Appendix D-16

Desert Tortoise – Burrowing Owl Survey 2010

Desert Tortoise (*Gopherus agassizii*) & Burrowing Owl (*Athene cunicularia*) Protocol Presence/Absence Surveys 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 a protocol desert tortoise (*Goperhus agassizii*) presence/absence survey at a project site known as Sun Creek Wind Resource Area (SCWRA) located northwest of the town of Mojave, CA. Tortoise surveys adhered to the 1992 and 2010 United States Fish and Wildlife Service (USFWS) desert tortoise protocol methodology (USFWS, 1992; USFWS, 2010). Burrowing owl (*Athene cunicularia*) phase II protocol surveys were conducted concurrently. Burrowing owl survey methodology adhered to the California Burrowing Owl Consortium burrowing owl survey guidelines (CBOC, 1993).

The desert tortoise and burrowing owl surveys were conducted during the spring of 2010 from April 24th to May 5th. The survey areas consisted of 1,288 acres within the western portion of the 4,143 acre SCWRA. The survey results for desert tortoise and burrowing owl were negative within the survey areas. Four burrows were detected on site. However, there was no tortoise or owl sign associated with these burrows and the burrows did not appear active.

Introduction and Purpose:

At the request of CH2M Hill Inc., Phoenix Ecological Consulting (Phoenix) initiated a protocol desert tortoise (*Goperhus agassizii*) presence/absence survey at a project site known as Sun Creek Wind Resource Area (SCWRA). Tortoise surveys adhered to the 1992 and 2010 United States Fish and Wildlife Service (USFWS) desert tortoise protocol methodology (USFWS, 1992; USFWS, 2010). Burrowing owl (*Athene cunicularia*) phase II protocol surveys were conducted concurrently. Burrowing owl survey methodology adhered to the California Burrowing Owl Consortium burrowing owl survey guidelines (CBOC, 1993). The project is part of the expanding wind energy complex situated along the foothills of the Tehachapi Mountains. Within the project boundary, the project proponent, Alta Windpower Development, LLC, proposes to install up to 100 3 MW wind turbines. The project site is located in southeastern Kern County, west of the town of Mojave, CA, along the southern edge of highway 58 and west of highway 14 (Figure A). The SCWRA consists of approximately 4,143 acres (the "site") and is located near the western range limits of the desert tortoise with the elevation ranging from 3,600 to 3,900 feet. This report addressed protocol surveys conducted on 1,288 acres within the western portion of the SCWRA (Figure A). Zone-of-Influence (ZOI) surveys and buffer areas were not conducted due to private property restrictions. Habitat within the site and the larger SCWRA consists of Joshua /Juniper tree woodland, Mojave mixed woody scrub and creosote scrub.

Habitat and Land Use:

The SCWRA is situated along a middle-upper bajada with soils ranging from hard-packed granitic alluvium to sandy-loam at lower elevations. The area is referred to as the Horned-Toad Hills on the Mojave 7.5 minute quadrangle topographic map (Figure A). The 1,288 acre survey area is situated in Section 32, 33 and 34, Township 32 South & 12 North & Range 13 West, within the Mojave quadrangle. The entire 4,143 acres include sections 26-28 & 31-35. The drainages that bisect the site tend to flow in a northwest to southeasterly direction. Soils

within existing washes are sandy with low density cobble/pebble matrix. The aspect is southeasterly throughout the 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 depicted in Figures D-F.

The vegetation communities included 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 (*Larrea tridentata*), Joshua tree (*Yucca brevifolia*), California juniper (*Juniperus californica*) cheesebush (*Ambrosia salsola*), Cooper's goldfenbush (*Ericameria cooperii*) and California buckwheat (*Eriogonum fasciculatum*). Dominant annuals include Mojave spurge (*Euphorbia incisa*), filaree (*Eriodium cicutarium*), fiddleneck (*Amsinkia tesselata*), *Cryptantha sp.* and *Phacelia distans*. The entire list of vascular plants and vertebrate species, detected during the tortoise surveys, can be found on Table 2 & 3.

The elevation ranges from 3,600 feet, along the southern edge, to 3,900 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 and utility corridors. There is existing wind turbines located in Section 32, along the ridge of the horned toad hills, adjacent to highway 58.

Desert Tortoise Species Description

The desert tortoise (*Gopherus agassizii*) is a desert dwelling reptile with large elephantine appendages and a dome-shaped shell. Desert tortoise range includes most of the Mojave and Colorado deserts in California. It is inhabits portions of Nevada, Arizona and Mexico. It was listed, by emergency rule, as an endangered species by the USFWS in August 4, 1989 and later downgraded to threatened status on April 2, 1990. It is also listed as threatened species by the California Department of Fish and Game (CDFG). Several human induced factors have led to their demise: urban development in the desert, OHV use, livestock, collecting and

poaching and increased Common Raven (*Corvus corax*) populations which predate on juvenile and immature tortoises. Other factors which have had a negative effect on desert tortoise populations include diseases such as *Mycoplasma agassizii*, herpes virus and shell diseases such as cutaneous dyskeratosis. Although, it is believed these diseases may have been around for several decades, when combined with environmental stress factors such as drought, air pollution and increased predation from ravens and dogs the otherwise and somewhat previous acceptable levels of disease and mortality within the population began to increase rapidly. Large die-offs in the populations were reported in the 1980s and 1990s during study plots conducted by Dr. Kristin Berry and others in the California deserts which has led to further concern for their long-term viability. Natural predators include coyotes, mountain lions and badgers.

Desert tortoise habitat can include desert washes, desert flats, bajadas, alluvial fans, rolling hills, rocky hills and valleys. Vegetation communities that are known to provide suitable habitat include creosote scrub, saltbush scrub, Joshua tree woodlands, Mojave mixed-woody scrub, juniper woodlands and blackbrush scrub within elevations of 300 to 5,000 feet (USFWS, 2010). Preferred tortoise habitat (areas of high density), in the Mojave Desert, typically include areas along mid-upper bajadas with abundant annuals, washes, and friable soils for burrow excavation in the 2,500 to 3,500 elevation zone.

Desert tortoises can be active during any month of the year but usually are dormant through most of the winter months and during hottest periods of the summer. Tortoise activity increases significantly with the onset of spring annual vegetation when temperatures range from the 75-85 °F and during periods of precipitation. Courtship and mating occur during the early spring months and egg-laying can occur during late spring to early summer. Neonates are born in late summer-early fall and usually spend several years occupying rodent burrows and feeding on annuals within close proximity natal burrow. Desert tortoises reach sexual maturity around twelve years of age when they reach a mean carapace length of approximately 160 millimeters. Tortoises live in dirt burrows, caliche caves and rock shelters which can be up to 6-9 meters in length. Their home range may extend to a square mile. Tortoises are thought to live up to 60-80 years in optimum conditions.

Burrowing Owl Species Description

Burrowing owls (*Athene cunicularia*) are a small, long-legged, ground-dwelling owl that occurs from British Columbia, throughout North America and portions of Central and South America. They are typically nocturnal 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 9-11 eggs. Burrow entrances and nests are adorned with cow chips, feathers, grass, 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.

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. 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, wood debris piles and openings beneath cement or asphalt.

In desert scrub habitat, they are usually associated with canid (i.e. 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).

CNDDB Rarefind Database and Literature Review Results

A thorough literature review was conducted prior to the field work to determine the likelihood of desert tortoise and burrowing owl encounters within the project footprint and to assess the location of the site relative to the range of the desert tortoise. Several sources were used in compiling desert tortoise range maps. These include the West Mojave Plan (WEMO) density layers, the California Natural Diversity Database (CNDDB), biological technical reports, from Phoenix and other consulting firms, within the vicinity, and the 2010 USFWS desert tortoise field season protocol range maps.

Desert Tortoise

The CNDDB Rarefind 3 database includes two records in proximity: Occurrence #36 (approximately 2.4 miles to the northeast on BLM land, one adult in 1994) & Occurrence #32 (approximately 6.7 miles to the northeast on BLM land, two juveniles were sighted in 1995 along Barren ridge at mile post 88 of the LA Aqueduct; CNDDB, 2010). In addition, Sundance Biology, Inc. (Sundance) identified five tortoises (four live) in the eastern portion of the SCWRA (Sundance, 2009). According to Bureau of Land Management (BLM) data in WEMO, the majority of the site is located in low density tortoise habitat that is classified as 1-20 tortoises per square mile (BLM, 2002, Figure C). The 2010 USFWS protocol range boundary map indicates the site is within the desert tortoise range with the cutoff occurring approximately 5 miles to west of the site (USFWS, 2010). Furthermore, recent tortoise & burrowing owl surveys conducted by Sundance for the Sun Creek Wind Energy project in 2009 and incidental observations by WEST and Phoenix, in 2010, indicate low density tortoise populations continue to exist in the SCWRA, within fragmented and isolated areas of preferred habitat (Sundance, 2009; West 2010).

Burrowing Owl

The CNDDB Rarefind 3 database includes two burrowing owl records in proximity: Occurrence #837 (approximately 6.4 miles to the southwest, along the railroad crossing at 90th Street West, 1 adult and 3 juvenile owls were flushed in 2005) & Occurrence #843

(approximately 7.7 miles to the southeast on private land, one adult and one juvenile were sighted at Hwy 14 and United Street; CNDDB, 2010).

Furthermore, in March 2010, WEST biologists documented a burrowing owl within the SCWRA located approximately 1.25 miles east of the 1,288-acre survey area addressed in this report (WEST, 2010).

In summary, the site lies along the western range limits of the desert tortoise in low density tortoise habitat and the site lies within the range of the burrowing owl. There are known occurrences of both species within 1.25-7 miles of the project.

Justification, Methodology and Qualifications:

Due to the fact that the proposed site is located within the range of the desert tortoise and the burrowing owl, suitable vegetation habitat types occur on site, and recent tortoise and owl detections have occurred in the project vicinity (Sundance, 2009; WEST, 2010), protocol surveys were implemented during the 2010 survey period. The surveys began on April 24th to May 5th. Survey methodology incorporated the 1992 United Fish and Wildlife Service (USFWS) *Field Survey Protocol For Any Federal Action That May Occur Within The Range Of The Desert Tortoise (USFWS, 1992)*, the 2010 USFWS desert tortoise protocol, *Preparing For Any Action That May Occur Within The Range Of The Mojave Desert T*ortoise (*Gopherus agassizii, USFWS, 2010*) and the *Burrowing Owl Survey Protocol and Mitigation Guidelines* (CBOC, 1993).

Field surveyors included: David Focardi, Jenny Weidensee, Susan Moore, Erin Whitfield, Josh Utter, Brooks Hart, Rebecca Koller and Brett Blosser. The combined desert tortoise and burrowing owl survey experience of the entire crew is 45 years. Furthermore, all members of the survey crew have completed the desert tortoise handling workshop in Ridgecrest, CA through the Desert Tortoise Council.

The surveys methods consisted of walking 10-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. Survey teams used hand-held mirrors to view into any potential burrows. During the survey, the surveyors search images included: live tortoises, tortoise

carcasses, scat, eggshell fragments, courtship rings, burrows, burrowing owls, owl feathers, pellets, owl whitewash (scat) and owl vocalizations. Typically, burrowing owl surveys require 30 meter wide belt transects (CBOC, 1993). The surveyors exceeded the standard burrowing owl surveys by incorporating 10 meter wide transects throughout the site. The 10-meter wide transect distance allowed the surveyors to survey for both ground-dwelling species, concurrently, with a high level of confidence in detection. Surveyors average coverage rate was 1.5 miles per hour, with an average daily coverage rate of 30 acres per day, per person. The surveyors did not conduct zone-of-influence transects nor buffer-zone surveys due to private property restrictions. Furthermore, the surveyors did not survey areas that were too steep to safely navigate across. Areas excluded were located in the northwestern portions of Section 32, along Hwy 58, on a slope greater than 100% (Figure G). The steep terrain may provide tortoise habitat but would be expected to function more as a wildlife corridor rather than suitable foraging habitat. The steep terrain is not likely suitable habitat for burrowing owls.

Weather conditions during the survey effort consisted of an unusually cool, windy, wet conditions. Winter rainfall of 2009-2010 was above average and forage availability for tortoises was abundant. Morning and afternoon temperatures were taken each day to ensure surveys were not conducted beyond upper range temperature limits for the desert tortoise.

Field Survey Results:

Desert Tortoise

Desert tortoises were not detected within the project boundary nor were any tortoise sign (scutes, bones, eggshell fragments, drinking depressions or scat) detected on site. Four burrows were detected during the field effort but there was no tortoise sign associated with these burrows. The four burrow detections were considered possible tortoise burrows but no tortoise or recent activity was associated with these burrows. Three of the burrows appeared inactive and in a slightly deteriorated condition with new annual plant growth at the mouth of the burrow. There was also no sign of fresh dirt/digging at the three burrows. The fourth burrow was a rock burrow that was detected while walking to the polygons. The rock burrow was clear of plants and cobwebs but no tortoise sign was present.

Burrowing Owl

Burrowing owls and their sign were absent from the field surveys. Four burrows were detected during the field effort but there was no whitewash, feathers and owl pellets associated with these burrows. No owl vocalizations were detected during the surveys.

All detections along with incidental biological and/or archaeological detections are listed on Table 1 and plotted on Figure A & B. The detections are cross referenced by their occurrence numbers on Table 1.

Table 1: Detections within the 1,288 acre survey for the SCWRA

#	Easting (NAD 83)	Northing (NAD 83)	Date	Location	Sign Type[1]	Condition of Sign[2]	COMMENTS
Potential Desert Tortoise Detections							
1	388843	3885301	4/24/2010	Sun Creek West	4	5	Possible tortoise burrow in deteriorated condition. (225mmX135mmX1.1m). Annual vegetation at entrance. No disturbed soil. No recent activity. Burrow has tortoise shape.
2	388739	3885055	4/24/2010	Sun Creek West	4	5	Possible tortoise burrow in deteriorated condition. (220mmX100mmXunk). Annual vegetation at entrance. No disturbed soil. No recent activity. Entrance collapsed.
3	388343	3884682	4/25/2010	Sun Creek West	4	5	Possible tortoise burrow in deteriorated condition. (265mmX140mmXunk). Burrow has tortoise shape but spoil pile extends too far. No recent activity. Possible badger burrow.
10	385402	3884187	4/30/2010	Sun Creek West	4	5	Rock burrow. ~1 meter deep. Tortoise shape but no tortoise sign. Clean; no annual plants or cobwebs.
Incidental Detections							
4	386914	3885324	4/26/2010	Sun Creek West	Badger	N/A	Round hole (170mmXunk). Freshly disturbed soil covering annual vegetation.
5	387296	3885371	4/26/2010	Sun Creek West	Golden eagle	N/A	One adult golden eagle soaring far above turbines.
6	386316	3885320	4/27/2010	Sun Creek West	Shrike	N/A	Pair of loggerhead shrikes at this point.
7	386249	3885296	4/27/2010	Sun Creek West	Shrike	N/A	Pair of shrike at this point but separate from #6 above. All four adults seen simultaneously.
8	385774	3885184	4/27/2010	Sun Creek West	Shrike	N/A	One shrike sighted flying from shrub.
11	385736	3883836	5/1/2010	Sun Creek West	Arch	N/A	Two metate locations within 20 meters of each other. 3 holes in pinkish, igneous boulder.

Sign Type[1]	Scat=**1**, Carcass=**2**, Live tortoise=**3**, Burrow=**4**, Pallet=**5**, Den=**6**, Eggshell fragment=**7**, Courtship ring=**8**, *Neotoma* midden w/ tortoise sign=**9**, Drinking depression=**10**
Condition of Sign[2]	A) **Burrows:** active=**1**, good condition (no evidence of recent use)=**2**, deteriorated condition (definitely tortoise, half-moon shape)=**3**, good condition(possibly tortoise)=**4**, deteriorated condition (possibly tortoise)=**5**.
	B) **Scat:** wet/fresh=**1**, dried w/ glaze & some odor, dark brown=**2**, dried no glaze & no odor, signs of bleaching, light brown=**3**, dried, light-light brown to pale yellow, loose material=**4**, bleached=**5**
	C) **Shell remains:** fresh=**1**, normal color; scutes adhere to bone=**2**, scutes peeling off bone=**3**, shell bone breaking apart; growth rings on scutes are peeling=**4**, disarticulated and scattered=**5**.

Discussion of Results:

Desert Tortoise

The surveys were negative for live tortoises or tortoise sign. The lack of tortoise sign, in the form of scat, on a year with above-average rainfall, when forage is abundant, gives support to the argument that the site is situated in low density tortoise habitat. Typically, tortoises will deposit more scat on years of abundant forage, thus increasing the probability of detection. However, the irregular shapes of the survey area polygons and lack of contiguous survey areas, creates the possibility for tortoises to exist along the edge of the project and in-between existing polygons. This assertion is supported by tortoise detections in the eastern portion of the SCWRA, in the Horned Toad Hills, during 2009 desert tortoise survey efforts performed by Sundance and incidental detections by Phoenix and West in 2010. The project proponent will likely be required to obtain an incidental take permit for the SCWRA as desert tortoises have been documented in the eastern portion of the SCWRA (Sundance, 2009).

Burrowing Owl

The surveys were also negative for burrowing owls. No owl sign (i.e. feathers, pellets or whitewash) was detected at the four burrows sites. Burrowing owls have been detected in the area and the site is considered potential burrowing owl habitat (CNDDB 2010, West, 2010). However, the 1,288 site is considered unoccupied at this time.

Literature Cited:

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1998. Surface Management Status Desert Access Guide. California. Desert District Palm Springs. 1:100,000-Scale Topographic Map.

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January 2005. Final Environmental Impact Report and Statement for the West Mojave Plan. Vol. 1A.

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California Burrowing Owl Consortium. Burrowing Owl Survey Procotol and Mitigation Guidelines. April 1993.

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Biogeographic Data Branch, California Natural Diversity Database. Species Animals (883) taxa. 2009.

Grinnell, Joseph & Miller, A. H. The Distribution of the Birds of California. Cooper Ornithological Club, 1994.

Sundance Biology, Inc. Executive Summary for Presence/Absence Survey for the Desert Tortoise on the proposed Alta-Oak Mojave Wind Generation Project, June, 2009.

United States Fish and Wildlife Service

January 1992. Field Survey Protocol for any Federal Action that may occur within the range of the Desert Tortoise.

United States Fish and Wildlife Service

Preparing for any action that may occur within the range of the Mojave desert tortoise (*Gopherus agassizii*), 2010.

United States Fish and Wildlife Service

Desert Tortoise Exclusion Fence Specifications, 2005.

(http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/)

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 desert tortoise presence/absence survey and burrowing owl phase IV survey report for the 1,288 acre survey within the SCWRA in eastern Kern County, California.

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 14, 2010 Signature: _____

Ryan Young, Senior Biologist & Principal

Figure A: Topographic View of SCWRA & Detections within the 1,288 Acre Survey Area

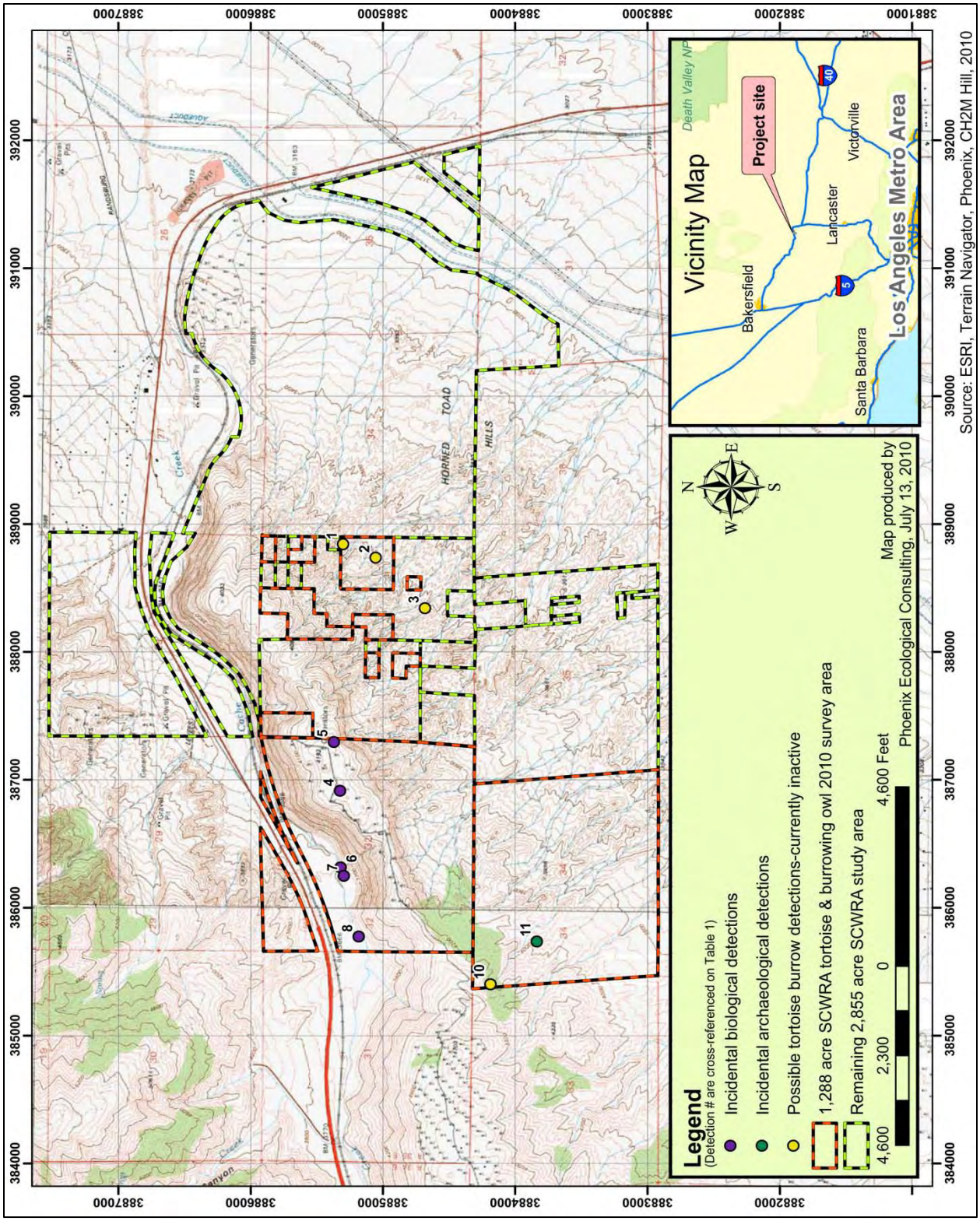

Figure B: Aerial View of SCWRA & Detections within the 1,288 Acre Survey Area

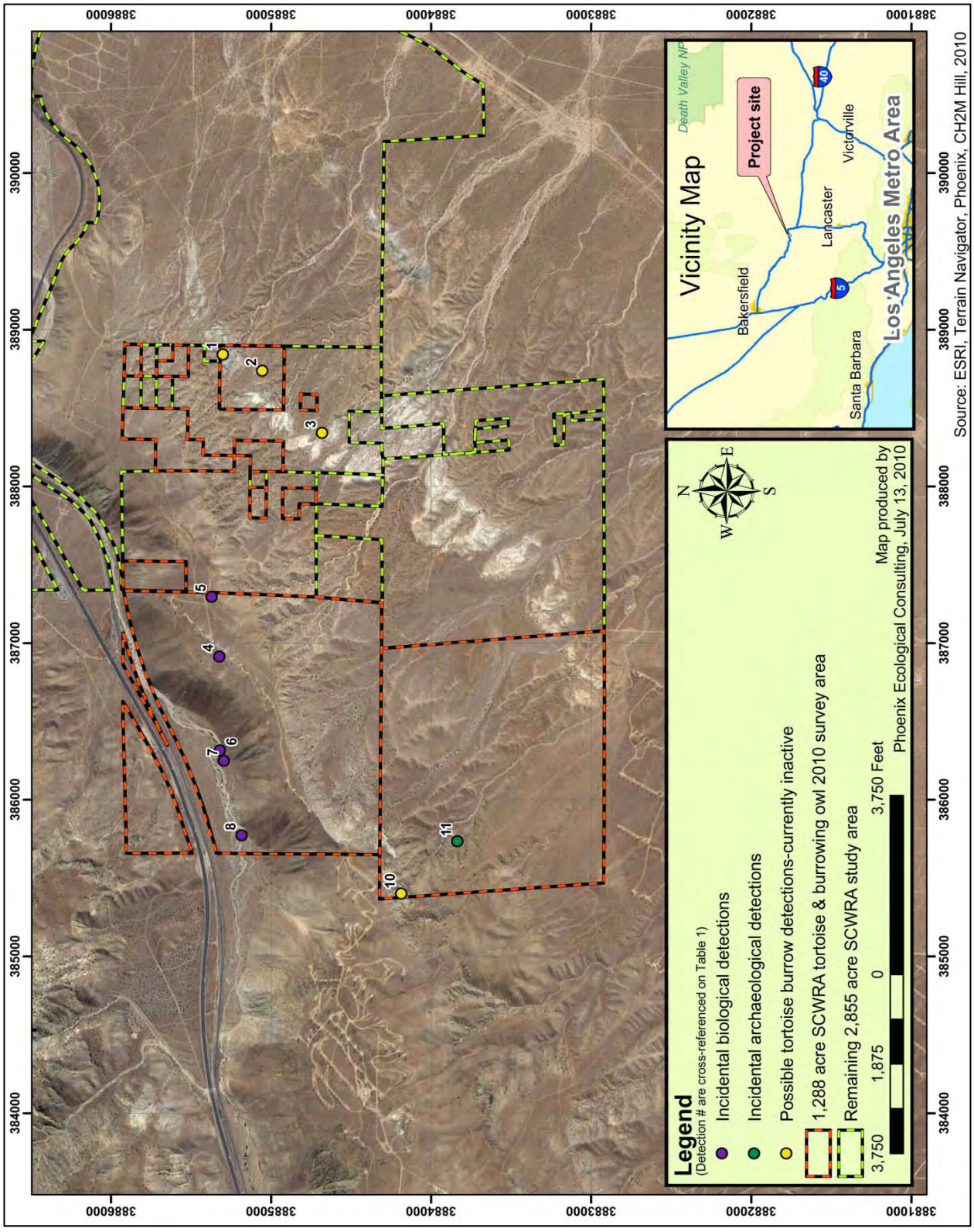

Figure C: Burrowing Owl and Desert Tortoise CNDDB Database & Literature Search Results

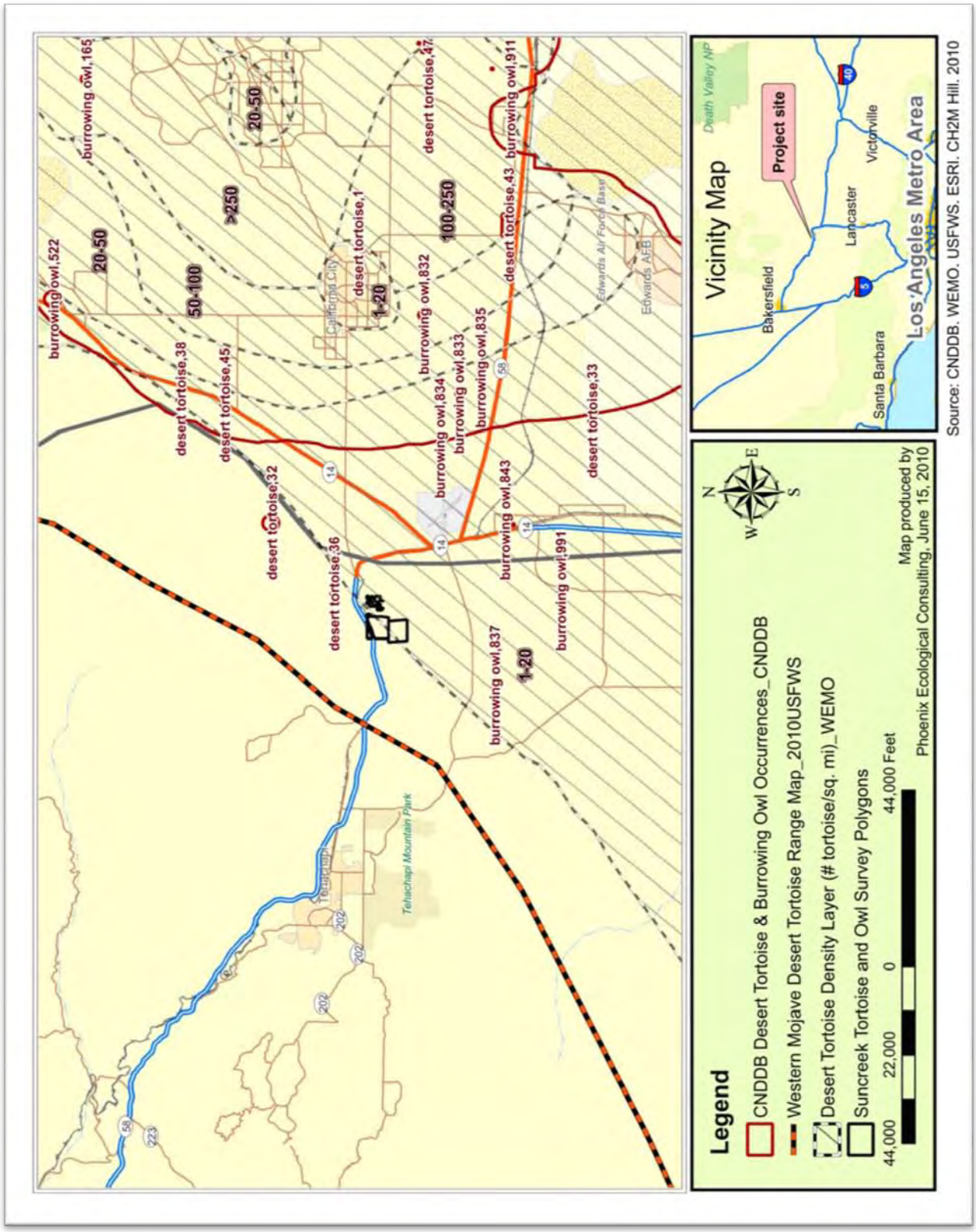

Figure D: Section 32 Habitat Photos

Figure E: Section 33 Habitat Photos

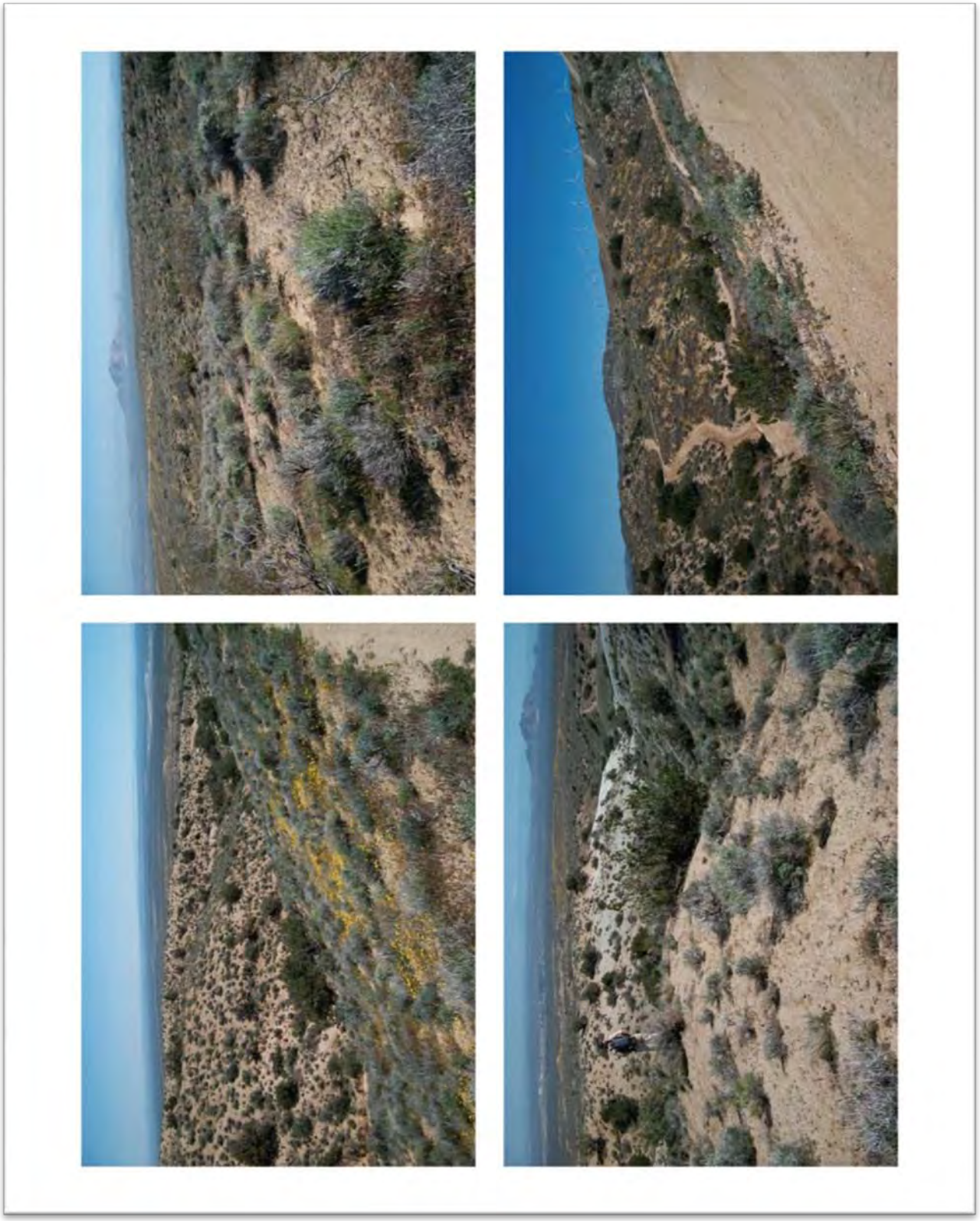

Figure F: Section 34 Habitat Photos

Figure G: Survey Area Excluded Due to Steep Terrain

Table 2: Vertebrates Detected During the SCWRA 1,288 Acre Survey

Mammals
American badger (*Taxidea taxus*)-forage digs
Antelope ground squirrel (*Ammospermophilus leucurus*)
Black tailed jack rabbit (*Lepus californicus*)
California ground squirrel (*Spermophilus beecheyi*)
Coyote (*Canis latrans*)
Desert woodrat (*Neotoma lepida*)
Domestic sheep (*Ovis aries*)-scat only
Kangaroo rat (*Dipodomys sp.*)-scat only
Domestic dog (*Canis familiaris*)
Birds
Ash-throated flycatcher (*Myiarchus nuttingi*)
Bewick's wren (*Thryomanes bewickii*)
Blue-grey gnatcatcher (*Polioptila caerulea*)
Brewer's sparrow (*Spizella breweri*)
Cactus wren (*Campylorhynchus brunneicapillus*)
California quail (*Callipepla gambelii*)
Chipping sparrow (*Spizella passerina*)
Chukar (*Alectoris chukar*)
Cliff swallow (*Petrochelidon pyrrhonota*)
Common Raven (*Corvus corax*)
Gambels quail (*Callipepla gambelli*)
Great egret (*Ardea alba*)
Horned lark (*Eremophila alpestris*)
House finch (*Carpodacus mexicanus*)
Junco, species unknown
Ladder-backed woodpecker (*Picoides scalaris*)
Le Conte's thrasher (*Toxostoma lecontei*)
Lesser goldfinch (*Carduelis psaltria*)
Loggerhead shrike (*Lanus ludovicianus*)
MacGillivray's warbler (*Oporornis tolmiei*)
Mourning dove (*Zenaida macroura*)
Northern harrier (*Cirrus cyaneus*)
Northern mockingbird (*Mimus polyglottos*)
Praire falcon (*Falco mexicanus*)
Red-tailed hawk (*Buteo jamaicensis*)
Sage sparrow (*Amphispiza belli*)
Sage thrasher (*Oreoscoptes montanus*)
Scotts oriole (*Icteru parisorum*)
Scrub jay (*Aphelocoma coerulescens*)
Spotted towhee (*Piplo maculates*)
Tree swallow (*Tachycineta bicolor*)
Turkey vulture (*Cathartes aura*)
Violet-green swallow (*Tachycineta thalasina*)
Western kingbird (*Tyrannus verticalis*)
Western meadowlark (*Sturnella neglecta*)
Western tanager (*Piranga ludoviciana*)
White crowned sparrow (*Zonotrichia leucophrys*)

White-throated swift (*Aeronautes saxatalis*)
Wilson's warbler (*Wilsonia pusilla*)
Yellow-rumped warbler (*Dendroica coronata*)
Reptiles
Desert spiny lizard (*Sceloporus magister*)
Gopher snake (*Pituophis catenifer*)
Long nosed Leopard lizard (*Gambelina wislizenii*)
Night lizard (*Xantusia vigilis*)
Side-blotched lizard (*Uta stansburiana*)
Western whiptail (*Cnemidophorus tigris*)

Table 3: Vascular Plants Detected During the SCWRA 1,288 Acre Survey Area

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

Opuntia echinocarpa	Silver cholla	perennial
CHENOPODIACEAE		
Atriplex canescens	Four wing saltbush	perennial shrub
Grayia spinosa	Spiny hopsage	perennial shrub
Krasheninnikovia lanata	Winterfat	perennial shrub
*Salsola tragus**	Russian thistle	annual
CUCURBITACEAE		
Marah fabaceus	California man-root	perennial
CUPRESSACEAE		
Juniperus californica	California juniper	shrub or tree
EPHEDRACEAE		
Ephedra nevadensis	Mormon tea	perennial shrub
EUPHORBIACAE		
Chamaesyce albomarginata	Rattlesnake weed	annual
FABACEAE		
Astragalus lentiginosus	Milvetch	annual
GERANIACEAE		
*Erodium cicutarium**	Red-stemmed filaree	annual
HYDROPHYLLACEAE		
Nama demissum	Purple mat	annual
Nemophila menziesii	Baby blue-eyes	annual
Phacelia distans		annual
Phacelia fremontii		annual
Pholistoma membranaceum		annual
LAMIACEAE		
Marrubium vulgare	Horehound	perennial
Salazaria mexicana	Bladder sage	
Salvia carduacea	Thistle sage	annual
Salvia columbariae	Chia	
Salvia dorrii	Purple sage	perennial
Salazaria mexicana	Bladder sage	perennial
LILIACEAE		
Calochortus kennedyi	Mariposa lily	annual
Dichelostemma capitatum	Desert hyacinth	annual
Yucca brevifolia	Joshua Tree	Tree
LOASACEAE		
Mentzelia obscura	mentzelia	annual

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