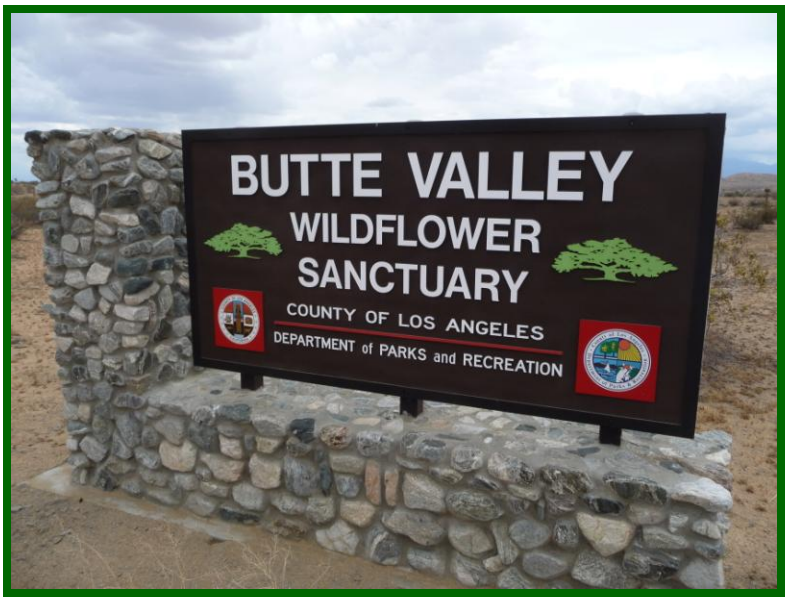
Mohave Ground Squirrel Trapping Results for Butte Valley Wildflower Sanctuary, Los Angeles County, California



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Mohave Ground Squirrel Trapping Results for Butte Valley Wildflower Sanctuary, Los Angeles County, California

1.0. INTRODUCTION

1.1. Purpose and Need for Study. Herein, Edward L. LaRue, Jr., the Principal Investigator under a Memorandum of Understanding (MOU) with the California Department of Fish and Wildlife (CDFW) (expires 4/30/2016), Scientific Collecting Permit Number SC-001544, reports results of trapping surveys to assess the presence of the state-listed, Threatened Mohave ground squirrel (MGS) (*Xerospermophilus mohavensis*) on the subject property. This study, which was completed on the Butte Valley Wildflower Sanctuary (herein "Butte Valley" or "Sanctuary") in northeastern Los Angeles County (Figures 1 through 3), California is authorized under Permit Number 000972.

In recent decades, there have been very few MGS records in the desert region of northeastern Los Angeles County. In spite of protocol trapping efforts since 1998, the only confirmed MGS captures in Los Angeles County have been at several locations in a small area on Edwards Air Force Base (Leitner 2008). Northeastern Los Angeles County, especially the desert habitat surrounding the unincorporated community of Lake Los Angeles, has been identified as an important under-sampled area for the MGS (Leitner 2008, Figure 15). In May 2009, an MGS sighting with photographs in the Phacelia Wildlife Sanctuary (Jack Farley, Los Angeles County Dept. of Parks & Recreation) raised the possibility that the species might still be present on County properties in this area. The Mohave Ground Squirrel Technical Advisory Group (MGS TAG) has also identified northeastern Los Angeles County as a high priority for additional surveys (Phil Leitner, personal communication to LaRue).

Given this information, in March 2014 Circle Mountain Biological Consultants, Inc. (CMBC), for which I am one of two principals, secured six permits from the County of Los Angeles Department of Parks and Recreations (Department) authorizing us to perform exploratory trapping surveys for the MGS for a 10-year period (2014 through 2023) in the following County Parks: Alpine Butte Wildlife Sanctuary Park, Butte Valley Wildflower Sanctuary Park, Carl O. Gerhardy Wildlife Sanctuary Park, Mescal Wildlife Sanctuary Park, Phacelia Wildflower Sanctuary Park, and Thomas Payne Wildlife Sanctuary Park.

Access to study sites was made possible by permits issued by the Department. The permit fees were paid by California State University Stanislaus (CSU Stanislaus) using funding provided by a research grant from CDFW. This report, then, is written on behalf of the Department, CSU Stanislaus, and CDFW to provide them with the results of this investigation. It is intended to serve as a baseline study for the longitudinal monitoring of biological resources and habitat conditions within the Butte Valley Sanctuary. Therefore, in addition to trapping results, we also report common and uncommon plant and animal species. We also performed a standardized disturbance analysis of observable human impacts, which will allow the Department to keep track of changing habitat conditions during the 10-year study period.

Figure 1. Grid Location Map (DeLorme Topo USA® 10.0)

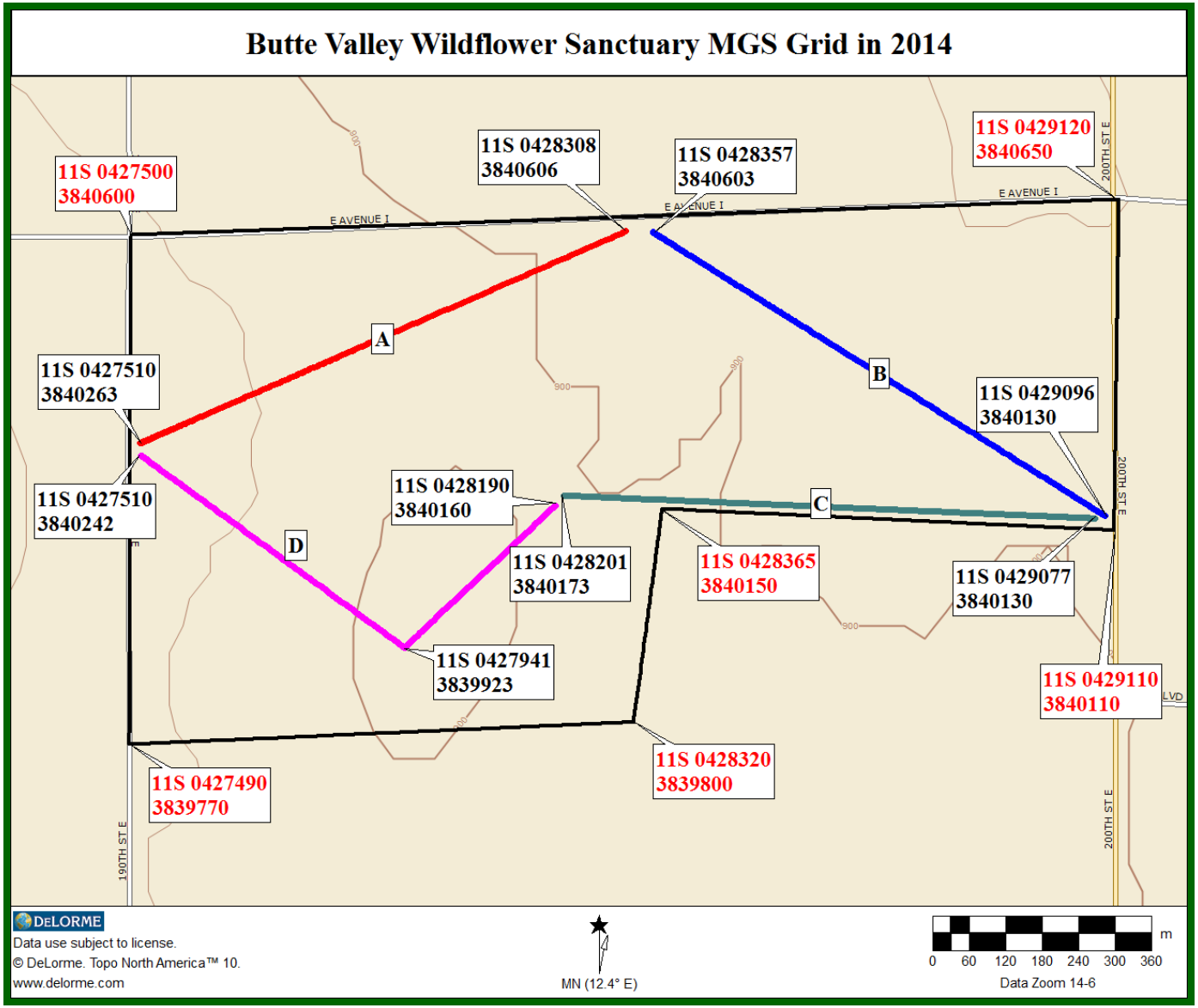


Figure 2. Aerial Overview of Butte Valley Wildflower Sanctuary (Google Earth)

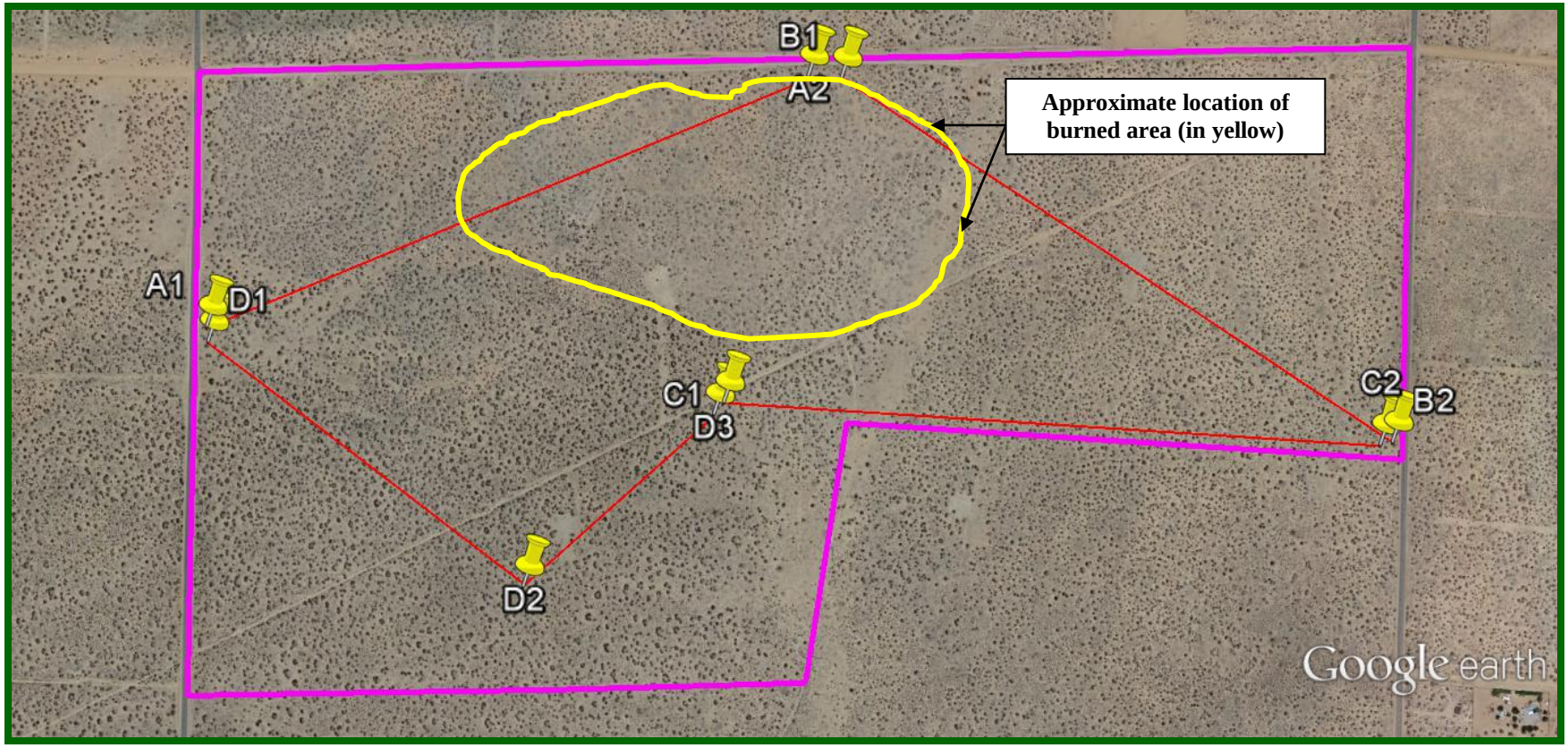
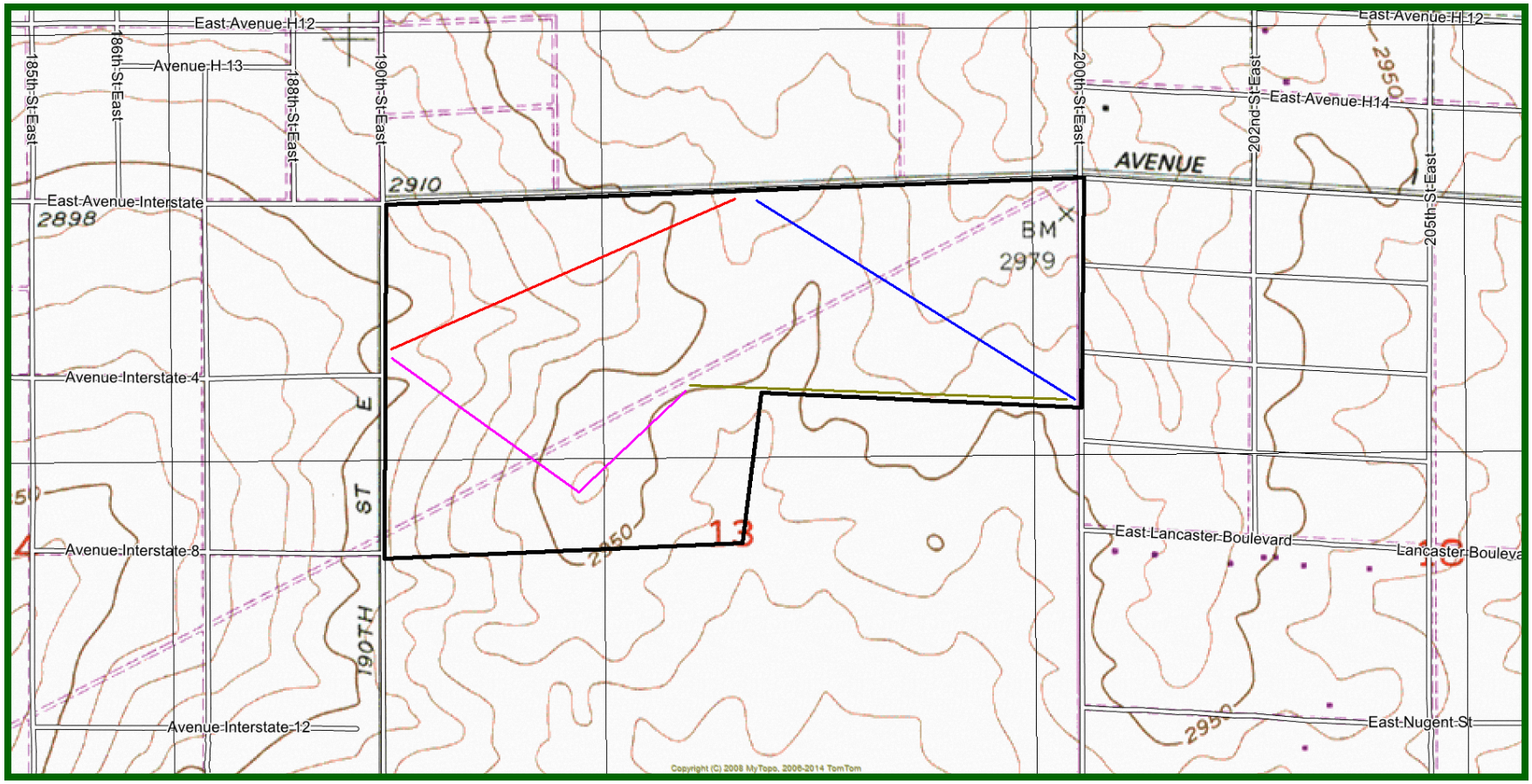


Figure 3. Grid Location on USGS High Vista 7.5' Quadrangle (Terrain Navigator)



The following location information is given for the Butte Valley Wildflower Sanctuary:

Location: Township 7 North, Range 9 West, Section 13, San Bernardino Base & Meridian

Quad map: U.S. Geological Survey Hi Vista 7.5' Quadrangle

UTM (NAD 83) coordinates at center of grid: 0428250 East, 3840365 North

Acreage of subject property: 351 acres±

1.2. Mohave Ground Squirrel Life History Information. The MGS is approximately 20 to 23 centimeters (8 to 9 inches) in length, sandy-colored on top, lighter underneath, with a bi-colored (dark above, light below) tail flattened dorso-ventrally.

© Phil Leitner

The following information is published in various places (e.g., David Laabs' species account published in U.S. Bureau of Land Management 2005), and much of it was in the form of personal communication from Dr. Phil Leitner to LaRue. Following winters of sufficient rainfall [e.g., a minimum of about 7.5 centimeters (3 inches)], MGS emerge in February from dormancy, reproduce, and have a litter of up to nine young in late March to early April; they forego reproduction if there is less than about 3 inches of rainfall. If reproductive, they will remain active into the summer, with adults becoming dormant in June and July and juveniles as late as August; if there is no reproduction, adults will become dormant as early as late May. Their diet consists of seeds, leaves, flowers, and fruits of both annual and perennial plants; arthropods are occasionally taken. Their ability to overwinter depends on achieving a body weight of approximately 180 grams. The MGS is currently listed as Threatened by the California Fish and Game Commission; U.S. Fish and Wildlife Service (USFWS) has declined to list it federally following two petitions, the last of which was in 2005.

2.0. FIELD SURVEY METHODS

2.1. CDFW Standard Trapping Methods. Surveys were conducted, in part, according to the following recommended guidelines, with a few changes: California Department of Fish and Game (currently CDFW), Mohave Ground Squirrel Survey Guidelines (January 2003, revised in 2010). Whereas CDFW methods are intended for *protocol-level* surveys, the current study was more of an *exploratory* survey, so not all conditions were followed. In the following sections, the formal protocol-level method is given in regular font, followed by the implemented methodology shown in *italicized font* immediately following the particular prescription (for those measures that do not apply, "Not applicable" follows the prescription).

1. Visual surveys to determine Mohave ground squirrel activity and habitat quality shall be undertaken the period of 15 March through 15 April. All potential habitat on a project site shall be visually surveyed during daylight hours by a biologist who can readily identify the Mohave ground squirrel and the white-tailed antelope squirrel (*Ammospermophilus leucurus*) [and, more importantly, round-tailed ground squirrel (*Spermophilus tereticaudis*)]. *Not applicable.*

2. If visual surveys do not reveal presence of the Mohave ground squirrel on the project site, standard small-mammal trapping grids shall be established in potential Mohave ground squirrel habitat. The number of grids will depend on the amount of potential habitat on the project site, as determined by the guidelines presented in paragraphs 4 and 5 of these guidelines. *For this and all other surveys on County Parks, a single grid comprised of four gridlines was established.*

3. For linear projects (for example, highways, pipelines, or electric transmission lines), each sampling grid shall consist of 100 Sherman live-traps (or equivalent; the minimum length of any trap is 12 inches) arranged in a rectangular pattern, 4 traps wide by 25 traps long, with traps spaced 35 meters apart along each of the four trap lines. At a minimum, one sampling grid of this type shall be established in each linear mile, or fraction thereof, of potential Mohave ground squirrel habitat along the project corridor. *This measure is not applicable, as none of the Parks is linear.*

4. For all other types of projects, one sampling grid consisting of 100 Sherman live-traps (or equivalent; the minimum length of any trap is 12 inches) shall be established for each 80 acres, or fraction thereof, of potential Mohave ground squirrel habitat on the project site. The traps shall be arranged in a 10 x 10 grid, with 35-meter spacing between traps.

Given the exploratory nature of this study, we chose a more widespread configuration for the 100 Sherman live traps (see Figures 1 though 3). This pattern was chosen using aerial photographs to assess the least disturbed portions of the site. It was also configured to cover as much of the site as possible with proximate beginning and ending points to facilitate a circuitous trap check by a single person.

5. Each sampling grid shall be trapped for a minimum five consecutive days, unless a Mohave ground squirrel is captured before the end of the five-day term on the grid or on another grid on the project site. If no Mohave ground squirrel is captured on a sampling grid on the project site in the first five-consecutive-day term, each sampling grid shall be sampled for a SECOND five-

consecutive-day term. Trapping may be stopped before the end of the second term if a Mohave ground squirrel is captured on any sampling grid on the project site. If no Mohave ground squirrel is captured during the second five-consecutive-day term, each sampling grid shall be sampled for a THIRD five-consecutive -day term. The FIRST trapping term shall begin and be completed in the period of 15 March through 30 April. If a SECOND term is required, it shall begin at least two weeks after the end of the first term, but shall begin no earlier than 01 May, and shall be completed by 31 May. If a THIRD term is required, it shall begin at least two weeks after the end of the second term, but shall begin no earlier than 15 June, and shall be completed by 15 July. All trapping shall be conducted during appropriate weather conditions, avoiding periods of high wind, precipitation, and low temperatures (<50°F or 10°C).

Dr. Leitner has established an exploratory method where a single grid is trapped for five consecutive days. As such, most of the above description does not apply to the current effort. Also, we would not have stopped had a MGS been captured, as we were interested in studying the demographics of the animals, and particularly their reproductive status. Actual dates are reported herein. On the one day where the temperature exceeded 90°F, the traps were closed as per protocol.

6. For projects requiring two or more sampling grids, capture of a Mohave ground squirrel on any grid will establish presence of the species on the project site. Trapping may be stopped on all grids on the project site at that time. For linear projects, very large project sites, project sites characterized by fragmented or highly-heterogeneous habitats, or in other special circumstances, continued trapping may be necessary. *Not applicable.*

7. A maximum 100 traps shall be operated by each qualified biologist. Each trap shall be covered with a cardboard A-frame or equivalent non-metal shelter to provide shade. Trap and shelter orientation shall be on a north-south axis. All traps shall be opened within one hour of sunrise and may be closed beginning one hour before sunset. Traps shall be checked at least once every four hours to minimize heat stress to captured animals. When traps are open, temperature shall be measured at a location within the sampling grid, in the shade, and one foot (approx. 0.3 meters) above the ground at least once every hour. Traps shall be closed when the ambient air temperature at one foot above the ground in the shade exceeds 90°F (32°C). Trapping shall resume on the same day after the ambient temperature at one foot (approx. 0.3 meters) above the ground in the shade falls to 90°F (32°C) and shall continue until one hour before sunset. Suggested baits are mixed grains, rolled oats, or bird seed, with a small amount of peanut butter.

Most of these prescriptions were followed as given, including the number of traps, use of shade structures, trap orientation, and bait type. As reported in the tables below, we did use some discretion as to the beginning and ending of a particular trap day.

8. A qualified biologist shall complete the Survey and Trapping Form, which is found on page 5 of these guidelines. This biologist, or the lead agency for the project, shall submit the completed form to the appropriate Department [CDFW] office (see page 4) with the biological report on the project site. *This form and CMBC's comprehensive field data sheet are included at the end of this report in Appendix A. California Natural Diversity Data Base (CNDDB) forms were submitted as required for observations of two loggerhead shrikes.*

9. The Department [CDFW] may allow variation on these guidelines, with the advance written approval of the appropriate regional habitat conservation planning office (see page 4). Such variations could include biologically-appropriate modification of the trapping dates or changes in grid configuration that would enhance the probability of detecting Mohave ground squirrels. Any variation which concerns trapping or marking methods must be incorporated into the MOU or permit that authorizes the work. *Any variations are reported herein.*

10. If a survey conducted according to these guidelines results in no capture or observation of the Mohave ground squirrel on a project site, this is not necessarily evidence that the Mohave ground squirrel does not exist on the site or that the site is not actual or potential habitat of the species. However, in the circumstance of such a negative result, the Department [CDFW] will stipulate that the project site harbors no Mohave ground squirrels. This stipulation will expire one year from the ending date of the last trapping on the project site conducted according to these guidelines. *Not applicable, as these sites are not intended for development.*

2.2. Project Specific Methods. The grid lines shown in Figures 1 through 3 were established in a clockwise manner, including Lines A, B, C, and D. Individual trap stations were numbered 1 through 25. Since the Butte Valley grid was aligned along an east-west axis, the first trap station at the west end of each line was identified as station 1 and the stations at the east ends were identified as station 25. If an animal was trapped at the fourth station on Line C, for example, that encounter was recorded as C4. Although not required by CDFW methods, we marked each squirrel with a wide felt-tipped marker, first on the right rear flank and again on the left rear flank if trapped a second time; no new marks were applied after the second mark. If not identified as "Recap 1" or "Recap 2," all records are for new animals. Data for all trapped squirrels (and other species) were recorded at the station where they were caught, measurements taken (i.e., weight, sex, reproductive and capture statuses for squirrels), and then released. Abbreviations used in Table 1 for each species captured are defined following the table.

In addition to determining if the MGS occurs at Butte Valley, we collected other biological baseline data that may be useful to the Department and CDFW. As such, Appendix B includes a cumulative list of plants observed during the study and Appendix C includes the animals observed. Assuming a given site will be trapped more than one year, the year is indicated (e.g., "14" for "2014") in the left margin. Photographs were taken in various locations as shown in Figure 5 of Appendix D. On 22 May 2014, I tallied observable human disturbances along the grid lines, including all human impacts observed within approximately 8 meters (25 feet) either side of the transect. On 20 May 2014, I, Sharon Dougherty, and Patricia Seamount surveyed three meandering transects outside the grid lines to identify and map special status resources.

3.0. RESULTS

3.1. Site Description and Location. The following information was determined at the time the site was trapped.

Habitat Description: The site is vegetated by Mojave creosote bush scrub with a Joshua tree overstory. With 14 tree, perennial shrub, grass, and succulent species observed, the site has a moderate-to-high level of perennial diversity. Of the 48 plant species observed, 8 (17%) are not native to California. There are no USGS-designated blueline streams within the Sanctuary boundaries. See Appendix A for all plants and Appendix B for all animals identified during the late-May 2014 survey.

Dominant annuals: Fiddleneck (*Amsinckia tessellata*), red-stemmed filaree (*Erodium cicutarium*), and desert dandelion (*Malacothrix glabrata*).

Dominant perennials: Creosote bush (*Larrea tridentata*), burrobush (*Ambrosia dumosa*), Joshua tree (*Yucca brevifolia*), and winter fat (*Krascheninnikovia lanata*).

Other: Somewhat less common perennial plants include cottonthorn (*Tetradymia* sp.), peach thorn (*Lycium cooperi*), silver cholla (*Cylindropuntia echinocarpa*), Nevada joint-fir (*Ephedra nevadensis*), rubber rabbitbrush (*Chrysothamnus nauseosus*), and cheesebush (*Ambrosia salsola*). There are no streams or rocky areas to support certain plants adapted to those conditions; rather, the site is uniformly sandy. The site has been affected by a previous burn, which was contained within an excavated berm, and is nearly barren in areas in the central-north part of the site.

At his long-term study sites in the Coso Range of China Lake Naval Air Weapons Station near the northern extent of the MGS range, Dr. Leitner has determined that winter fat and spiny hop-sage (*Grayia spinosa*) are important perennial plants for the feeding ecology of the MGS, particularly during dry years. A total of 18 winter fat and no spiny hop-sage plants were observed along the four grid lines. While tallying individual plants along the three meandering transects, LaRue, Dougherty, and Seamount counted 183 winter fat and 24 spiny hop-sage plants, which indicated winter fat is common enough to be considered a dominant perennial species. These plants are widespread, found throughout unburned portions of the Sanctuary.

Given previous human impacts [i.e., dumping along Grid Line A and barren areas through the center of site (Exhibit 5)], the proximity of single-family residences to the northeast and southeast, and the burn that affected northern portions of the site (Exhibit 1), there are both native weed species and exotic species not native to California. The following species would not likely be present if the site were less disturbed by human activities: Tumble mustard (*Sisymbrium altissimum*), tansy mustard (*Descurainia pinnata*), Saharan mustard (*Brassica tournefortii*), and hare barley (*Hordeum murinum*). Other common non-native species found onsite include red brome (*Bromus madritensis* ssp. *rubens*), cheat grass (*Bromus tectorum*), split-grass (*Schismus* sp.), and red-stemmed filaree.

Qualitative description of plant germination: Compared to the Phacelia Wildflower Sanctuary and Carl O. Gerhardy Wildlife Sanctuary, which were also trapped this year, there was only a moderate bloom of annual plants. Most of the creosote bush shrubs were in fruit at the time Butte Valley was trapped, indicating a relatively good blooming year for this species.

Land form: Plain with a slight rise to south

Slope: 0 to 3% **Aspect:** West and northeast **Soil type:** Very sandy

Elevational range: 911 meters (2,987 feet) at the northeast corner down to 884 meters (2,900 feet) near the northwest corner

Total Acres Trapped: Although the site is 351 acres±, assuming a grid length of 11,480 linear feet (3,500 meters) and an effective width of 150 feet (45 meters) either side of the grid line (300 feet or 90 meters), the total acres trapped is estimated to be approximately 80 acres (11,480 linear feet X 300 feet ÷ 43,560 square feet) of the 351-acre site.

Number of trap days (number of days x 100 traps): 500

Dates of trapping session: The grid was set up by LaRue, Dougherty, and Seamount on the evening of 5/19/2014. Trapping occurred each consecutive day between 5/20/2014 and 5/24/2014. The traps were closed early (at 12:30) and removed from the site on 5/24/2014 due to temperatures exceeding 90°F.

Trapping conducted by: Ed LaRue on 5/20, 5/21, 5/22, 5/23, and 5/24/2014; Sharon Dougherty on 5/20 and 5/23/2014; Patricia Seamount on 5/20, 5/21, 5/22, and 5/23/2014; Michel Gallagher on 5/23/2014; and Jean Rhyne on 5/20/2014.

3.2. Other Special Status Species. As shown in Figure 4, two special status species and one special status biological resource were observed or detected during the five-day survey in May 2014. These encounters occurred during surveys that were not as structured as the disturbance analysis described below (e.g., if I observed a suspect creosote bush ring, I inspected it rather than stay on a specific transect and record only objects within a certain distance).

Creosote bush rings greater than 10 feet in diameter are considered by San Bernardino County in their Development Code to be a protectable biological resource, as per Section 88.01.060(c) Regulated Desert Native Plants. As shown in Figure 4, a total of 35 creosote rings was observed and mapped. They appear to be distributed throughout the site, perhaps more common in central and southern portions, and appear to have been eliminated from the burned areas to the north.

Loggerhead shrike (*Lanius ludovicianus*) is designated as a Bird Species of Conservation Concern by USFWS (2008) and as a California Species of Special Concern (CDFW 2014). Two shrikes were observed during the five-day period, as mapped in Figure 4. There are both suitable nesting substrates in the many Joshua trees and suitable foraging habitats throughout the Sanctuary.

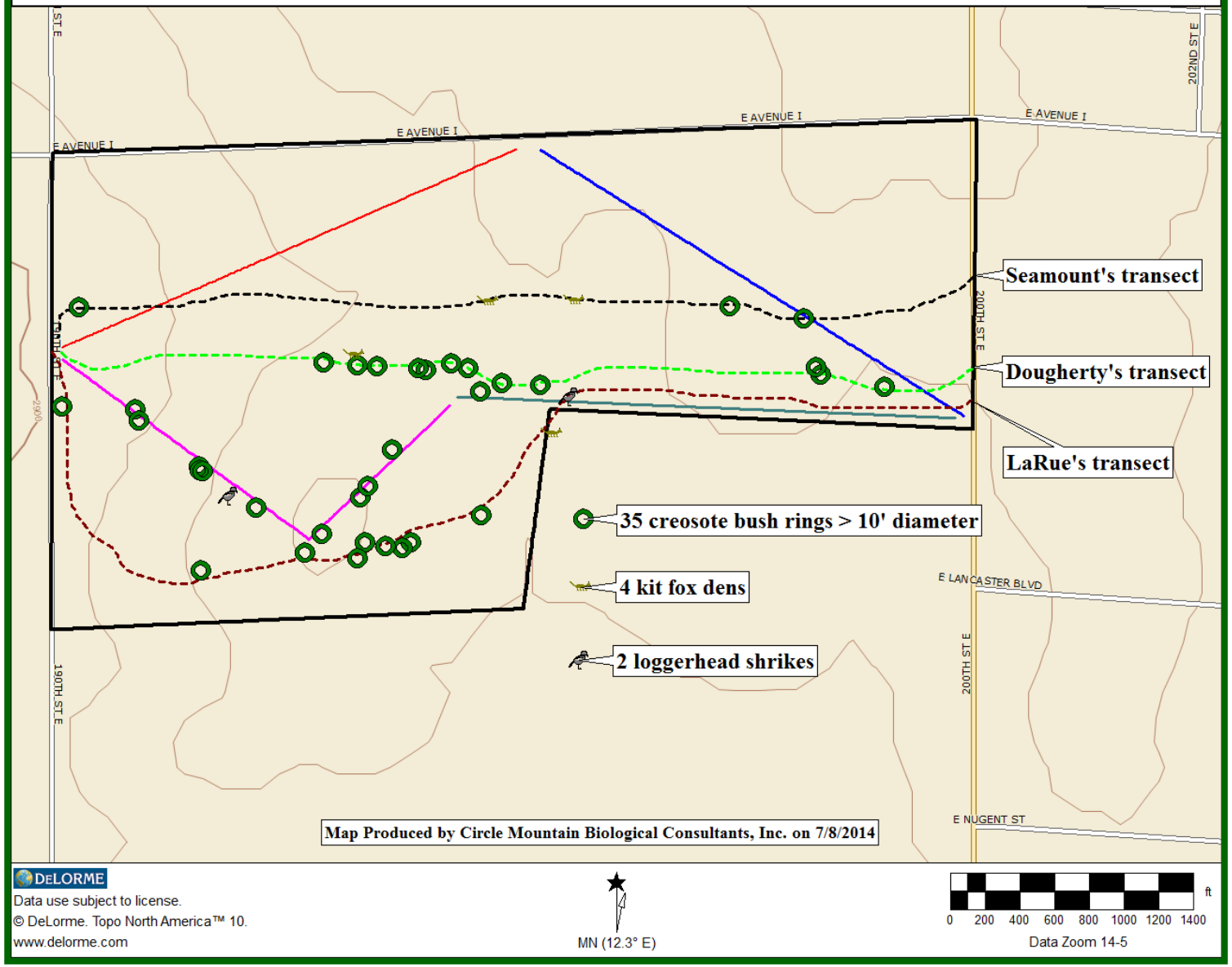
Kit fox (*Vulpes macrotis*) is not designated by the USFWS but as a fur-bearing mammal, is considered a Fully Protected species by the CDFW. Four active kit fox dens were observed as mapped in Figure 4, including several that were just inside the southern perimeter of the burned area.

3.3. Observable Human Impacts. On 5/21/2014, I tallied observable human disturbances found within approximately 8 meters (25 feet) either side of the C and D grid lines and inclusive of the gaps between the ends of lines. The A and B grid lines were similarly assessed for human disturbances on 5/22/2014. The results of this method provide *encounter rates* for observable human disturbances. For example, if a single motorcycle trail was observed three times during the survey, it would be tallied three times (this relieves the observer from interpreting the same versus different objects). The intent of this exercise is to develop a baseline for human use on the site so that if it is trapped in subsequent years, a comparison may be made to see if those uses are increasing, decreasing, or remain unchanged.

TABLE 1. OBSERVABLE HUMAN DISTURBANCES FOR MAY 2014

Debris and Litter	Vehicle Tracks	Trails	Shooting Targets	Rifle Shells	Old Can Dump	Balloons
45	14 cycle	1 vehicle	2	2	1	1
	2 truck	1 foot				

Figure 4. Special Status Species Observed at Butte Valley Sanctuary in May 2014



Based on two decades of performing disturbance analyses, I consider this site to be moderately disturbed by observable human impacts. The northern burned area is the main and most devastating impact, which is not captured by the data tallies given in Table 1 and described below. As depicted in Exhibit 1, some burned areas are nearly barren, while others are showing moderately low levels of shrub recruitment. There is also a barren area through the center of the site that did not apparently burn (Exhibit 5).

The disturbances observed along the grid lines are representative of the types of disturbances observed throughout the site along the meandering transects. Miscellaneous debris is the most commonly observed disturbance, with some minor vehicle- and shooting-related impacts present. Most of the debris (40 of 45 pieces, or 89%) was comprised of windblown paper and plastic, and slightly more common to the north (23 pieces) than to the south (17 pieces). Other debris included three soda cans, one balloon, and a piece of glass. A widely scattered old can dump was found along much of Grid Line A. Old and sparse scat of domestic sheep were found throughout the site indicating that it has been grazed a long time ago perhaps for only a short period.

Vehicle tracks were exactly the same along Grid Lines A and B to the north (7 cycle and 1 truck track) as observed along Grid Lines C and D to the south, even though northern, burned areas are relatively more accessible due to sparser vegetation. There was absolutely no evidence of vehicle use on the single, diagonal road through the middle of the site. A foot trail is found on the east part of the site, oriented along a north-south axis. Shooting pressure is relatively light, with no shot gun shells observed along grid lines.

3.4. Trapping Results.

The following table contains information about the dates and times of trapping; numbers and types of animals captured; and weather conditions during the five trapping days.

TABLE 2. TRAPPING RESULTS FOR MAY 2014

DATE	*TIME	**TEMP °F	CAPTURES			Cloud Cover		Max Wind speed (mi/hr)	
			AGS	MGS	***Other	AM	PM	**AM	PM
5/20/14	0700	51	20	0	0	5%	75%	10-15	15-20
	1850	68							
5/21/14	0700	52	19	0	0	95% Rain	70%	10-15	10-15
	1905	72							
5/22/14	0720	58	10	0	1 DSLI	50%	95%	0-5	5-10
	1930	64							
5/23/14	0715	55	8	0	2 CAGS	0%	30% Rain	0-5	10-15
	1845	78							
5/24/14	0700	66	3	0	1 CAWR	75%	50%	5-10	5-10
	1400	90+							
5 Days	-	-	**60**	**0**	**2 CAGS 1 DSLI 1CAWR**	**0 – 95%**	**30 – 95 %**	**0 – 15 mph**	**5 – 20 mph**

*- The upper times given in column 2 are when the first trap was opened each day, and the lower times indicate when the last trap was closed each day.

**- Air temperatures measured 12" above the ground in new shade and maximum wind speeds were measured by a hand-held Kestrel® device at the indicated times.

***- Abbreviations for all animals trapped given in the 6th columns include:
AGS = Antelope ground squirrel (*Ammospermophilus leucurus*)
CAGS = California ground squirrel (*Otospermophilus beecheyi*)
CAWR = Cactus wren (*Campylorhynchus brunneicapillus*)
DSLI = Desert spiny lizard (*Sceloporus magister*)

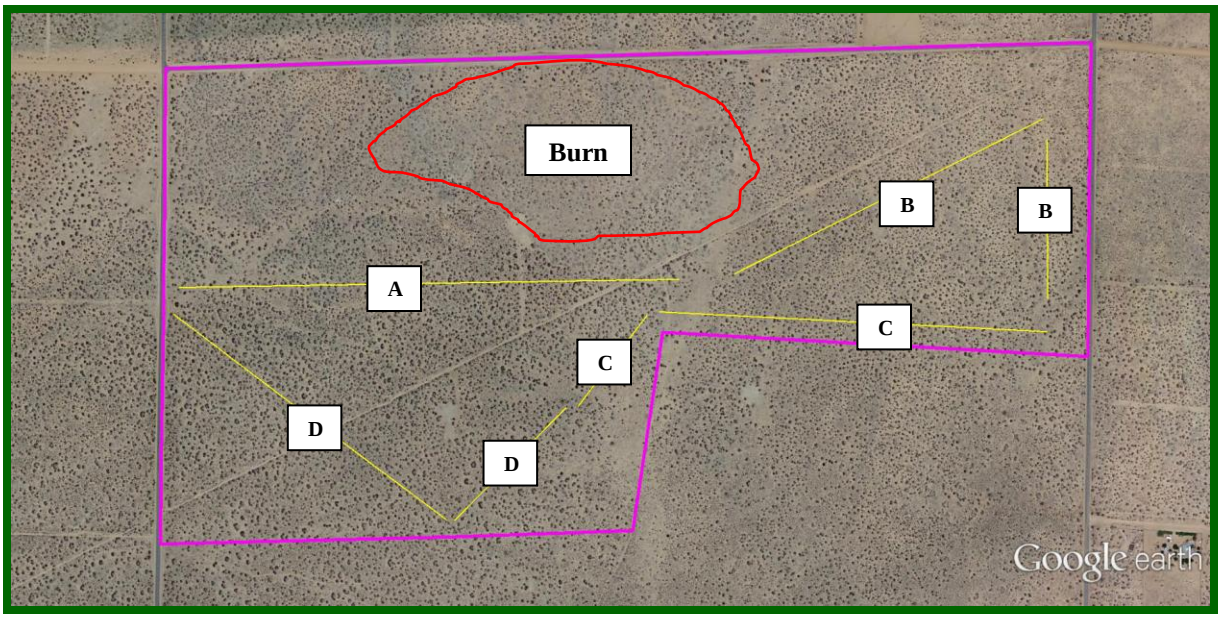
As reported in Table 2, no Mohave ground squirrels were trapped during this effort. There was a steady, progressive decline in capture success, with 20 antelope ground squirrels caught the first day and only 3 on the last day (although the traps were closed early on the fifth day due to temperatures exceeding 90°F). A second mammal species (California ground squirrel), one reptile (desert spiny lizard), and one bird species (cactus wren) were the other animal species captures and released unharmed.

4.0. CONCLUSIONS

No Mohave ground squirrels were captured during the 2014 trapping effort. There are both burned and barren portions of the site that are only marginally suitable for the species.

5.0. RECOMMENDATIONS

There may be grid configurations that would be better suited to trap a given site. The grid locations shown below would effectively avoid burned and other barren areas while maintaining the 875-meter grid lengths needed to maximize trap placement throughout the site. Very dense stands of winter fat were observed on the southern parts of the Sanctuary where the new D grid lines are shown.



It would likely be cost prohibitive and have limited success, but the best management for this site would be to rehabilitate burned areas to facilitate new growth and recruitment of perennial vegetation in those areas. If future surveys reveal an increase in the numbers of motorcycle tracks traveling cross-country, it may be advisable to increase signs or implement other measures to reduce this use.

6.0. REFERENCES AND LITERATURE CITED

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7.0. ACKNOWLEDGEMENTS

This is a volunteer effort, aided by funding from CDFW to pay the use permit fees required by the Los Angeles County Department of Parks and Recreation. We are indebted to Dr. Phil Leitner for helping with the logistics, facilitating permit acquisition, and reviewing the early draft of this report. Thanks also to Dr. Scott Osborn and Justin Garcia of the CDFW for supporting this effort and expediting issuance of trapping permits. Natasha Robinson of the Department of Parks and Recreation was very helpful and responsive in facilitating the issuance of the six permits. We'd also like to thank ranger, Jean Rhyne and camp host, Suzie Playter, of California State Parks for accommodating us at Saddleback Butte State Park during trapping. Finally, thanks to my partner Sharon Dougherty for helping me trap and disassemble the grids.

APPENDIX A. CDFW SURVEY AND TRAPPING FORM

Mohave Ground Squirrel (MGS) Survey and Trapping Form (photocopy as needed)

PART I - PROJECT INFORMATION (use a separate form for each sampling grid)

Project name: Butte Valley Wildflower Sanctuary Property owner: L.A. County

Location: Township 7N; Range 9W; Section 13; ¼ Section N½

Quad map/series: 7.5' Hi Vista UTM coordinates: 428250E/3840365N
GPS coordinates of trapping-grid corners

Acreage of Project Site: 351 acres Acreage of potential MGS habitat on site: 351 acres

Total acreage visually surveyed on project site: N/A Date(s): N/A
visual surveys

Visual surveys conducted by: N/A
names of all persons by date (use back of form, if needed)

Total acres trapped: 80 acres Number of sampling grids: 1

Trapping conducted by: Ed Cafrue, Sharon Dougherty, Patricia Seamount, Mike Gallagher
names of all persons by sampling term and sampling grid (use back of form, if needed)

Dates of sampling term(s): FIRST 5/20-5/24/14 SECOND — if required THIRD — if required

PART II - GENERAL HABITAT DESCRIPTION (use back of form, if needed)
Vegetation: dominant perennials: Larrea tridentata, Ambrosia dumosa, Yucca brevifolia
other perennials: Lycium cooperi, Tetradymia sp., Ephedra nevadensis
dominant annuals: Amsinckia tessellata, Erodium cicutarium, Marcothrix globosa
other annuals: Ambrosia acanthicarpa, Cryptantha micrantha, see report for full list

Land forms (mesa, bajada, wash): Desert Plain

Soils description: Very Sandy

Elevation: 2987 to 2900 ft Slope: 0-3%

PART III - WEATHER (report measurements in the following categories for each day of visual survey and each day of trapping; using 24-hour clock, indicate time of day that each measurement was made; use a separate blank sheet for each day)

Temperature: AIR minimum and maximum; SOIL minimum and maximum; Cloud Cover: % in AM and % in PM; Wind Speed: in AM and in PM

See report for all weather conditions on five days

CUMULATIVE FIELD DATA SHEET OF SIGNIFICANT OBSERVATIONS

Page __ of __

JOB #/NAME	DATE	DRIVE TIME	MILES	FIELD TIME	SURVEYORS
Butte Valley	5/20-5/24/14	TO / FROM: M / A	M / A	BEGIN / END: Variable	Ed Lake

WEATHER CONDITIONS (Start/End)	UTM (NAD83) (circle starting corner)
TEMP: °F WIND X: ↑ N S E W CLOUD: % Variable	NE→ NW→ SE→ SW→
TEMP: °F WIND X: ↑ N S E W CLOUD: % See first of report	See Report

SOILS:

ADJACENT LAND USE:

VEGETATION HEIGHT(S):

PERENNIAL PLANTS				ANNUAL PLANTS				BIRDS		HERP	MAM
Lar Tri				Cro Bre	Bro mad			GAWR	LEMH	SBLZ	AGS
Yuc Bre				Dip Alb	Lee mat			EUST	EAHW	PSLI	Cagle
Rhus trilo				Cre Bre	Mal Gla			CORA	LOWP		BTHA
Tetsp				Gil Cas	Eri Mac			SASP	SAPH		Bobcat
Krai Lan				Cen Tha	Eho Cic			HOFI	RTHA		Kfox
Eriosp				Lep Cas	Las lem			HOLA			CAGS
Lycioo				Cro thym	Cre Cri			LOSH			Krat
Ambrhm				Sis AH	Bro Tec			ATFC			
Cal Ech				Arab Aca	Hor mur			BISP			
Eph Nev				Lec Sch	Las Cal			MOMO	Photographs		
Cry Man				Des Pin	Bra Tar			OCWA			
Ade Coo				Bowlya	Ste Gri			BEWR			
Ambsal				Cym Mic	Cre fic			AMKE			
				Cri Tri				MOBO			
				Ant Tes				WIWA			
				Mon Alb				HOSP			
				Ech sp.				LASP			

OBSERVABLE HUMAN DISTURBANCES

T#	East	North	OHV	Road	Dog	Dump	S Gun	Rifle	Target		
Creosote Bush Rings				Kit Fox Dens		Longshead Stalk					
7638	0155	8282	0195	8369	906	7800	0000				
7645	0134	8220	0222	8410	0338	8400	0170				
7750	0054	8144	0231	8259	0338						
7751	0047	8150	0220	8023	0246						
7756	0046	8244	9964								
7850	9980	8136	0222								
7964	9934	8064	0227								
8034	9997	8029	0229								
8046	0016	8121	9918								
8090	0080	8106	9908								
8244	0180	7970	0234								
8813	0304	8076	9912								
8955	0184	8040	9918								
8843	0205	8027	9881								
8836	0218	7934	9901								
8683	0327	7751	9871								
8350	0151	7541	0333								

7511 / 0160

COMPLETED CNDDB DATA SHEETS

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work (mm/dd/yyyy): 05/20/2014

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Lanius ludovicianus*

Common Name: Loggerhead shrike

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 2 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Ed LaRue
Address: P.O. Box 3197, Wrightwood, CA 92397

E-mail Address: ed.larue@verizon.net
Phone: (760) 249-4948

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

2 # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Los Angeles Landowner / Mgr.: County of L.A. Dept. of Parks and Recreation
Quad Name: Hi Vista Elevation: 900 m
T 7N R 9W Sec 13, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS
T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin
DATUM: **NAD27** ☐ **NAD83** ☑ **WGS84** ☐ Horizontal Accuracy 2 m+/- meters/feet
Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☑ ***OR*** Geographic (Latitude & Longitude) ☐
Coordinates: One shrike at 427800E/384000N and a 2nd at 428400E/3840170N

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

The two individual birds were observed on 5/20/2014 perched in Joshua trees. Dominant perennials include creosote bush, burro bush, and Joshua tree in a Mojavean creosote bush scrub community. The site is very sandy with a 0 to 3% slope in desert plain with a slight rise. The subject property, Butte Valley Wildflower Sanctuary, was being trapped for five days for Mohave ground squirrel, which was not captured.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☑ Excellent ☐ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Open in all directions, with single-family residences to the southeast and northeast.

Visible disturbances: The northern portions of the site burned so that there are barren and semi-barren areas within the Sanctuary.

Threats: Light motorcycle use, otherwise protected.

Comments:

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? yes ☐ no ☐

DFG/BDB/1747 Rev. 6/16/09

APPENDIX B. PLANT SPECIES DETECTED

The following plant species were identified on-site during the trapping survey described in this report. Those plant species that are protected by State ordinances are shown in red font and signified by "(SC)" following the common name.

GNETAE	GNETAE
Ephedraceae	**Joint-fir family**
14 *Ephedra nevadensis*	Nevada joint-fir
ANGIOSPERMAE: DICOTYLEDONES	DICOT FLOWERING PLANTS
Asteraceae	**Sunflower family**
14 *Acamptopappus sphaerocephalus*	Desert goldenhead
14 *Adenophyllum cooperi*	Adenophyllum
14 *Ambrosia acanthicarpa*	Annual bur-sage
14 *Ambrosia dumosa*	Burrobush
14 *Ambrosia (Hymenoclea) salsola*	Cheesebush
14 *Baileya multiradiata*	Marigold
14 *Chaenactis fremontii*	Desert pincushion
14 *Chrysothamnus nauseosus*	Rubber rabbitbrush
14 *Eriophyllum pringlei*	Pringle's woolly daisy
14 *Lasthenia californica*	California goldfields
14 *Lessingia lemmonii*	Lemmon's lessingia
14 *Malacothrix glabrata*	Desert dandelion
14 *Nicolettia occidentalis*	Nicolettia
14 *Stephanomeria exigua*	Milk aster
14 *Stephanomeria pauciflora*	Desert milk aster
14 *Tetradymia* sp.	Cottonthorn
Boraginaceae	**Borage family**
14 *Amsinckia tessellata*	Fiddleneck
14 *Cryptantha micrantha*	Forget-me-not
Brassicaceae	**Mustard family**
14 **Brassica tournefortii*	Saharan mustard
14 **Descurainia pinnata*	Tansy
14 *Guillenia lasiophylla*	California mustard
14 *Lepidium lasiocarpum*	Sand peppergrass
14 **Sisymbrium altissimum*	Tumble mustard
Cactaceae	**Cactus family**
14 *Cylindropuntia (Opuntia) echinocarpa*	Silver cholla (SC)
Chenopodiaceae	**Goosefoot family**
14 *Grayia spinosa*	Spiny hop-sage
14 *Krascheninnikovia lanata*	Winter fat
Euphorbiaceae	**Spurge family**
14 *Chamaesyce (Euphorbia) albomarginata*	Rattlesnake weed

Geraneaceae	**Geranium family**
14 **Erodium cicutarium*	Red-stemmed filaree
Lamiaceae	**Mint family**
14 *Monardella exilis*	Mohave pennyroyal
Loasaceae	**Stick-leaf family**
14 *Mentzelia albicaulis*	Little blazing star
Malvaceae	**Mallow family**
14 *Eremalche exilis*	Trailing mallow
Polemoniaceae	**Phlox family**
14 *Eriastrum* c.f. *eremicum*	Woolly star
14 *Loeseliastrum (Langloisia) matthewsii*	Sunbonnets
14 *Loeseliastrum (Langloisia) schottii*	Loeseliastrum
Polygonaceae	**Buckwheat family**
14 *Centrostegia thurberi*	Thurber's spineflower
14 *Chorizanthe brevicornu*	Brittle spineflower
14 *Eriogonum maculatum*	Spotted buckwheat
14 *Rumex hymenosepalus*	Wild rhubarb
Solanaceae	**Nightshade family**
14 *Lycium andersonii*	Anderson's box-thorn
14 *Lycium cooperi*	Peach thorn
Zygophyllaceae	**Caltrop family**
14 *Larrea tridentata*	Creosote bush
ANGIOSPERMAE: MONOCOTYLEDONES	MONOCOT FLOWERING PLANTS
Liliaceae	**Lily family**
14 *Yucca brevifolia*	Joshua tree (SC)
Poaceae	**Grass family**
14 *Achnatherum (Oryzopsis) hymenoides*	Indian ricegrass
14 **Bromus madritensis* ssp. *rubens*	Red brome
14 **Bromus tectorum*	Cheat grass
14 **Hordeum murinum*	Hare barley
14 **Schismus* sp.	Split-grass

* - indicates a non-native (introduced) species.
c.f. - compares favorably to a given species when the actual species is unknown.

Some species may not have been detected because of the seasonal nature of their occurrence. Common names are taken from Beauchamp (1986), Hickman (1993), Jaeger (1969), and Munz (1974).

APPENDIX C. ANIMAL SPECIES DETECTED

The following animal species were detected during the general biological inventory described in this report. Special status animal species are shown in red font and signified by "(SC)" following the common names.

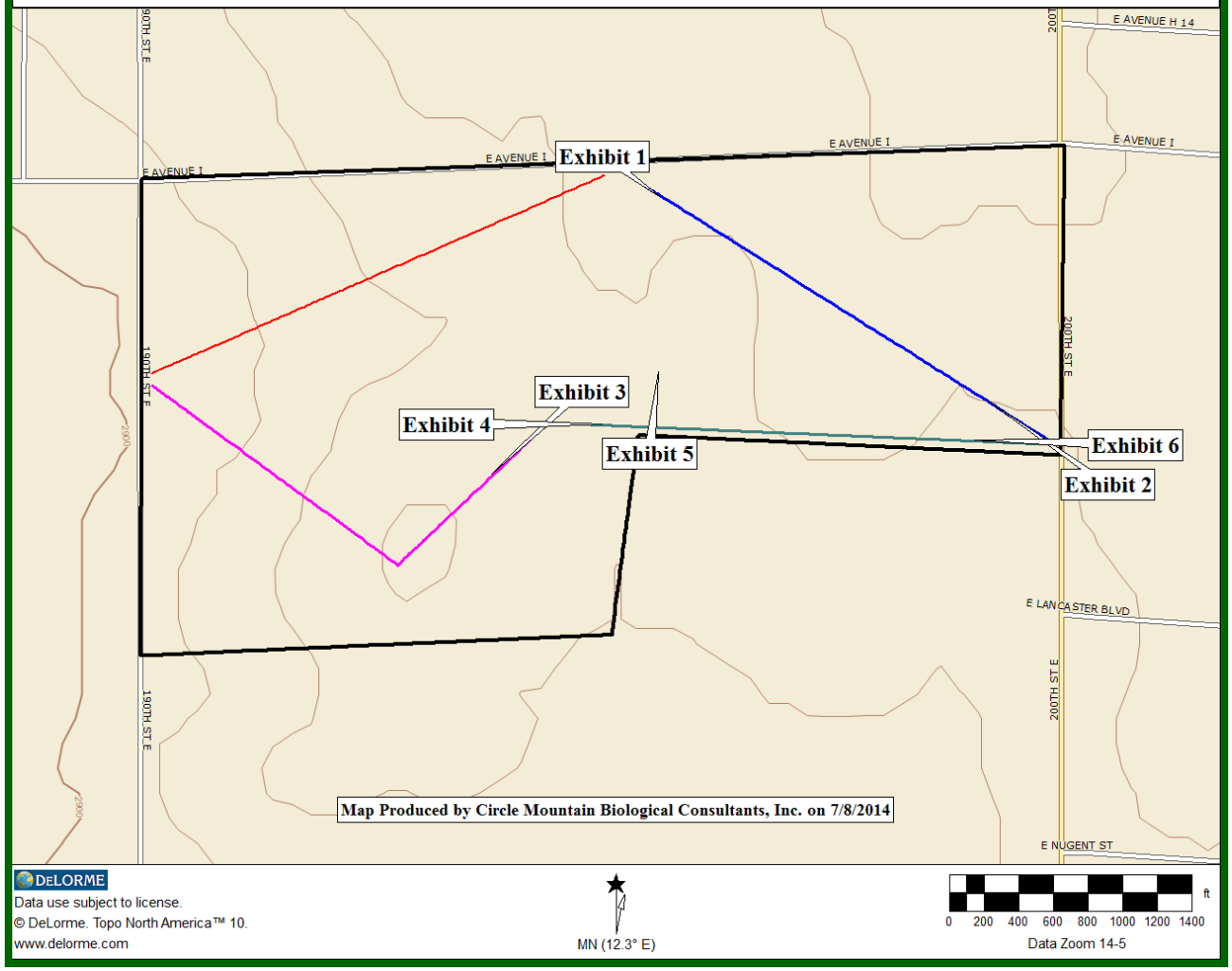
REPTILIA	REPTILES
Iguanidae *Uta stansburiana*	**Iguanids** Common side-blotched lizard
Teiidae *Cnemidophorus tigris*	**Whiptails** Western whiptail
AVES	BIRDS
Accipitridae 14 *Buteo jamaicensis*	**Hawks, eagles, harriers** Red-tailed hawk
Falconidae 14 *Falco sparverius*	**Falcons** American kestrel
Columbidae 14 *Zenaida macroura*	**Pigeons and doves** Mourning dove
Strigidae 14 *Bubo virginianus*	**Typical owls** Great horned owl
Camprimulgidae 14 *Chordeiles acutipennis*	**Nightjars** Lesser nighthawk
Picidae 14 *Picoides scalaris*	**Woodpeckers** Ladder-backed woodpecker
Tyrannidae 14 *Sayornis saya* 14 *Myiarchus cinerascens*	**Tyrant flycatchers** Say's phoebe Ash-throated flycatcher
Alaudidae 14 *Eremophila alpestris*	**Larks** Horned lark
Corvidae 14 *Corvus corax*	**Crows and jays** Common raven
Troglodytidae 14 *Campylorhynchus brunneicapillus*	**Wrens** Cactus wren

Muscicapidae	**Thrushes and allies**
14 *Polioptila caerula*	Blue-gray gnatcatcher
Mimidae	**Mockingbirds and thrashers**
14 *Mimus polyglottos*	Northern mockingbird
Laniidae	**Shrikes**
14 *Lanius ludovicianus*	Loggerhead shrike (SC)
Sturnidae	**Starlings**
14 *Sturnus vulgaris*	European starling
Emberizidae	**Sparrows, warblers, tanagers**
14 *Vermivora celata*	Orange-crowned warbler
14 *Wilsonia pusilla*	Wilson's warbler
14 *Chondestes grammacus*	Lark sparrow
14 *Amphispiza bilineata*	Black-throated sparrow
14 *Amphispiza belli*	Sage sparrow
Fringillidae	**Finches**
14 *Carpodacus mexicanus*	House finch
Passeridae	**Weavers**
14 *Passer domesticus*	House sparrow
MAMMALIA	MAMMALS
Leporidae	**Hares and rabbits**
Lepus californicus	Black-tailed hare
Sciuridae	**Squirrels**
Otospermophilus beecheyi	California ground squirrel
Ammospermophilus leucurus	Antelope ground squirrel
Heteromyidae	**Pocket mice**
Dipodomys sp.	Kangaroo rat
Canidae	**Foxes, wolves and coyotes**
Canis latrans	Coyote
Vulpes macrotis	Kit fox (SC)
Felidae	**Cats**
Lynx rufus	Bobcat

Nomenclature follows Stebbins, *A Field Guide to Western Reptiles and Amphibians* (2003), third edition; Sibley, National Audubon Society, the Sibley Guide to Birds (2000), first edition; and Ingles, Mammals of the Pacific States (1965), second edition.

APPENDIX D. PHOTOGRAPHIC EXHIBITS

Figure 5. Locations of Photographic Exhibits Taken at Butte Valley Sanctuary in May 2014



Locations of the 6 photographic exhibits on the next 3 pages are shown in Figure 5.

Exhibit 1. View from the west end of Grid Line B, facing east into burned area.

Exhibit 2. View from the east end of Grid Line B, facing west (areas barren but not burned).

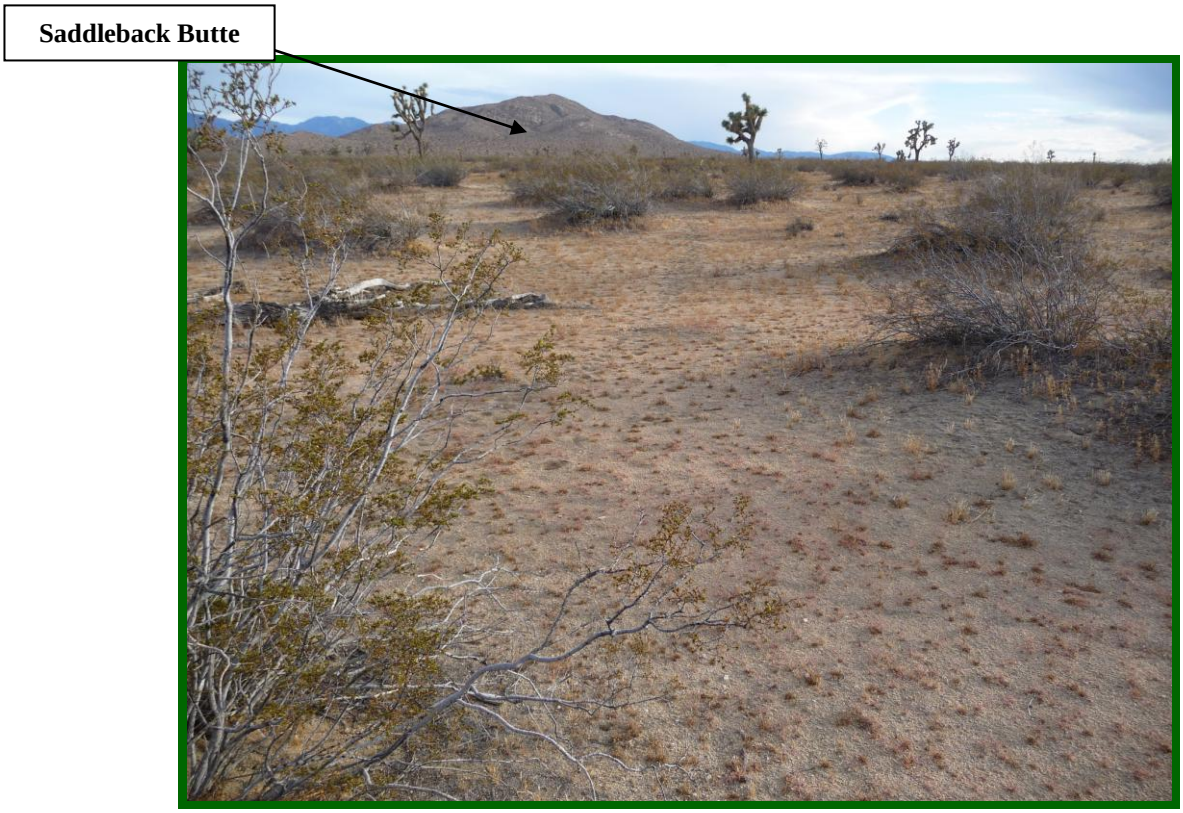


Exhibit 3. View from the east end of Grid Line D, facing southwest.

Exhibit 4. View from the west end of Grid Line C, facing east.

Exhibit 5. View from Station C6, facing north into barren area, but not obviously burned.

Exhibit 6. View from the east end of Grid Line C, facing west.