young, David Focardi, Jenny Weidensee, Josh Utter and Brooks Hart.

The objective of phase II surveys is to determine if owls are utilizing the site and to record the location of any suitable burrows or owl sign within the project site. The phase II survey methods consisted of walking twenty meter wide belt transects surveys, using hand-held Garmin GPS units with a 3-5 meter accuracy, within the project footprint, in a north to south direction, starting approximately a half hour after sunrise and ending no later than a half hour before sunset. The survey protocol generally recommends thirty meter wide belt transects.

However, due to the amount of vegetation cover on the site the transect width was decreased in order to increase the potential detection probability. During the survey, the surveyors search images included: burrows, burrowing owls, owl feathers, pellets, owl whitewash, owl vocalizations and other avian species. The surveyors' average coverage rate was 1.5 miles per hour, with an average daily coverage rate of 50 acres per day per person. The surveyors recorded any burrowing owl sign or incidental sensitive species encountered onto field forms. The field data recorded included type of sign, species associated with sign, UTM coordinates, date, photos, time and description of sign.

The objective of the phase III surveys is to document the owl behavior, territory size, number of owls and distribution of burrowing owls throughout the project site. The phase III surveys involved re-visiting all portions of the site on four separate occasions. All known burrow locations were re-visited to determine if owls were present and/or if any new burrowing owl sign had been deposited. Vehicular surveys were also conducted during the phase III surveys by driving along existing dirt roads, within the project site, and stopping every 300 meters to scan the vegetation canopy for owls while playing burrowing owl vocalizations to elicit a response. The call broadcast survey method has been demonstrated to increase detection probability (Conway, C. J., et. al, 2008; Duxbury, 2008; Klute, D.S. et. al, 2003). It was incorporated into the phase III survey efforts to increase the potential for detecting any owls that were missed and/or moved onto the site since the phase II survey effort was completed.

Weather conditions during the survey effort consisted of below average temperatures for May and June (50-80 degrees Fahrenheit). July temperatures ranged from 75-100 degrees Fahrenheit. As would be expected within a wind resource area, the site received daily winds ranging from 10 to 40 MPH. Survey conditions above 20 MPH were avoided, per protocol. Morning and afternoon temperatures were taken each day to ensure surveys were conducted within suitable survey parameters for burrowing owls.

Field Survey Results:

Burrowing owl detections

The phase II burrowing owl surveys were positive for burrowing owl sign. A total of two burrows had whitewash present, which was deposited over the previous year based on degree of fading and rate of deterioration. The one burrow, located in polygon C, appeared to be an abandoned badger burrow situated in a north-facing slope in creosote scrub. There was abundant whitewash deposited along the burrow apron, suggesting an owl had been present for several months (Figure B & E). There were also three owl pellets deposited at the burrow. The other burrow was located in polygon A along the bank of a wash. The whitewash associated with this burrow was minimal, suggesting an owl was present for one to two months. The wash in polygon A receives regular OHV traffic on the weekends. There were no burrowing owls sighted during the survey. However, one burrowing owl was incidentally detected by WEST, at the burrow location mentioned above in polygon A, on March 19, 2010, during point count surveys (Table 1, Figure B). The phase III surveys were negative for any additional burrowing owl detections.

Incidental detections

During the phase II and III surveys there were several incidental special-status species detected: desert tortoise (*Gopherus agassizii*), American badger (*Taxidea taxus*) sign, prairie falcon (*Falco mexicanus*), loggerhead shrikes (*Lanius ludovicianus*). One adult male tortoise was detected in polygon E at the mouth of a burrow on June 2nd. There were also seven pieces of tortoise scat, one carcass, five class I-II tortoise burrows, and two sets of tortoise tracks detected. The desert tortoise is a state and federally threatened species. There were twenty-six American badger burrows/forage holes detected. This species is a state species of special concern. One prairie falcon was sighted hunting over section 34 near a meteorological tower. The falcon was observed for approximately 10 minutes. Prairie falcons are a California Department of Fish and Game Watch List species, United States Fish and Wildlife Service Birds of Conservation Concern and protected under the MBTA. Four loggerhead shrikes were detected during the burrowing owl surveys. The shrikes were sighted during the breeding season and it is assumed they breed on site. Shrikes are a state species of special concern (nesting) and they are protected under the MBTA.

All detections along with incidental biological detections are listed on table 1 and plotted on figure B & C. The detections are cross referenced by their record numbers on table 1. All GPS locations are in UTM NAD 83 datum.

Table 1: Detections for the SCWRA 992 Acre Survey Area

| RECORD | EASTING | NORTHING | SIGN TYPE | SPECIES | DATE | DESCRIPTION |
|--------|---------|----------|-----------------------|-------------------|-----------|---|
| 33 | 390986 | 3885488 | Burrow with whitewash | Burrowing Owl | 6/2/2010 | Burrowing owl burrow in wash bank. Several whitewash along entrance. Inactive. Polygon A. Rechecked on 06/27/10 & 07/05/10. No new owl sign. No owl sighted. Photo taken. West detected an owl at this location in March, 2010. |
| 46 | 389387 | 3884559 | Burrow with whitewash | Burrowing Owl | 5/31/2010 | Burrowing owl sign in (possible) old badger burrow. Abundant whitewash at burrow entrance. Two old pellets. One fresh pellet. Polygon C. Rechecked on 06/26/10 & 07/05/10. No new owl sign. No owl seen/heard. Photo taken. |
| 7 | 389145 | 3884513 | Burrow | Tortoise | 5/31/2010 | Tortoise burrow. Class I. Fresh tracks. 300mm wide x 120 mm high x unk. Polygon E. Rechecked 06/26/10. No owl sign. |
| 28 | 390453 | 3886433 | Burrow | Tortoise | 6/1/2010 | Tortoise burrow. 61 mm wide x 85 mm tall. Class IV-V. Polygon C. Rechecked 06/26/10. No owl sign. |
| 34 | 388296 | 3886245 | Burrow | Tortoise | 6/2/2010 | Tortoise burrow. Class II. 200mm wide x 100 mm tall. Recent use. Rechecked 07/05/10. No owl sign. |
| 47 | 389002 | 3884547 | Burrow | Tortoise | 6/26/2010 | Tortoise burrow. Class 5. ~330 mm wide. Annuals in front of burrow. Debris in entrance. End not visible. Rechecked on 07/05/10. No owl sign. |
| 3 | 389333 | 3884520 | Burrow | Tortoise & Badger | 5/31/2010 | Three badger forage holes and one tortoise burrow. Class II. Rechecked 06/26/10. No owl sign. |
| 2 | 391375 | 3886099 | Burrow | Badger | 5/31/2010 | Badger forage hole. Recent. Rechecked 06/26/10. No owl sign. |
| 14 | 388880 | 3884549 | Carcass | Tortoise | 6/1/2010 | Tortoise carcass. Male. Class V. Edge of Polygon C. Photo taken. |
| 12 | 388988 | 3884661 | Scat | Tortoise | 6/1/2010 | Tortoise scat. Fresh. Class II. Polygon C. Photo taken. |
| 15 | 388973 | 3884711 | Scat | Tortoise | 6/1/2010 | Tortoise scat. 2 pieces. 1 cm wide x 4 cm long. Class II. |
| 26 | 388842 | 3884611 | Scat | Tortoise | 6/1/2010 | Tortoise scat. Fresh. Class II. |
| 27 | 389434 | 3885311 | Scat | Tortoise | 6/1/2010 | Tortoise scat. Fresh. 20mm wide x 55mm long. Class I. |
| 38 | 388437 | 3886035 | Scat | Tortoise | 6/2/2010 | Tortoise scat. 18 mm wide. 1+ year old. |
| 39 | 388439 | 3886038 | Scat | Tortoise | 6/2/2010 | Tortoise scat. Class II. |
| 40 | 388436 | 3886040 | Scat | Tortoise | 6/2/2010 | Two pieces of tortoise scat. Class II. Two more pieces 1 meter away. |
| 37 | 388433 | 3886029 | Tortoise | Tortoise | 6/2/2010 | Adult male tortoise in shallow burrow. 260 MCL. 200 mm wide. LM 9 + 10 show healed trauma. V2 + 3 sunken. Photo taken. |
| 20 | 389459 | 3885304 | Tracks | Tortoise | 6/1/2010 | Fresh tortoise tracks. Recent. Outside width ~210 mm (adult). |

| | | | | | | |
|----|--------|---------|--------|-------------------|-----------|---|
| 21 | 389445 | 3885310 | Tracks | Tortoise | 6/1/2010 | Tortoise tracks. 210 mm wide (adult). Recent. |
| 4 | 389262 | 3884449 | Burrow | Badger | 5/31/2010 | Badger forage hole. Recent activity. Rechecked 06/26/10. No owl sign. |
| 5 | 390091 | 3885579 | Burrow | Badger | 5/31/2010 | Multiple badger forage holes. Rechecked 06/26/10. No owl sign. |
| 6 | 390384 | 3885920 | Burrow | Badger | 5/31/2010 | Badger forage hole. Rechecked 06/26/10. No owl sign. |
| 8 | 389070 | 3884572 | Burrow | Badger | 5/31/2010 | Badger forage hole. Rechecked 06/26/10. No owl sign. |
| 10 | 389415 | 3885138 | Burrow | Badger | 6/1/2010 | Several badger forage holes. Rechecked 06/26/10. No owl sign. |
| 11 | 389211 | 3884905 | Burrow | Badger | 6/1/2010 | Several badger forage holes. Rechecked 06/26/10. No owl sign. |
| 13 | 388946 | 3884550 | Burrow | Badger | 6/1/2010 | Several badger forage holes. Rechecked 06/26/10. No owl sign. |
| 16 | 388950 | 3884777 | Burrow | Badger | 6/1/2010 | Badger burrow. End not visible. Rechecked 06/26/10. No owl sign. |
| 17 | 389001 | 3884792 | Burrow | Badger | 6/1/2010 | Several badger forage holes. Rechecked 06/26/10. No owl sign. |
| 18 | 389038 | 3884885 | Burrow | Badger | 6/1/2010 | Badger burrow. End not visible. Forage holes. Rechecked 06/26/10. No owl sign. |
| 19 | 389119 | 3884995 | Burrow | Badger | 6/1/2010 | Several badger forage holes. Rechecked 06/26/10. No owl sign. |
| 24 | 389386 | 3886072 | Burrow | Badger | 6/1/2010 | Old badger forage holes. ~10-20 holes. Rechecked 06/26/10. No owl sign. |
| 25 | 389243 | 3885910 | Burrow | Badger | 6/1/2010 | Several badger forage holes. Rechecked 06/26/10. No owl sign. |
| 30 | 389800 | 3886067 | Burrow | Badger | 6/2/2010 | Badger burrow. End not visible. Rechecked 06/27/10. No owl sign. |
| 31 | 390071 | 3885048 | Burrow | Badger | 6/2/2010 | Badger foraging hole. Rechecked 06/27/10. No owl sign. |
| 32 | 388715 | 3886211 | Burrow | Badger | 6/2/2010 | Badger foraging hole. Rechecked 06/27/10. No owl sign. |
| 35 | 388478 | 3886343 | Burrow | Badger | 6/2/2010 | Badger burrow. End not visible. Rechecked 07/05/10. No owl sign. |
| 36 | 388497 | 3886286 | Burrow | Badger | 6/2/2010 | Badger burrow. End not visible. Forage hole nearby. Rechecked 07/05/10. No owl sign. |
| 41 | 390784 | 3886097 | Burrow | Badger | 6/2/2010 | Badger forage hole. Rechecked 07/05/10. No owl sign. |
| 42 | 389573 | 3884390 | Burrow | Badger | 6/2/2010 | Several badger forage holes. Rechecked 07/05/10. No owl sign. |
| 43 | 389949 | 3884853 | Burrow | Badger | 6/2/2010 | Several badger forage holes. Rechecked 07/05/10. No owl sign. |
| 44 | 389832 | 3884413 | Burrow | Badger | 6/2/2010 | Several badger forage holes. Rechecked 07/05/10. No owl sign. |
| 45 | 389948 | 3884565 | Burrow | Badger | 6/2/2010 | Several badger forage holes. Rechecked 07/05/10. No owl sign. |
| 49 | 389299 | 3885941 | Burrow | Badger | 7/5/2010 | Two badger forage holes. No owl sign. Rechecked on 07/10/2010. |
| 59 | 390372 | 3886219 | N/A | Prairie falcon | 6/26/2010 | Prairie falcon sighted hunting along ridge in Section 34, near met tower. Falcon remained in area for 12 minutes. |
| 1 | 390873 | 3884591 | N/A | Loggerhead shrike | 5/30/2010 | Shrike sitting in Joshua tree. One bird sighted. |

| | | | | | | |
|----|--------|---------|---------|-------------------|-----------|--|
| 9 | 389685 | 3885429 | N/A | Loggerhead shrike | 6/1/2010 | One loggerhead shrike on Joshua tree. |
| 22 | 390141 | 3886125 | N/A | Loggerhead shrike | 6/1/2010 | One shrike on a Joshua tree. |
| 23 | 389744 | 3886184 | N/A | Loggerhead shrike | 6/1/2010 | One shrike in creosote. |
| 29 | 389293 | 3886107 | Burrow | Coyote | 6/1/2010 | Active coyote den. Rechecked 06/26/10. Recent coyote tracks. No owl sign. |
| 48 | 390590 | 3886351 | Shelter | N/A | 6/26/2010 | Concrete slab with suitable owl shelter underneath. Rechecked 07/10/2010. No owl sign. |
| 50 | 391274 | 3885956 | Shelter | N/A | 7/5/2010 | Concrete slab with suitable owl shelter underneath. Rechecked 07/10/2010. No owl sign. |
| 51 | 391276 | 3886218 | Shelter | N/A | 7/5/2010 | Concrete slab with suitable owl shelter underneath. A few whitewash on nearby rock. Species undetermined. Rechecked 07/10/2010. No new sign. |
| 52 | 391013 | 3885903 | Shelter | N/A | 7/5/2010 | Concrete slab with suitable owl shelter/burrow underneath. Rechecked 07/10/2010. No owl sign. |
| 53 | 391118 | 3886323 | Shelter | N/A | 7/5/2010 | Concrete slab with suitable owl shelter/burrow underneath. Rechecked 07/11/2010. No owl sign. |
| 54 | 391017 | 3886328 | Shelter | N/A | 7/5/2010 | Concrete slab with suitable owl shelter/burrow underneath. Rechecked 07/11/2010. No owl sign. |
| 55 | 390914 | 3886102 | Shelter | N/A | 7/5/2010 | Concrete slab with suitable owl shelter/burrow underneath. Rechecked 07/11/2010. No owl sign. |
| 56 | 390795 | 3886087 | Shelter | N/A | 7/5/2010 | Concrete slab with suitable owl shelter/burrow underneath. Rechecked 07/11/2010. No owl sign. |
| 57 | 390783 | 3886292 | Shelter | N/A | 7/5/2010 | Concrete slab with suitable owl shelter/burrow underneath. Rechecked 07/11/2010. No owl sign. |
| 58 | 390591 | 3886119 | Shelter | N/A | 7/5/2010 | Concrete slab with suitable owl shelter/burrow underneath. Rechecked 07/11/2010. No owl sign. |

Discussion of Results:

Burrowing owl sign was detected during the survey. However, no breeding burrowing owls were encountered during the survey effort. One burrowing owl was incidentally detected in polygon A during a point count survey in March 2010 by WEST. Based on this information, the site would be considered occupied burrowing owl habitat. The amount of sign associated with the burrow in polygon C, record #46, suggests the owl was present for several months. The owl may have been a migrating or wintering owl. The owl sighted by WEST in polygon A, record #33, was detected during March. The burrow location had minimal whitewash, which suggests the owl was present for approximately 1-2 months at this location. Given the time of year, the owl may have been migrating through the site or it was an unmated bird attempting to find a mate. Based on the distance between the two known owl burrows, it is likely these are two separate individuals using separate territories.

The possibility of burrowing owls returning to the site and/or breeding on the site is a possibility. Currently, the Mojave Desert is experiencing an increase in rodent populations due to above average rainfall in 2009-2010, which suggests predator populations, such as coyote, kit fox, rattlesnakes and birds of prey, are on the rise as well (R. young, pers. observ.). Burrowing owl populations in the desert may continue to expand over the next 1-2 years. Due to the presence of owl sign within the project area, the site provides suitable habitat and breeding owls may use the site in the future if surrounding owl populations expand into the area.

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Western Ecosystems Technology, Inc. (WEST)

Wildlife Studies for the Sun Creek Wind Resource Area Kern County, California
Winter Interim Report May 2009 - January 2010, May 2010.

This concludes the burrowing owl phase IV survey report for the 992-acre biological survey corridor within the eastern portion of the SCWRA.

Certification: *I hereby certify that the statements furnished above and in the attached exhibits present the data and information presented are true and correct to the best of my knowledge and belief. Field work conducted for this assessment was performed by me or under my direct supervision. I certify that I have not signed a non-disclosure or consultant confidentiality agreement with the project applicant or applicant's representative and that I have no financial interest in the project.*

Date: July 29, 2010

Signature: _____

Ryan Young, Senior Biologist & Principal



Figure A: Topographic View of the SCWRA Project Site and Burrowing Owl Survey Polygons

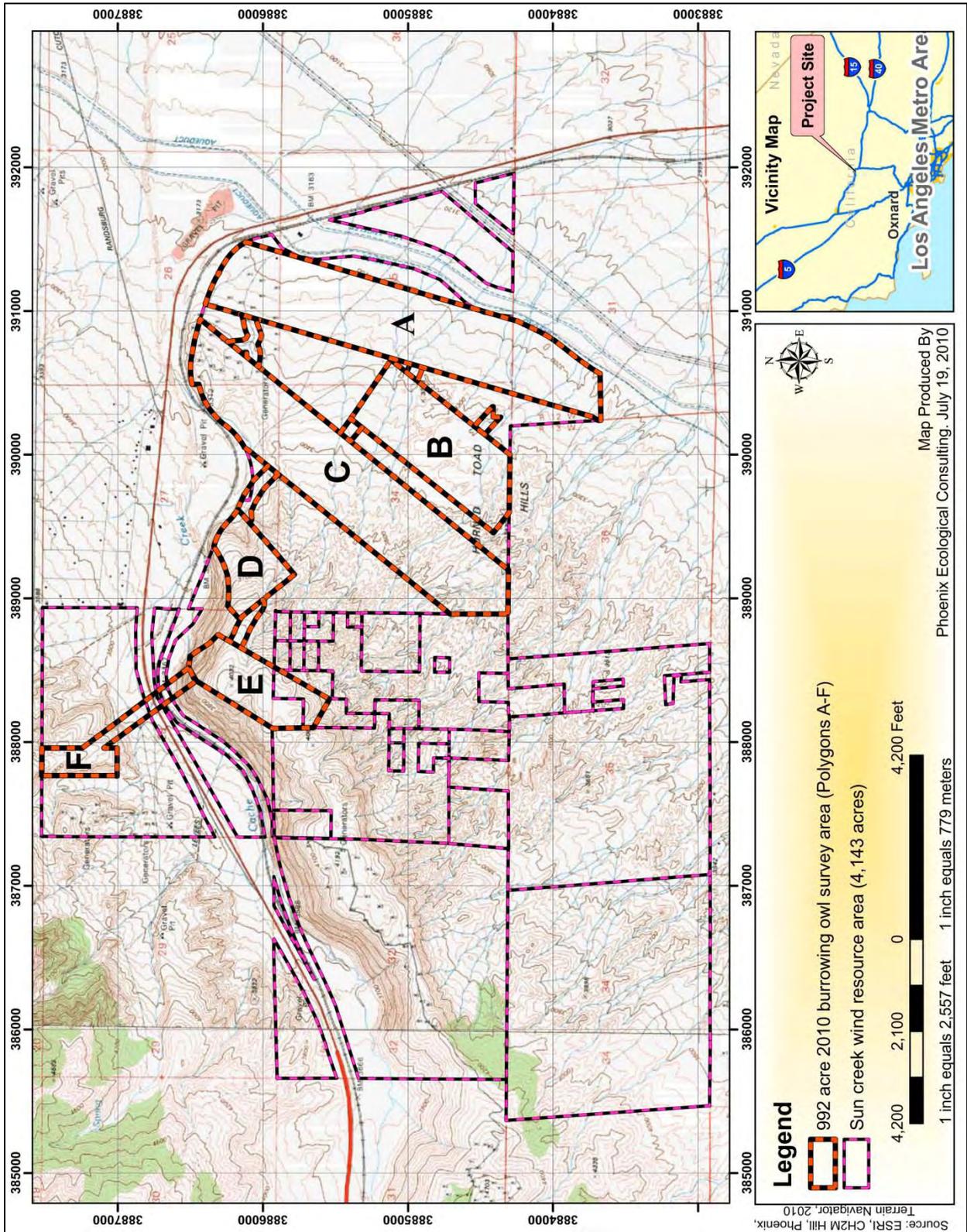


Figure B: Aerial View of 992-Acre Survey Area, Suitable Burrows and Owl Burrows

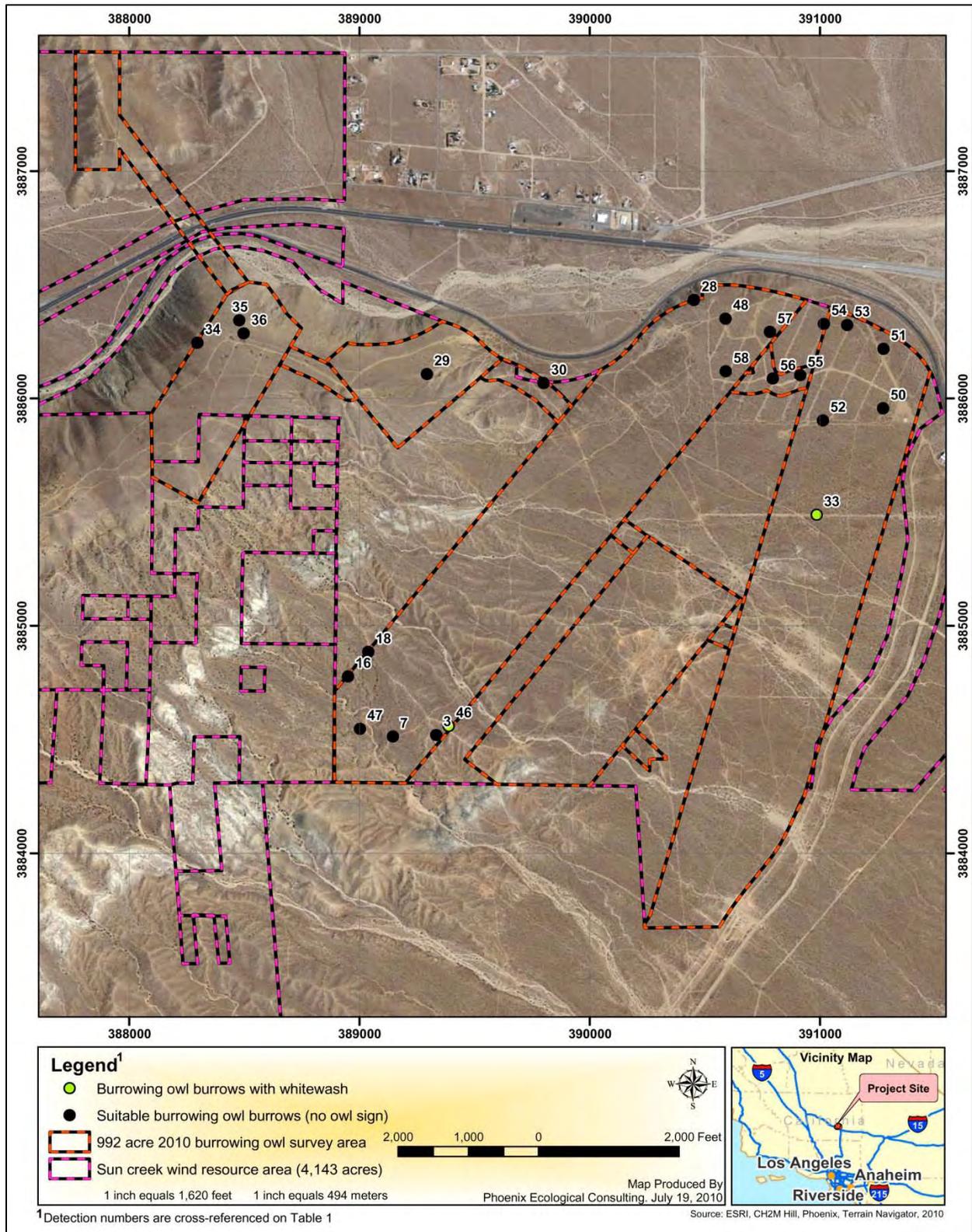


Figure C: Aerial View of 992 Acre Survey Area and Incidental Detections

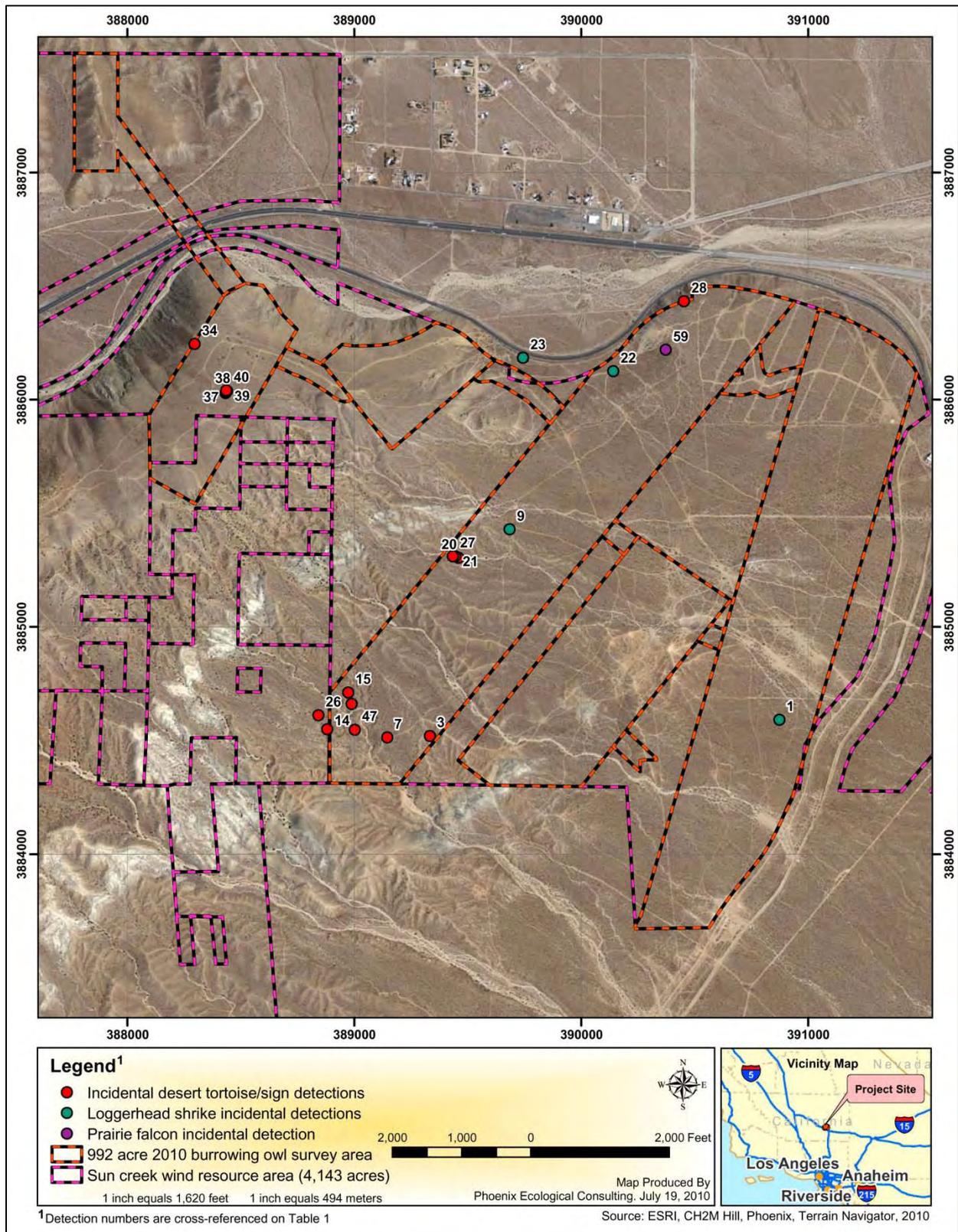


Figure D: CNDDDB Burrowing Owl Occurrences for SCWRA

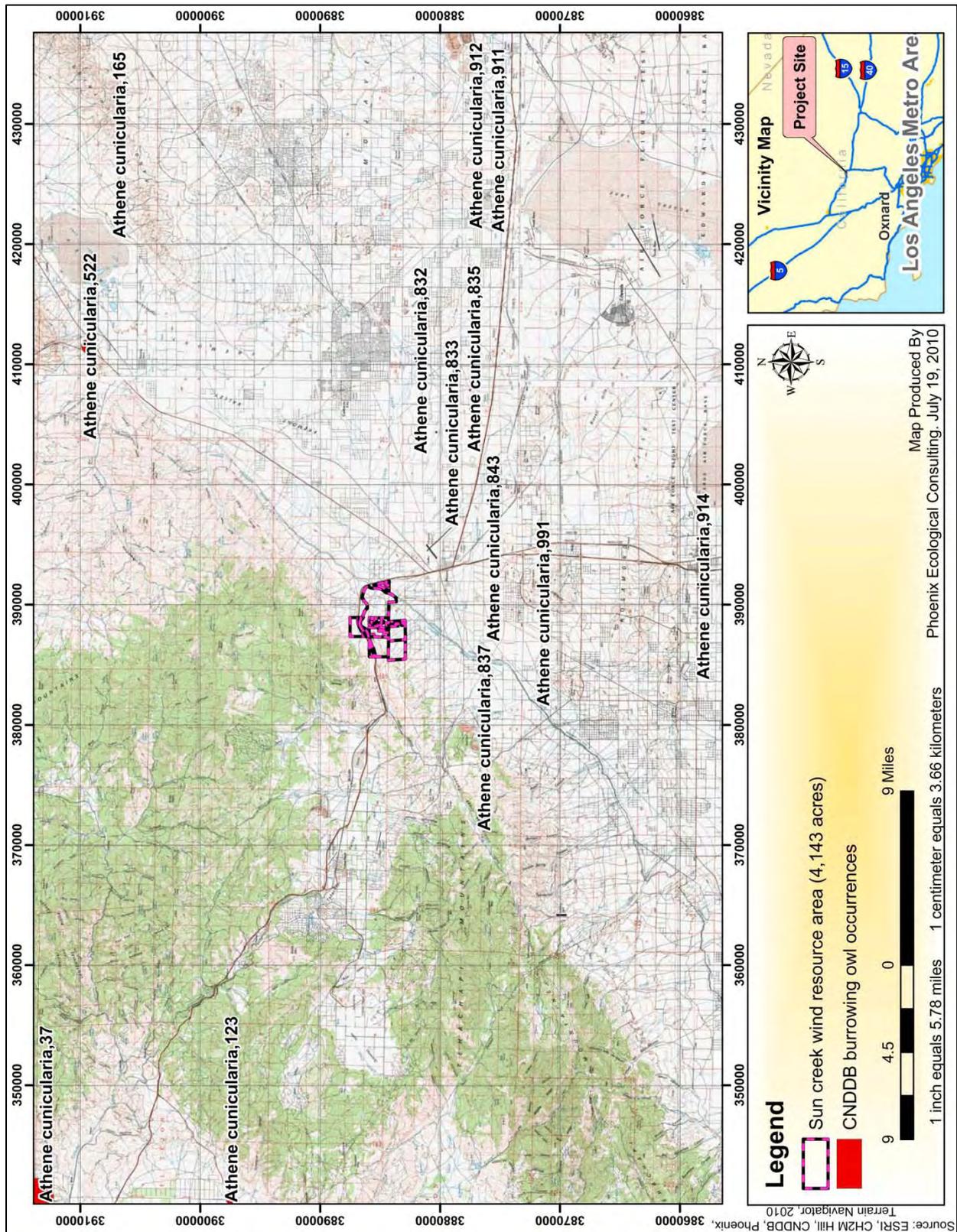


Figure E: Photos of Burrowing Owl Sign

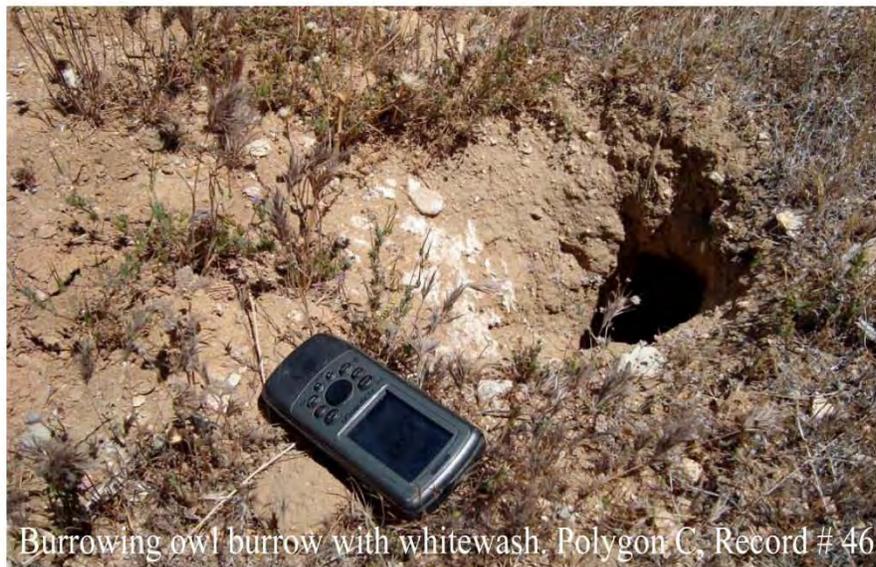
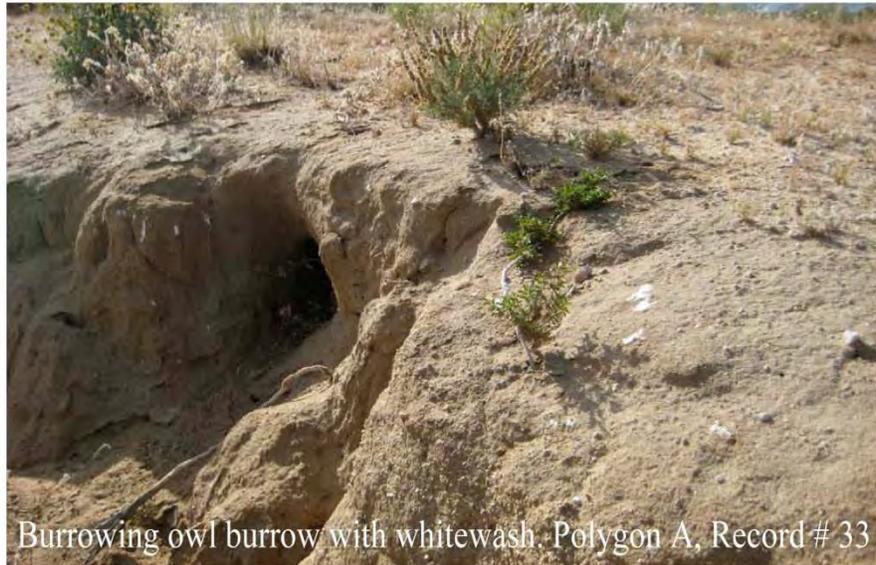


Figure F: Habitat Photos of Polygon A-D

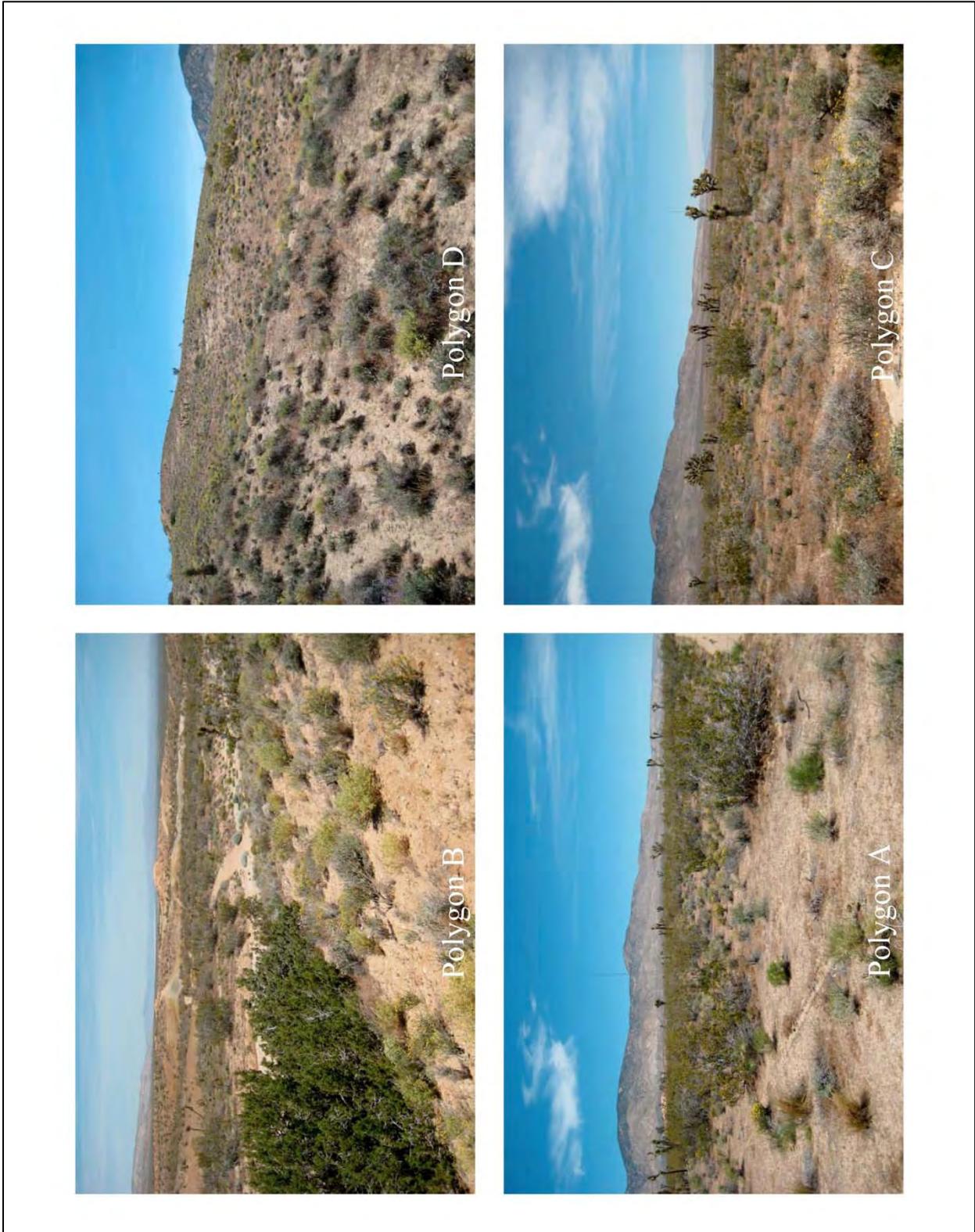


Figure G: Habitat Photos of Polygon E-F

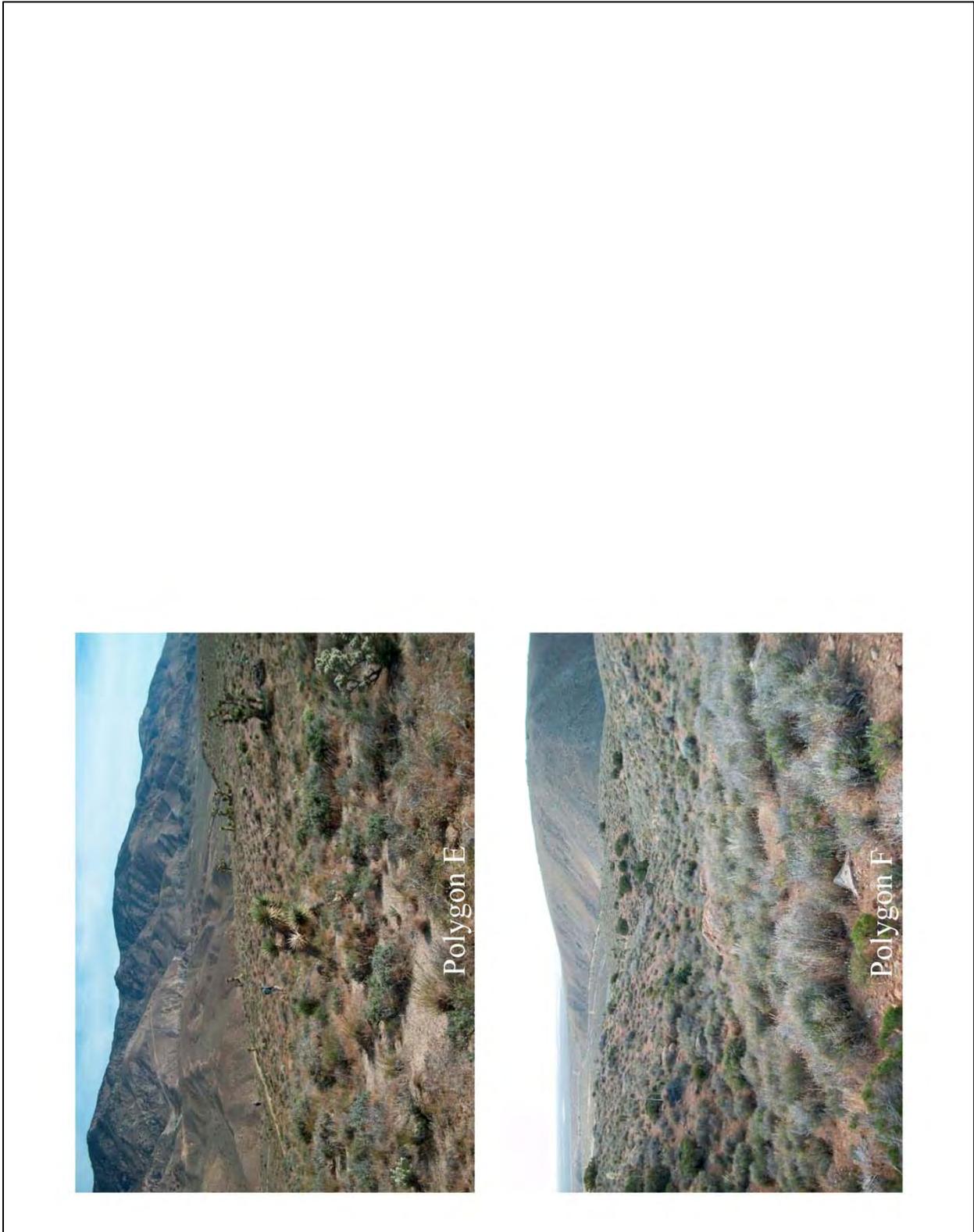


Figure H: Incidental Tortoise/Sign Detection Photos

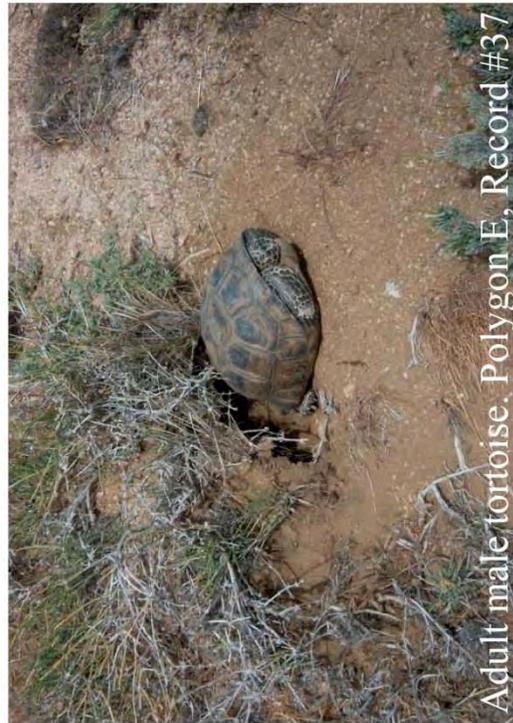
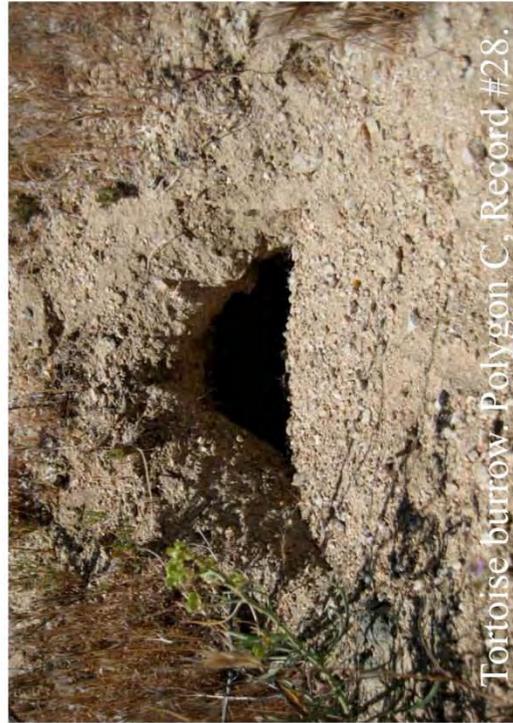


Table 2: Vertebrates Detected During the SCWRA Surveys

| |
|--|
| Mammals |
| American badger (<i>Taxidea taxus</i>) |
| Antelope ground squirrel (<i>Ammospermophilus leucurus</i>) |
| Black tailed jack rabbit (<i>Lepus californicus</i>) |
| California ground squirrel (<i>Spermophilus beecheyi</i>) |
| Coyote (<i>Canis latrans</i>) |
| Desert woodrat (<i>Neotoma lepida</i>) |
| Merriam's Kangaroo rat (<i>Dipodomys merriami</i>) |
| Birds |
| Ash-throated flycatcher (<i>Myiarchus nuttingi</i>) |
| Black throated sparrow (<i>Amphispiza bilineata</i>) |
| Burrowing owl (<i>Athene cunicularia</i>) |
| Cactus wren (<i>Campylorhynchus brunneicapillus</i>) |
| California quail (<i>Callipepla gambelii</i>) |
| Cliff swallow (<i>Petrochelidon pyrrhonota</i>) |
| Common Raven (<i>Corvus corax</i>) |
| Costa's hummingbird (<i>Calypte costae</i>) |
| Horned lark (<i>Eremophila alpestris</i>) |
| House finch (<i>Carpodacus mexicanus</i>) |
| Ladder-backed woodpecker (<i>Picoides scalaris</i>) |
| Lark sparrow (<i>Chondestes grammacus</i>) |
| Lesser nighthawk (<i>Chordeiles acutipennis</i>) |
| Lesser yellowlegs (<i>Tringa flavipes</i>)-flying over site. |
| Loggerhead shrike (<i>Lanus ludovicianus</i>) |
| Mourning dove (<i>Zenaida macroura</i>) |
| Northern mockingbird (<i>Mimus polyglottos</i>) |
| Prairie falcon (<i>Falco mexicanus</i>) |
| Rock wren (<i>Salpinctes obsoletus</i>) |
| Sage sparrow (<i>Amphispiza belli</i>) |
| Scott's oriole (<i>Icterus parisorum</i>) |
| Verdin (<i>Auriparus flaviceps</i>) |
| Western tanager (<i>Piranga ludoviciana</i>) |
| White-throated swift (<i>Aeronautes saxatalis</i>) |
| Reptiles |
| Desert iguana (<i>Dipsosaurus dorsalis</i>) |
| Desert spiny lizard (<i>Sceloporus magister</i>) |
| Desert tortoise (<i>Gopherus agassizii</i>) |
| Great basin collared lizard (<i>Crotophytus bicintores</i>) |
| Gopher snake (<i>Pituophis catenifer</i>) |
| Mojave rattlesnake (<i>Crotalus scutulatus</i>) |
| Side-blotched lizard (<i>Uta stansburiana</i>) |
| Western whiptail (<i>Cnemidophorus tigris</i>) |
| Zebra-tailed lizard (<i>Callisaurus draconoides</i>) |

Table 3: Vascular Plants Detected During the SCWRA Surveys

| FAMILY | Species | Common Name | Habit |
|-----------------------|--------------------------------------|------------------------|-----------------|
| APIACEAE | <i>Lomatium mohavense</i> | Desert parsley | annual |
| ASCLEPIADACEAE | <i>Asclepias vestita</i> | Woolly milkweed | perennial |
| ASTERACEAE | <i>Acamptopappus sphaerocephalus</i> | Golden heads | perennial shrub |
| | <i>Ambrosia acanthicarpa</i> | Annual bursage | annual |
| | <i>Ambrosia dumosa</i> | White bur-sage | perennial shrub |
| | <i>Ambrosia salsola</i> | Cheesebush | perennial shrub |
| | <i>Anisocoma acaulis</i> | Scale bud | annual |
| | <i>Artemisia tridentata</i> | Great-basin sagebrush | perennial shrub |
| | <i>Camissonia campestris</i> | Sun cups | annual |
| | <i>Chaenactis fremontii</i> | Fremont pincushion | annual |
| | <i>Chrysothamnus nauseosus</i> | Rubber rabbitbush | perennial shrub |
| | <i>Encelia farinosa</i> | Brittlebush | shrub |
| | <i>Eriastrum saphrinium.</i> | Unknown eriastrum | perennial |
| | <i>Ericameria cooperii</i> | Golden bush | perennial shrub |
| | <i>Eriophyllum pringlei</i> | Pringle's woolly daisy | annual |
| | <i>Eriophyllum wallacei</i> | Wallace's eriophyllum | annual |
| | <i>Erocameria linearifolia</i> | Interior goldenbush | perennial shrub |
| | <i>Gutierrezia sarothrae</i> | Snakeweed | subshrub |
| | <i>Lasthenia californica</i> | Goldfields | annual |
| | <i>Layia glanulosa</i> | White tidy-tips | annual |
| | <i>Lepidospartum squamatum</i> | Scale broom | perennial |
| | <i>Lessingia lemmonii</i> | Vinegar weed | annual |
| | <i>Malacothrix glabrata</i> | Desert dandelion | annual |
| | <i>Stephanomeria pauciflora</i> | Wire lettuce | annual |
| | <i>Tetradymia axillaris</i> | Cotton thorn | perennial shrub |
| | <i>Xylorhiza tortifolia</i> | Mojave aster | perennial shrub |
| BORAGINACEAE | <i>Amsinckia tessellata</i> | Fiddleneck | annual |
| | <i>Cryptantha pterocarya.</i> | Forget-me-not | annual |
| | <i>Pectocarya penicillata</i> | | annual |
| | <i>Plagiobothrys sp.</i> | Popcorn flower | annual |
| BRASSICACEAE | <i>Arabis pulchra</i> | Prince's rock-cress | perennial |
| | <i>Brassica toumeforti</i> | African mustard | annual |
| | <i>Descurania pinnata</i> | Tansy mustard | annual |

| | | |
|---------------------------------|---------------------|-----------------|
| <i>Lepidium fremontii</i> | Bush peppergrass | shrub |
| <i>Sisymbrium altissimum*</i> | Tumble mustard | annual |
| <i>Sisymbrium orientale*</i> | Eastern rocket | annual |
| <i>Stanleya pinnata</i> | Prince's plume | annual |
| CACTACEAE | | |
| <i>Opuntia basilaris</i> | Beavertail cactus | perennial |
| <i>Opuntia echinocarpa</i> | Silver cholla | perennial |
| CHENOPODIACEAE | | |
| <i>Atriplex canescens</i> | Four wing saltbush | perennial shrub |
| <i>Grayia spinosa</i> | Spiny hopsage | perennial shrub |
| <i>Krasheninnikovia lanata</i> | Winterfat | perennial shrub |
| <i>Salsola tragus*</i> | Russian thistle | annual |
| CUCURBITACEAE | | |
| <i>Marah fabaceus</i> | California man-root | perennial |
| CUPRESSACEAE | | |
| <i>Juniperus californica</i> | California juniper | shrub or tree |
| EPHEDRACEAE | | |
| <i>Ephedra nevadensis</i> | Mormon tea | perennial shrub |
| EUPHORBIACEAE | | |
| <i>Chamaesyce albomarginata</i> | Rattlesnake weed | annual |
| FABACEAE | | |
| <i>Astragalus lentiginosus</i> | Milvetch | annual |
| GERANIACEAE | | |
| <i>Erodium cicutarium*</i> | Red-stemmed filaree | annual |
| HYDROPHYLLACEAE | | |
| <i>Nama demissum</i> | Purple mat | annual |
| <i>Nemophila menziesii</i> | Baby blue-eyes | annual |
| <i>Phacelia crenulata</i> | | annual |
| <i>Phacelia distans</i> | Distant phacelia | annual |
| <i>Phacelia fremontii</i> | | annual |
| <i>Pholistoma membranaceum</i> | | annual |
| LAMIACEAE | | |
| <i>Marrubium vulgare</i> | Horehound | perennial |
| <i>Salazaria mexicana</i> | Bladder sage | |
| <i>Salvia carduacea</i> | Thistle sage | annual |
| <i>Salvia columbariae</i> | Chia | |
| <i>Salvia dorrii</i> | Purple sage | perennial |
| <i>Salazaria mexicana</i> | Bladder sage | perennial |
| LILIACEAE | | |
| <i>Calochortus kennedyi</i> | Mariposa lily | annual |
| <i>Dichelostemma capitatum</i> | Desert hyacinth | annual |
| <i>Yucca brevifolia</i> | Joshua Tree | Tree |
| LOASACEAE | | |

| | | |
|--|----------------------|---------------------|
| <i>Mentzelia obscura</i> | mentzelia | annual |
| MALVACEAE | | |
| <i>Eremalche exilis</i> | | annual |
| NYCTAGINACEAE | | |
| <i>Mirabilis bigelovii</i> | Wishbone bush | perennial |
| ONAGRACEAE | | |
| <i>Camissonia campestris</i> | Mojave sun cups | annual |
| <i>Camissonia claviformis</i> | Brown-eyed primrose | annual |
| <i>Oenothera sp.</i> | Evening primrose | perennial |
| PAPERVACEAE | | |
| <i>Escholtzia minutifolia</i> | Small-flowered poppy | annual |
| POACEAE | | |
| <i>Achnatherum hymenoides</i> | Indian ricegrass | perennial |
| <i>Achnatherum speciosum</i> | Desert needlegrass | perennial |
| <i>Bromus madritensis ssp. rubens*</i> | Red brome | annual |
| <i>Bromus tectorum*</i> | Cheat grass | annual |
| <i>Schismus arabicus*</i> | Arabian grass | annual |
| POLEMONIACEAE | | |
| <i>Eriastrum saphirinum.</i> | | annual |
| <i>Gilia latiflora</i> | Broad-flowered gilia | annual |
| <i>Linanthus dichotomus</i> | Evening snow | annual |
| <i>Loeseliastrum mathewsii</i> | Desert calico | annual |
| POLYGONACEAE | | |
| <i>Eriogonum fasciculatum</i> | California buckwheat | perennial |
| <i>Eriogonum sp.</i> | Unknown buckwheat | annual |
| <i>Oxytheca perfoliata</i> | | annual |
| <i>Rumex hymenosepalus</i> | Wild-rhubarb | perennial |
| PORTULACACEAE | | |
| <i>Calandrinia ciliata</i> | Red maids | annual |
| ROSACEAE | | |
| <i>Purshia tridentata</i> | Antelope bush | shrub |
| SCROPHULARIACEAE | | |
| <i>Castilleja angustifolia</i> | Desert paintbrush | annual |
| SOLANACEAE | | |
| <i>Datura wrightii</i> | Datura | Annual or perennial |
| <i>Lycium andersonii</i> | Anderson's boxthorn | perennial shrub |
| <i>Lycium cooperi</i> | Cooper's boxthorn | perennial shrub |
| ZYGOPHYLLACEAE | | |
| <i>Larrea tridentata</i> | Creosote | shrub |