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June 11, 2013

Dr. Scott Osborne
Nongame Wildlife Program
California Department of Fish and Wildlife
1812 9th Street
Sacramento, California 95811

Esther Burkett
Nongame Wildlife Program
California Department of Fish and Wildlife
1812 9th Street
Sacramento, California 95811

Subject: 2013 Mohave Ground Squirrel Nonprotocol Trapping on Hinkley Study Sites, San Bernardino County, California

Dear Dr. Osborne and Ms. Burkett:

This letter report documents the results of live trapping conducted by LSA Associates, Inc. (LSA) on the above-referenced sites (Figure 1; all figures attached) to determine the presence or absence of the State of California listed as threatened Mohave ground squirrel (*Xerospermophilus mohavensis*; MGS). The survey guidelines established by the California Department of Fish and Wildlife (CDFW) were modified to include only one trapping period during the last week of April 2013. Trapping was conducted within areas of suitable habitat. A total of 16 MGS captures occurred in the study area consisting of five individual adult MGS (four females and one male), as shown on Figures 2 and 3.

PURPOSE AND NEED

The vast majority of presence/absence data for MGS is based on studies conducted in support of environmental documentation and permitting for public and private development. As a result, recent presence/absence data are lacking for many areas within the historic range of MGS, and specific areas of potential research and management interest are lacking data. Because the existing presence/absence data set is not based on randomized locations but is instead biased and based on areas for which projects have been proposed, it does not lend itself well for use as a basis for the development of habitat suitability models.

Genetic samples were collected from the five captured MGS for genetic analysis. It should be noted that the area trapped, west of the town of Hinkley, may support both MGS and round-tailed ground squirrel (*Spermophilus tereticaudus*; RTGS). Evidence suggests that hybridization may be occurring between these two species in some areas where their ranges overlap.

OBJECTIVE

Ultimately, presence/absence surveys for MGS should be conducted at randomized locations throughout its known and historic range. The goal of the presence/absence data collection for MGS is to have as many qualified people as possible donate 5 days (or more) during the season to trap for MGS on designated areas of Bureau of Land Management (BLM) or State land that have not been recently surveyed by project-driven studies. Survey methods could include traditional trapping, use of motion-triggered cameras, and pedestrian visual/auditory transects.

During 2011, 2012, and 2013, MGS researcher Dr. Phil Leitner conducted randomized surveys on BLM land using motion-triggered cameras at several locations throughout the MGS historic range. Using motion-triggered cameras during the spring of 2013, Dr. Leitner's research team observed MGS on the four study sites identified as the study area. Overall habitat quality within the study area is mostly fair to good, with Mohave mixed scrub being the dominant vegetation community. LSA trapped the study area in order to collect MGS and/or RTGS tissue samples for genetic analysis.

STUDY AREA

The primary study area is located approximately 3 miles (mi) west of the town of Hinkley to the north and south of Highway 58 (Figure 1). The study area, located entirely on BLM land, consists of four trapping study sites consisting of 50 traps each (Figure 2). The northernmost study sites are identified as Hinkley 9 and Hinkley 11, with the southernmost study sites identified as Hinkley 10 and Hinkley 12. Geographically, the study sites are located as follows: Hinkley 9 is within Section 23, Township 10 North, Range 4 West; Hinkley 10 is within Section 2, Township 9 North, Range 4 West; and Hinkley 12 is within Section 34, Township 10 North, Range 4 West as shown on the United States Geological Survey (USGS) *Twelve Gauge Lake*, with Hinkley 11 within Section 24, Township 10 North, Range 4 West, as shown on the USGS *Victorville, California* 7.5-minute topographic quadrangle map. Elevations of the study area range from approximately 2,225 feet (ft) to approximately 2,350 ft. Soils observed are primarily coarse and gravelly sands. The study areas are located entirely within, and surrounded by, undeveloped BLM lands.

Vegetation

The dominant plant community on site is Mojave mixed woody scrub, a nonsensitive plant community. Dominant species identified within the study area include desert thorn (*Lycium brevipes*), Andersons desert thorn (*L. andersonii*), burroweed (*Ambrosia dumosa*), bladderpod (*Isomeris arborea*), cheesebush (*Hymenoclea salsola*), winterfat (*Krascheninnikovia lanata*), and spiny hopsage (*Grayia spinosa*).

METHODS

Leo Simone, Erin Martinelli, Denise Woodard, Ingri Quon, and/or Aga Napiatek were present and responsible for the entire trapping effort pursuant to the California Department of Fish and Wildlife (CDFW) Letter Permit (December 20, 2011; revised November 8, 2012; Expiration date: December 31, 2013), Attachment to Scientific Collecting Permit for Leo Simone (SC-005243), LSA Associates, Inc., Conditions for Research on Mohave Ground Squirrel in lieu of a Memorandum of Understanding. Authorized field assistants permitted to work on this volunteered effort under the direct supervision of Leo Simone, Erin Martinelli, Aga Napiatek, Denise Woodard, and/or Ingri Quon included: Claudia Bauer, Bill Deane, Danielle Dillard, Anthony Greco, John Hays, Stuart Richardson, and Carie Wingert. The presence/absence trapping effort was conducted using a modification of the CDFW 2010 recommended survey guidelines; only one 5-day trapping period was used.

A visual survey of the study area was conducted on April 25, 2013, by Leo Simone. The location and arrangement of the trapping grids were selected based on the recommendations from Dr. Leitner resulting from the 2013 camera study and visual survey.

A total of 200 Sherman live traps (12-inch ventilated PXLK Model) were used for the four study sites comprising the study area. A modified grid configuration was used for all the grids. The northernmost two

study sites, Hinkley 9 and Hinkley 11, were located north of Highway 58, with the southern two study sites, Hinkley 10 and Hinkley 12, being located to the south of Highway 58. All four study sites consisted of 50 traps each arranged in 5 lines of 10 traps each. Study sites Hinkley 10 and Hinkley 11 were arranged with an east–west orientation, and study sites Hinkley 9 and Hinkley 12 were arranged with a north–south orientation, as shown on Figures 2 and 3.

Where practicable, the standard 35-meter spacing between traps was maintained on each grid. Each trap was placed in an open-ended corrugated cardboard shade cover to minimize thermal stress on captured animals. Traps and shade covers were placed on a north–south axis with the trap door facing north. All traps were washed and sanitized prior to use.

The traps were set and baited in the morning with a mixture of sweet horse grain and rolled oats with a blend of peanut butter. Traps were opened within 1 hour after sunrise. The ambient air temperature at 1 ft above the ground surface in the shade was recorded hourly during the trapping effort. Cloud cover and wind speed were recorded every 4 hours. Traps would be closed if the air temperature exceeded 90 degrees Fahrenheit (°F) at 1 ft above the ground surface in the shade until the temperature fell below the upper limit. Traps were checked every 2–4 hours and closed within 1 hour of sunset or sooner if the ambient air temperature at 1 ft above the ground surface in the shade exceeded 90°F.

In accordance with MGS trapping protocol, each grid was trapped for a period of 5 consecutive days. Data were recorded on all first-time captured MGS as follows: date and time of capture, trap number, species, sex, age (adult or juvenile), reproductive status, and weight. All captured animals were marked using a non-toxic colored marker. Once processed, all animals were released unharmed at the point of capture.

Tissue samples were collected from five MGS. A 1–2-millimeter tissue sample was taken from the external ear of the sampled animals. An antibiotic cream was applied to the site of the wound. Properly labeled MGS tissue samples were given to Dr. Leitner for delivery to Dr. Marjorie Matocq at the University of Nevada, Reno, for processing.

RESULTS

The visual survey of the study area was conducted on April 25, 2013. MGS were not observed within the general study area during the visual survey.

The trapping period occurred from April 26 to 30, 2013, and consisted of 6,900 trap hours. Individual animals captured included 5 adult MGS (4 female and 1 male) and 20 white-tailed antelope squirrels (*Ammospermophilus leucurus*; AGS). Total captures (including recaptures) included 16 MGS and 47 AGS. The results of the trapping effort are summarized in Table A (all tables attached). MGS capture data are summarized in Table B.

Daily temperatures during this period reached or exceeded 90°F at 1 ft above the ground surface in the shade on 4 days during the trapping effort. Temperatures during the 5 days of the trapping period ranged from 55°F to 92°F. Weather conditions during the 5-day trapping effort are summarized in Table C.

An MGS Survey and Trapping Form; MGS daily summary sheets summarizing the MGS survey and trapping effort; individual record sheets for each MGS captured; and completed California Native Species Field Survey Forms for MGS and desert tortoise (*Gopherus agassizii*) are also attached.

LITERATURE CITED

California Department of Fish and Game. 2010. Mohave Ground Squirrel Survey Guidelines. Sacramento, California. 5 pp.

———. California Natural Diversity Database. 2012. *Klinker Mountain* and *Spangler Hills West, California* United States Geological Survey 7.5-minute quadrangles.

Gustafson, J. R. 1993. A status review of the Mohave ground squirrel (*Spermophilus mohavensis*). Nongame Bird and Mammal Section Report 93-9. California Department of Fish and Game, Wildlife Management Division. Sacramento, California. 104 pp. and appendices.

Hickman, J.C., ed. 1993. *The Jepson Manual: Higher Plants of California.* University of California Press, Berkeley and Los Angeles, California.

Sawyer and Keeler-Wolf. 1995. *A Manual of California Vegetation.* California Native Plant Society. Sacramento, California.

Sincerely,

LSA ASSOCIATES, INC.

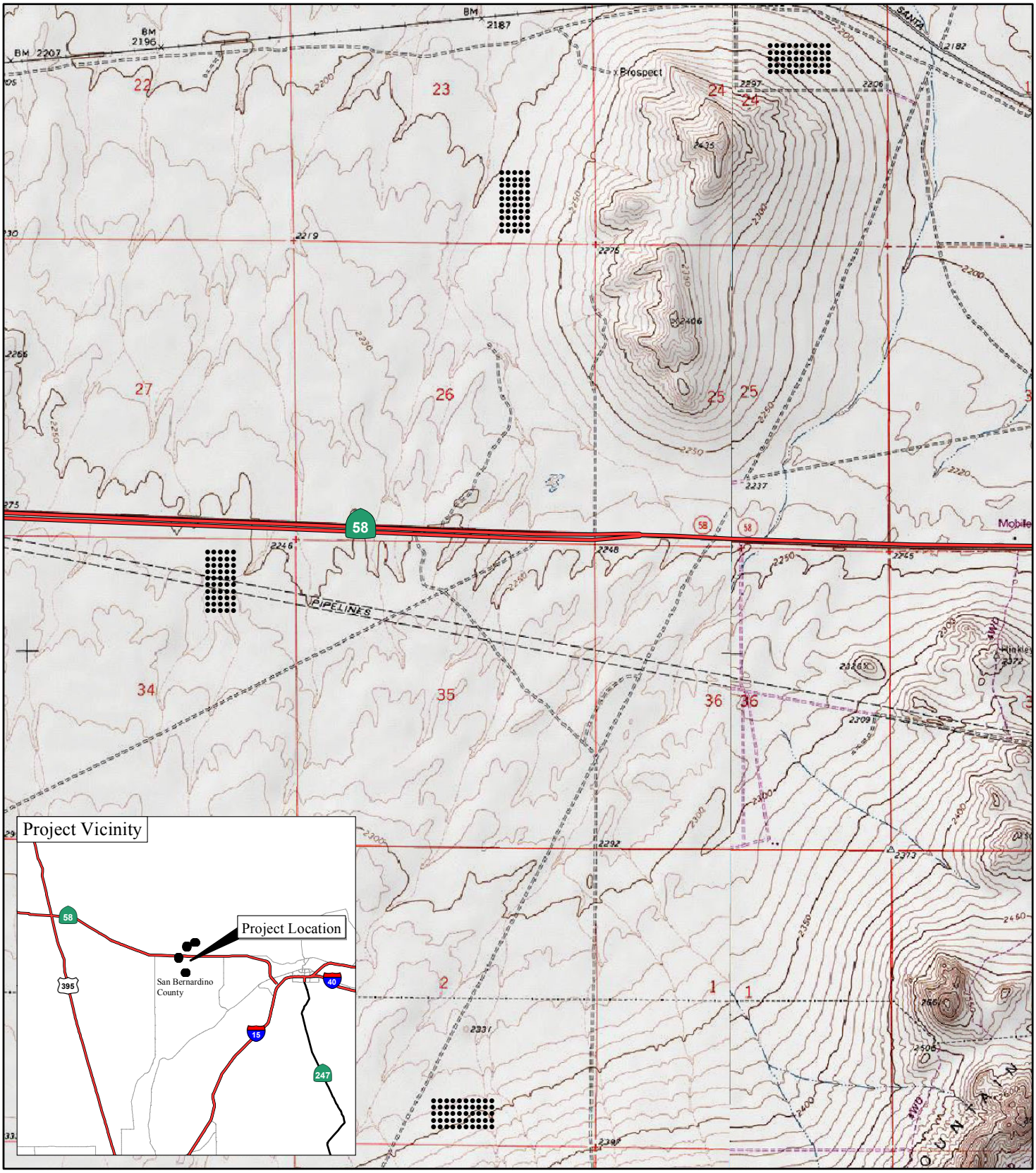
Leo Simone
Associate, Biologist

cc: Phil Leitner
Marjorie Matocq

Attachments: Figures 1, 2, and 3
Tables A, B, and C
MGS Survey and Trapping Form
MGS Daily Summary Sheets
MGS Individual Record Sheets
California Native Species Field Survey Forms

I CERTIFY THAT THE INFORMATION IN THIS SURVEY REPORT AND ATTACHED EXHIBITS FULLY AND ACCURATELY REPRESENT MY WORK:

PRINCIPAL INVESTIGATOR:	PERMIT NUMBER:	DATE:
	SC-005243	June 11, 2013



LEGEND

- MGS Trap Locations

FIGURE 1

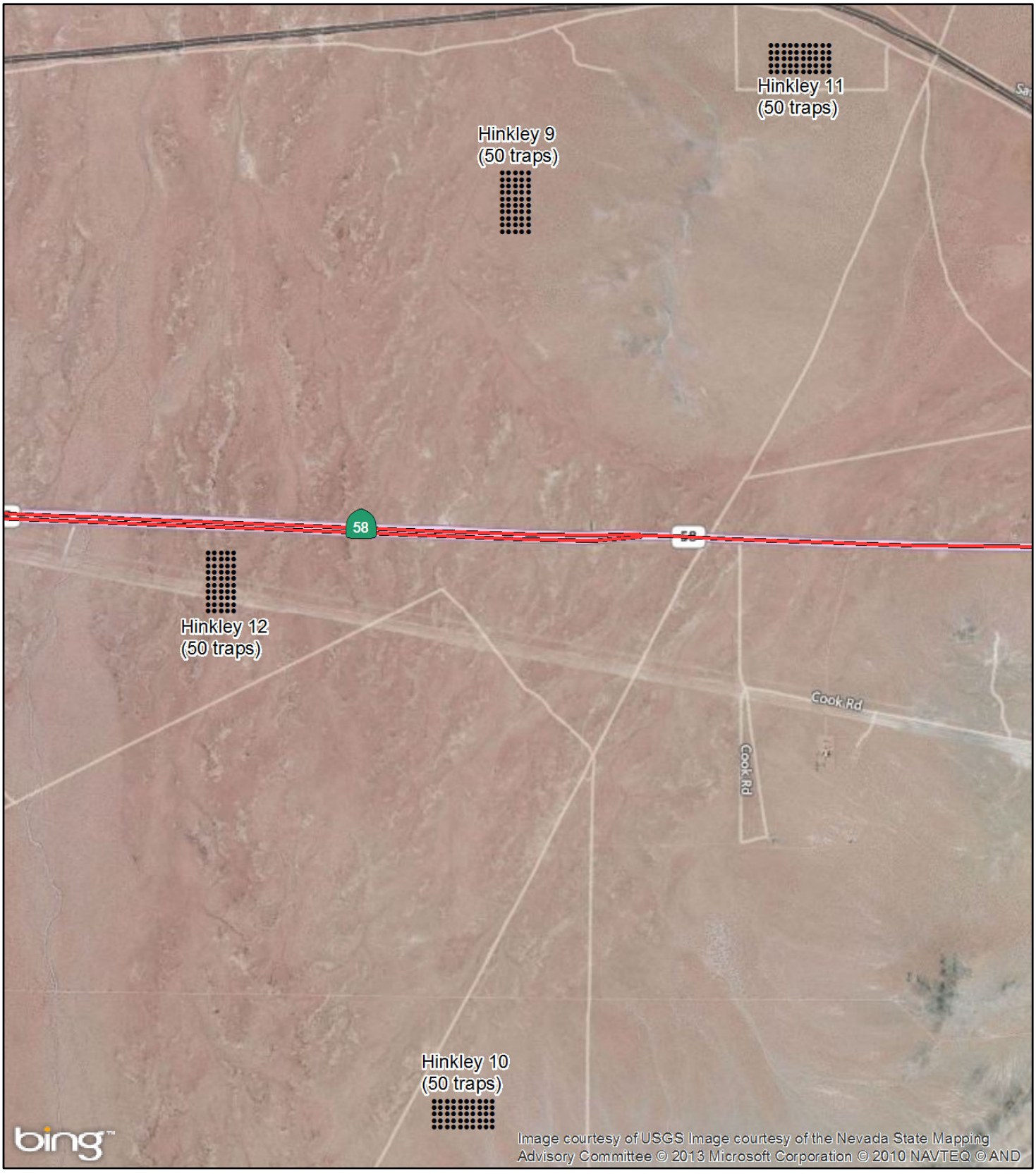
N

0 1200 2400
FEET

2013 Mohave Ground Squirrel Non-Protocal Trapping on Hinkley Study Sites

Project Location

SOURCE: USGS 7.5' Quad. TWELVE GAUGE LAKE ('73), HINKLEY ('93)



LEGEND

- MGS Trap Locations

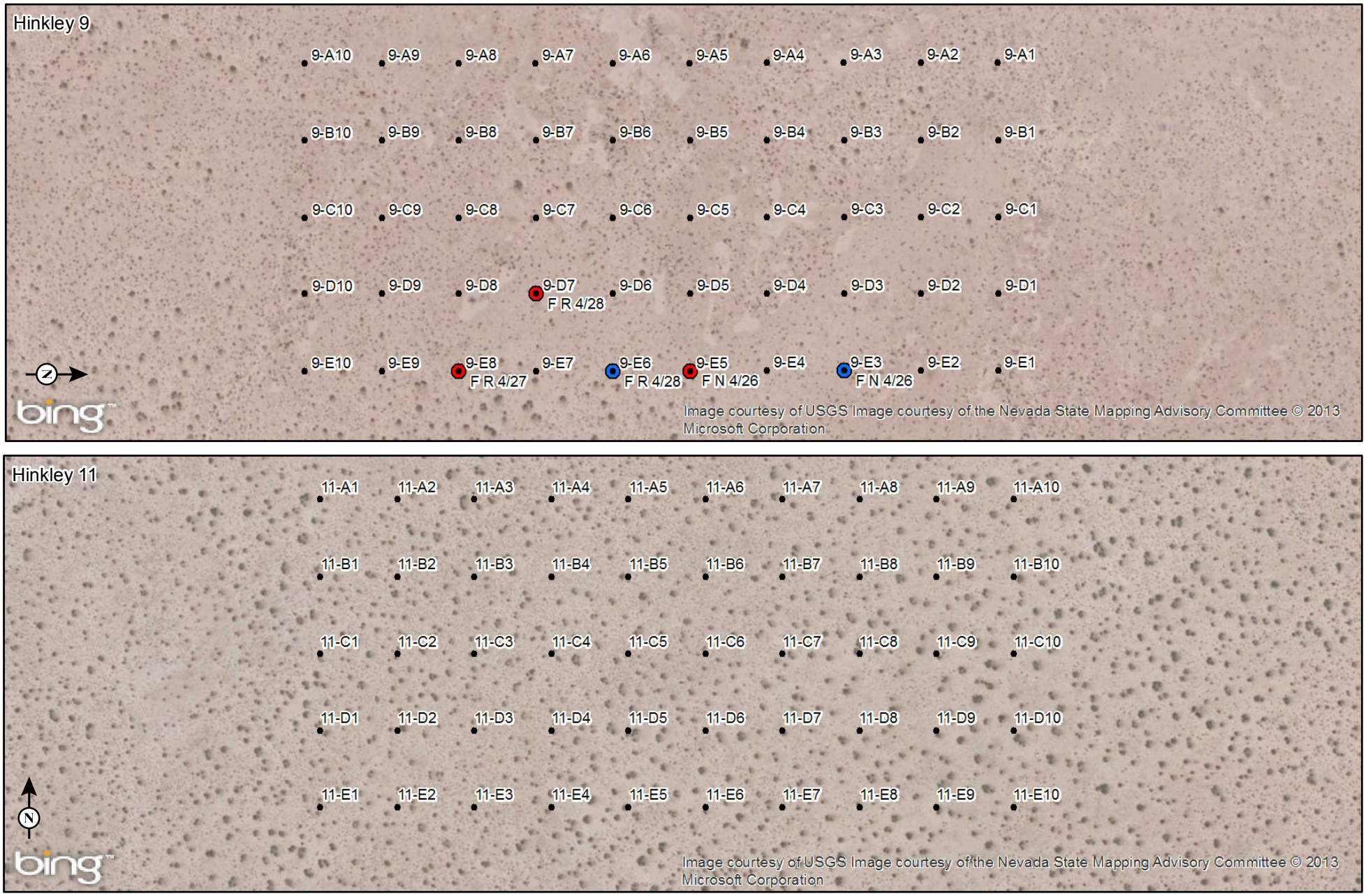
FIGURE 2

2013 Mohave Ground Squirrel Non-Protocal Trapping on Hinkley Study Sites

Study Area

0 1200 2400
FEET

SOURCE: Bing (c. 2009)



LEGEND

• Trap Locations

Captures: BL GP P PX R

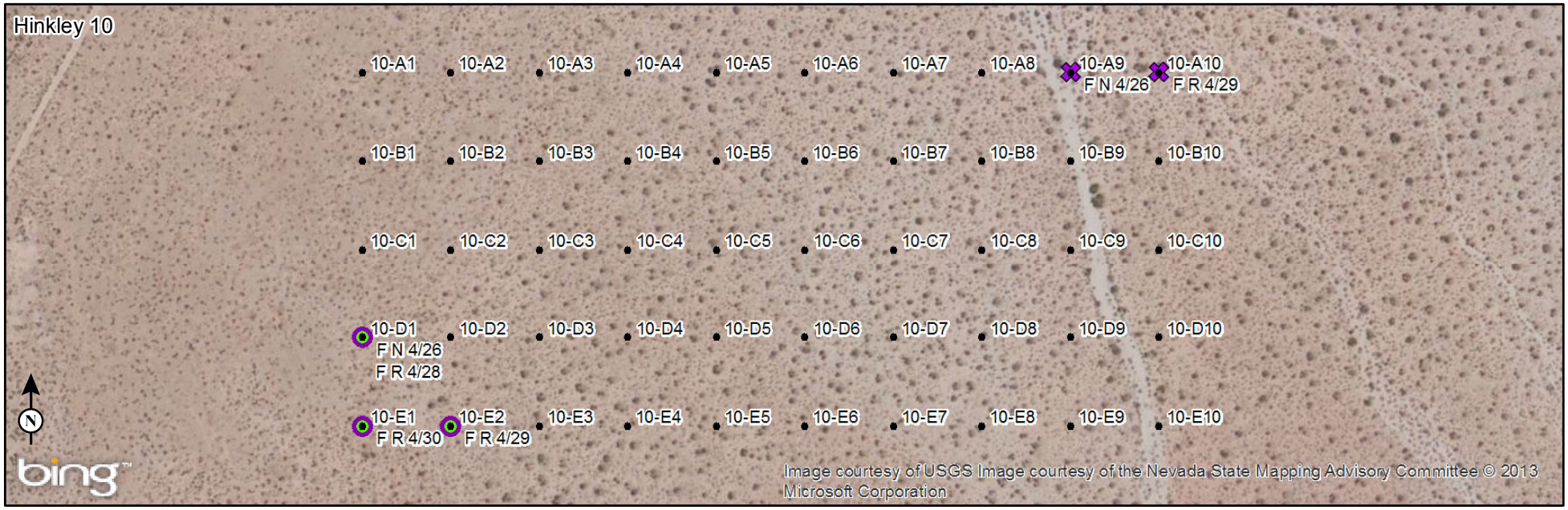
M=Male, F=Female, N=New Capture, R=Recapture, Date of Capture

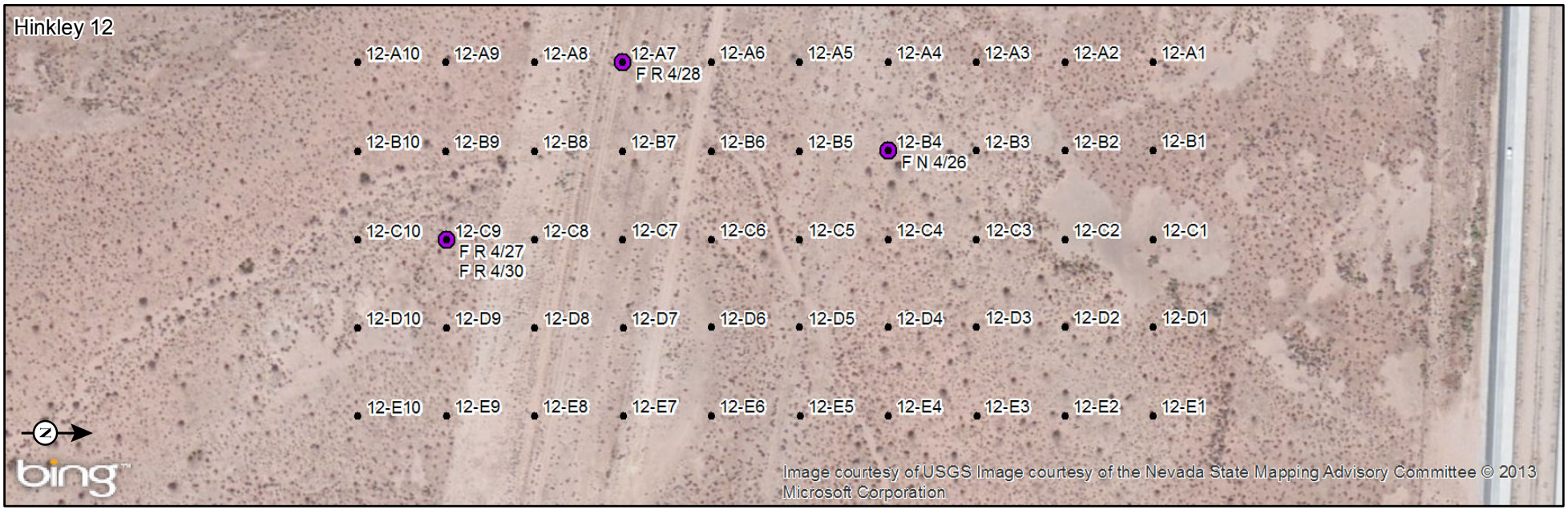
FIGURE 3

2013 Mohave Ground Squirrel Non-Protocal Trapping on Hinkley Study Sites

Trap and Capture Locations - Northern

SOURCE: BING (2009)





LEGEND

• Trap Locations

Captures: BL GP P PX R

M=Male, F=Female, N=New Capture, R=Recapture, Date of Capture

FIGURE 3

2013 Mohave Ground Squirrel Non-Protocal Trapping on Hinkley Study Sites

Trap and Capture Locations - Southern

SOURCE: BING (2009)

Table A: Study Sites Hinkley 9, 10, 11, and 12–Trapping Results Summary (2013)

Date	Capture Totals					Grand Total
	April 26	April 27	April 28	April 29	April 30	
Trap Hours	2,200	1,400	1,200	1,100	1,000	**6,900**
Mohave ground squirrel (*Xerospermophilus mohavensis*)	4 A F; 1 A M	2 A F; 1 A M	3 A F; 1 A M	2 A F	1 A F; 1 A M	**16**
White-tailed antelope squirrel (*Ammospermophilus leucurus*)	8 A M; 12 A F	2 A M; 4 A F	5 A M; 5 A F;	3 A M; 2 A F;	5 A M; 1 A F;	**47**
Total Captures	**25**	**9**	**14**	**7**	**8**	**63**

A=Adult, M=Male, F=Female

Table B: Study Sites Hinkley 9, 10, 11, and 12 – MGS Capture Summary (2013)

ID – Color/Sex	Trap Station	Date – Weight (Grams)
Bl – F	Hinkley 9 – E3	4/26 – 127
	Hinkley 9 – E6	4/28
R – F	Hinkley 9 – E7	4/26 - 107
	Hinkley 9 – E8	4/27
	Hinkley 9 – D7	4/28
P – M	Hinkley 12 – B4	4/26 – 123
	Hinkley 12 – C9	4/27
	Hinkley 12 – A7	4/28
	Hinkley 12 – C9	4/30
PX – F	Hinkley 10 – A9	4/26 – 136
	Hinkley 10 – B9	4/27
	Hinkley 10 – A10	4/29
P/G – F	Hinkley 10 – D1	4/26 – 143
	Hinkley 10 – D1	4/28
	Hinkley 10 – E2	4/29
	Hinkley 10 – E1	4/30

Bl=Blue, R=Red, P=Purple, PX= Purple X, P/G=Purple Over Green, F=Female, M=Male

Table C: Weather Conditions

	Date	Air Temperature (Minimum)	Air Temperature (Maximum)	Cloud Cover AM	Cloud Cover PM	Wind Speed AM	Wind Speed PM
VALUE	4/26/2013	61	88	0	0	0-2	0-2
TIME		0700	1620	0700	1620	0700	1620
VALUE	4/27/2013	62	92	0	0	0-2	2-5
TIME		0630	1230	0630	1230	0630	1230
VALUE	4/28/2013	60	90	0	0	2-5	6-11
TIME		0630	1130	0630	1130	0630	1130
VALUE	4/29/2013	68	90	0	0	2-5	2-5
TIME		0700	1130	0700	1130	0700	1130
VALUE	4/30/2013	70	91	15	5	6-11	6-11
TIME		0630	1100	0630	1100	0630	1100

Air Temperature = Fahrenheit, Cloud Cover = Percent, Wind Speed = Miles Per Hour

clear 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: Hinkley Study Sites Property owner: BLM

Location: Township 10N; Range 4W; Section 23; Section 34

Quad map/series: Twelve Gauge Lake UTM coordinates: 475989E 3866346N
GPS coordinates of trapping-grid corners

Acreage of Project Site: approx. 100 Acreage of potential MGS habitat on site: same

Total acreage visually surveyed on project site: Approx. 100 Date(s): 4/25/2013
visual surveys

Visual surveys conducted by: Leo Simone
names of all persons by date (use back of form, if needed)

Total acres trapped: approx. 100 Number of sampling grids: 4x50 traps

Trapping conducted by: L. Simone, E. Martinelli, D. Woodard, I. Quon, and A. Napiatek
names of all persons by sampling term and sampling grid (use back of form, if needed)

Dates of sampling term(s): FIRST 4/26-30/1 SECOND _____ (if required) THIRD _____ (if required)

PART II - GENERAL HABITAT DESCRIPTION (use back of form, if needed)

Vegetation: dominant perennials: Lycium brevipes, Ambrosia dumosa, Isomeris arborea
other perennials: _____
dominant annuals: Amsinckia tessellate, Ambrosia acanthicarpa, Erodium cicutarium
_____
other annuals: _____
_____

Land forms (mesa, bajada, wash): alluvial plain

Soils description: coarse and gravelly sands

Elevation: 2,225 ft to 2,350 ft. Slope: northwest

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

Mohave Ground Squirrel Study - Daily Summary Sheet

Date:	Site Name:	Observers:	Page___of___
4-26-2013	SITES 9-11	SIMONE, RICHARDSON, DEANE	

	Start Time	End Time	Wind Code*	Sky Code*	Cloud Cover	Temp (°F)	Notes
Trap Opening:	0700	0	0	0	0 %	61.9	84.2 @ 1130. 81.7 @ 11.52 88.4 @ 1440 on 11. 86.9 @ 1500 on 9
Trap Check:	1045	0	0	0	0 %	75.0	
Trap Check:	1400	0	0	0	0 %	87.0	~~88.6~~
Trap Closing:	1620	0	0	0	0 %	88.6	1715 END 90.2F on 11

Trap Station	Military Time	Species			Capture		Age		Sex		Reproductive Code(s)*	Marking Color	For New Animals			
		MGS	RTGS	Other	New	Recap	ADU	JUV	M	F			Total	Bag	Net	
9-E5	1049			AGS	N		A			F	NR	RED				
9-E7	1052	MGS			N		A			F	NR	RED	119	12	107	
11-E1	1131			AGS	N		A		M		NS	RED				
11-A4	1136			AGS	N		A			F	NR	GREEN				
11-C10	1143			AGS	N		A			F	NR	BLUE				
11-D5	1149			AGS	N		A			F	NR	BLUE				
9-E3	1410	MGS			N		A			F	NR	BLUE	139	12	127	TAIL 59.1mm
9-A4	1430			AGS	N		A		M		S	BLUE				
11-A4	1500			AGS		R	A			F	NR	BLUE				
9-C1	1628			AGS	N		A			F	NR	BLUE				

Mohave Ground Squirrel Study - Daily Summary Sheet

Date:	Site Name:	Observers:	Page 1 of 1
4/26/2013	Hinckley - 10 & 12	A. Napiatek, T. Grecco	

	Start Time	End Time	Wind Code*	Sky Code*	Cloud Cover	Temp (°C)	Notes
Trap Opening:	~~6:45~~	8:00	0	0	0 %	18.8 C	
Trap Check:	10:45	12:20	1	0	0 %	25°C	
Trap Check:	14:12	17:10	1	0	0 %	35°C	/ 32°C
Trap Closing:					%		

Trap Station	Military Time	Species			Capture		Age		Sex		Reproductive Code(s)*	Marking Color	For New Animals		
		MGS	AGS	Other	New	Recap	ADU	JUV	M	F			Total	Bag	Net
12-C10	1055		AGS		New		ADU		M		PS	Purple			
12-C2	1105		AGS		New		ADU					ESCAPE			
12-B2	1109		AGS		New		ADU		~~M~~	F	~~PS~~ NV	GREEN			
10-A7	1145		AGS		New		ADU		M		PS	green			
10-A10	1153		AGS		New		ADU		M		S	PURPLE			
10-B10	1159		AGS		New		ADU			F	NR	Green/Purple			
10-C6	1206		AGS		New		ADU			F	NR	Purple			
12-D9	14:15		AGS		New	Recap	ADU		M		NS	L. Purple			
12-B9	14:28	MGS	~~MGS~~		NEW		ADU		M		NS	Purple	148	12	~~136~~
12-C2	15:01		AGS			Recap	ADU			F	NV	GREEN			
12-A9	15:09		AGS		New		ADU			F	NR	Purple			
10-A9	15:51	MGS	~~MGS~~		New		ADU			F	NR	Purple +	135	12	123
10-E7	16:08		AGS			RECAP	ADU			F	NR	PURPLE			
10-D1	16:20	MGS	~~MGS~~		NEW		ADU			F	NR	GR-PUR +	155	12	143
12-E9	17:06		AGS		NEW		ADU		M		S	GREEN			

* See reverse for codes

Mohave Ground Squirrel Study - Daily Summary Sheet

Date: 4-27-13	Site Name: Hinckley 11 & 9	Observers: A. Napiatek, T. Greco, S. Richardson	Page ___ of ___

	Start Time	End Time	Wind Code*	Sky Code*	Cloud Cover	Temp (°C)	Notes
Trap Opening:	0627	0730	0	0	0 %	62°F / 69°F	
Trap Check:	1027	1125	0	0	0 %	81.3 / 86.3	
Trap Check:					%		
Trap Closing:	12:30	1:30	0	0	0 %	89.5°F / 92.5°F	

Trap Station	Military Time	Species			Capture		Age		Sex		Reproductive Code(s)*	Marking Color	For New Animals		
		MGS	AGS	Other	New	Recap	ADU	JUV	M	F			Total	Bag	Net
11 - B10	10:39		AGS			Recap	ADU			F	NR	Purple			
9 - C9	11:11		AGS		New		ADU			F	NR	Purple			
9 - E8	12:51	MGS				RECAP	ADU			F	NR	Red			

* See reverse for codes

LSA ASSOCIATES, INC.

Mohave Ground Squirrel Study - Daily Summary Sheet

Date: 4/27/13	Site Name: Grid 12(W), Grid 10 (S)	Observers: SIMONE, HAYES, DILLARD	Page 1 of 1

	Start Time	End Time	Wind Code*	Sky Code*	Cloud Cover	Temp (°F)	Notes
Trap Opening:	0630	7:17	2	0	0 %	55.5	0730 on GRID 10 63.7F
Trap Check:	1020	1130	1	0	0 %	84.2	1100 on GRID 12 84.7
Trap Check:					%	92.4	1130 on GRID 10 87.0
Trap Closing:	1150		1	0	0 %	89.6	1220 on GRID 10 92.0

Trap Station	Military Time	Species			Capture		Age		Sex		Reproductive Code(s)*	Marking Color	For New Animals		
		MGS	RTGS	Other	New	Recap	ADU	JUV	M	F			Total	Bag	Net
12-C9	1029	MGS				R	A		~~M~~	~~F~~	~~PURPLE~~ NS	PURPLE			
12-A8	1036			AGS		R	A			F	NR	PURPLE			
10-C5	1107			AGS		R	A			F	NR	PURPLE			
10-C8	1114			AGS		R	A		M		NS	GROTN			
10-B9	1116	MGS				R	A			F	NR	PURPLE X			
10-E2	1127			AGS	N		A		M		S	ORANGE			

Mohave Ground Squirrel Study - Daily Summary Sheet

Date: 4/28/2013	Site Name: Hinkley Grid 11	Observers: Leo Simone, Denise Woodard, Ingri Quon, Bill Deane	Page 1 of 1

	Start Time	End Time	Wind Code*	Sky Code*	Cloud Cover	Temp (°F)
Trap Opening:	0710	0733	1	Ø	Ø %	72.5
Trap Check:					%	
Trap Check:					%	
Trap Closing:	1116	1133	2	Ø	Ø %	88.4

Notes
1116 = 88.4°F
1136 = 91.3°F

Trap Station	Military Time	Species			Capture		Age		Sex		Reproductive Code(s)*	Marking Color	For New Animals		
		MGS	RTGS	Other	New	Recap	ADU	JUV	M	F			Total	Bag	Net
Ø															

H:\BIOLOGY\ANIMALS\Mohave ground squirrel\Volunteer MGS Trapping\MGS_RGS Daily Summary Sheet.xls4/24/2013

Mohave Ground Squirrel Study - Daily Summary Sheet

Date:	Site Name:	Observers:	Page___of___
4-28-2013	Hinkley 10 & 12	A. Greco, A. Napiatek, J. Hare	

	Start Time	End Time	Wind Code*	Sky Code*	Cloud Cover	Temp (°C)	Notes
Trap Opening:	0630	0720	0	0	0 %	60.3/70	
Trap Check:	1030	1140	0	0	0 %	85.5/	
Trap Check:					%		
Trap Closing:					%		

Trap Station	Military Time	Species			Capture		Age		Sex		Reproductive Code(s)*	Marking Color	For New Animals		
		MGS	AGS	Other	New	Recap	ADU	JUV	M	F			Total	Bag	Net
12 A1	1035		AGS			RECAP	ADU			F	NR	PURPLE			
12 A3	1100		AGS			RECAP	ADU		M		NS	PURPLE			
12 A5	1052		AGS			RECAP	ADU		M		NS	GREEN			
12 A7	1115	MGS				Recap	ADU		M	M	NR	PURPLE			
10 A9	1122		AGS			Recap	ADU			F	NR	PURPLE-GREEN			
10-C10	1125		AGS			Recap	ADU		M		NR	GREEN			
10-E10	1127	[illegible]	AGS			Recap	ADU		M		NS	PURPLE			
10-D7	1132		AGS			2nd Recap	ADU			F	NR	PURPLE			
10-D1	1138	MGS				RECAP	ADU			F	NR	PURP + GREEN			

55mm - Tail

* See reverse for codes

Mohave Ground Squirrel Study - Daily Summary Sheet

Date: 4/28/13	Site Name: Grid 9 Hinkley Grid 11	Observers: Hays, D. Dillard, E. Marshall	Page___of___

	Start Time	End Time	Wind Code*	Sky Code*	Cloud Cover	Temp (°F)	Notes
Trap Opening:	6:38	7:35	1	0	0 %	60.6	
Trap Check:	10:26	11:26	1	0	0 %	84/85.5	
Trap Check:		12:03 (11)			%		91.9 – Grid 11
Trap Closing:	11:26	11:37	1	0	0 %	90.5	– Grid 9

Trap Station	Military Time	Species			Capture		Age		Sex		Reproductive Code(s)*	Marking Color	For New Animals			Tail
		MGS	RTGS	Other	New	Recap	ADU	JUV	M	F			Total	Bag	Net	
9-D7	1105	MGS				Recap	ADU			F	NR	Red				64mm
9-A9	1115			AGS			ADU			F	NV	Orange				
9-B5	1120			AGS		Recap	ADU		M		TS	Blue				

Mohave Ground Squirrel Study - Daily Summary Sheet

Date: 4/28/2013	Site Name: Hinkley Grid 9	Observers: Leo Simone, Denise Woodard, Ingri Quon, Bill Deane	Page 1 of 1

	Start Time	End Time	Wind Code*	Sky Code*	Cloud Cover	Temp (°F)
Trap Opening:	0635	0700	1	Ø	Ø %	65.1
Trap Check:					%	
Trap Check:					%	
Trap Closing:	1036	1107	2	Ø	Ø %	87.3

Notes: ~~0740 = 73.5°F~~ start
0900 = 80.7°F

Trap Station	Military Time	Species			Capture		Age		Sex		Reproductive Code(s)*	Marking Color	For New Animals		
		MGS	RTGS	Other	New	Recap	ADU	JUV	M	F			Total	Bag	Net
B4	1045			AGS		R	Ad			F	NR	Red			
E6	1048	MGS				R	Ad			F	NR	~~Blue Purple~~			

Mohave Ground Squirrel Study - Daily Summary Sheet

Date: 4/29/13	Site Name: Grid 10	Observers: Stu Richardson, John Hays, Eric Martinelli	Page 1 of ___

	Start Time	End Time	Wind Code*	Sky Code*	Cloud Cover	Temp (°F)	Notes
Trap Opening:	06:15	07:30	1	0	0 %	68.0	
Trap Check:	10:15		1	0	0 %	83.0	
Trap Check:					%		
Trap Closing:		11:35	1	0	0 %	90.3	

Trap Station	Military Time	Species			Capture		Age		Sex		Reproductive Code(s)*	Marking Color	For New Animals		
		MGS	RTGS	Other	New	Recap	ADU	JUV	M	F			Total	Bag	Net
10-A-10	11:16	MGS				X	X			X	NR	Purple X			
10-D-10	11:22			AGS		X	X		X	X	NS	Purple			
10-E-3	11:27			AGS	X		X		X		NSCSOTW	GREEN Circle			
10-E-2	11:32	MGS				X	X			X	NR	Purple x w/ Green			
10-D-1	11:35			AGS		X	X			X	NR	Purple			

Mohave Ground Squirrel Study - Daily Summary Sheet

Date: 4/29/13	Site Name: Grid 12	Observers: Stu Richardson, Jon Hays, Eric Martinelli	Page 1 of

	Start Time	End Time	Wind Code*	Sky Code*	Cloud Cover	Temp (°F)	Notes
Trap Opening:	06:15	07:00	1	0	0 %	68.0	83.0
Trap Check:	10:15		1	0	0 %	~~80.0~~	
Trap Check:					%		
Trap Closing:					%		

Trap Station	Military Time	Species			Capture		Age		Sex		Reproductive Code(s)*	Marking Color	For New Animals		
		MGS	RTGS	Other	New	Recap	ADU	JUV	M	F			Total	Bag	Net
12-A-2	10:37			AGS		X	X			X	Pregs visible	Green			
12-E2	10:44			AGS		X	X		X		Now scrotal	Green			

LSA ASSOCIATES, INC.

51 traps

Mohave Ground Squirrel Study - Daily Summary Sheet

Date: 4/30/2013	Site Name: Hinkley Grid 10	Observers: Denise Woodard, Ingri Quan, Bill Deane	Page 1 of 1

	Start Time	End Time	Wind Code*	Sky Code*	Cloud Cover	Temp (°F)
Trap Opening:	0655	0711	2	1	15%	73.4
Trap Check:					%	
Trap Check:					%	
Trap Closing:	1000	1025	2	1	5%	84.9

Notes: wind: 9-11 mph; wind: 9-12 mph cool-mild; 91.4°F @ 1130

Trap Station	Military Time	Species: MGS	Species: RTGS	Species: Other	Capture: New	Capture: Recap	Age: ADU	Age: JUV	Sex: M	Sex: F	Reproductive Code(s)*	Marking Color	For New Animals: Total	For New Animals: Bag	For New Animals: Net
C6	1008	~~MGS~~		AGS		R	A		M		NS	Green			
C10	1013			AGS		R	A		M		NS	Purple			
D3	1018			AGS		R	A			F	NR	Purple			
D1	1020			AGS	N		A		M		NS	—			
E1	1021	MGS				R	A			F	NR	Purple - Green			

LSA ASSOCIATES, INC.

53 traps

Mohave Ground Squirrel Study - Daily Summary Sheet

Date: 4/30/2013	Site Name: Hinkley Grid 12	Observers: Denise Woodard, Ingri Quan, Bill Deane	Page 1 of 1

	Start Time	End Time	Wind Code*	Sky Code*	Cloud Cover	Temp (°F)
Trap Opening:	0630	0650	2	1	15 %	70.5
Trap Check:					%	
Trap Check:					%	
Trap Closing:	1040	1103	2	1	5 %	87.8

Notes
wind: 9-11 mph
wind: 9-13 mph cool-mild
91.4°F @ 1130

Trap Station	Military Time	Species			Capture		Age		Sex		Reproductive Code(s)*	Marking Color	For New Animals		
		MGS	RTGS	Other	New	Recap	ADU	JUV	M	F			Total	Bag	Net
D9	1043			AGS		R	A		M		NS	Purple			
* C9	1044	MGS				R	A		M	F	NS	Purple			
D1	1058			AGS		R	A		M		NS	Green			

* Scale: 2.4 inches tail

Mohave Ground Squirrel Study - Daily Summary Sheet

Date:	Site Name:	Observers:	Page___of___
4-30-2013	GRIDS 11 & 9	SIMONS, RICHARDSON	

	Start Time	End Time	Wind Code*	Sky Code*	Cloud Cover	Temp (°F)	Notes
Trap Opening:	0630	0725	3	2	25 %	69.5	~~SIMONS, RICHARDSON~~
Trap Check:					%		
Trap Check:					%		
Trap Closing:	1000		3	1	10 %	85	

Trap Station	Military Time	Species			Capture		Age		Sex		Reproductive Code(s)*	Marking Color	For New Animals		
		MGS	RTGS	Other	New	Recap	ADU	JUV	M	F			Total	Bag	Net

INDIVIDUAL RECORD

ESRP MOHAVE GROUND SQUIRREL STUDY

GRID: GRID 9 (Name and No.) TRAP STATION: E7

COLLECTOR: SIMONE PIT TAG NO: _____ TAGGED PREVIOUSLY? Y N

DATE: 4/26/13 MILITARY TIME: 1052 TISSUE SAMPLE CODE: RGO

SPECIES: (MGS) AGS (Circle one) SEX: M (F) (Circle one) AGE: (ADU) JUV (Circle one)

BODY MASS: 119 g (Squirrel + bag) - 12 g (Bag) = 107 g (Body mass)

BODY MEASUREMENTS (mm):

Pes (hind foot) length _____ Leg (knee to ankle) length _____

Head length _____ Head width _____ Tail length _____

FEMALE REPRODUCTIVE CONDITION :

Circle appropriate choices:

BREEDING SEASON (Feb-early Mar) Estrus Non-estrus

POST-BREEDING SEASON Pregnant / Lactating / Post-lactating / (Non-reproductive)

Nipple condition _____ Nipple length _____mm

MALE REPRODUCTIVE CONDITION:

Circle one: Testes Scrotal If scrotal: Length (mm) _____ Width (mm) _____

Testes Non-scrotal

RECAPTURES:

Date	Time	Station
4/27		9-E8
4/28		9-D7

INDIVIDUAL RECORD

ESRP MOHAVE GROUND SQUIRREL STUDY

GRID: GRID 9 (Name and No.) TRAP STATION: E 3

COLLECTOR: SIMONS PIT TAG NO: _____ TAGGED PREVIOUSLY? Y N

DATE: 4/26/2013 MILITARY TIME: 1410 TISSUE SAMPLE CODE: BLUE

SPECIES: (MGS) AGS (Circle one) SEX: M (F) (Circle one) AGE: (ADU) JUV (Circle one)

BODY MASS: 139 g (Squirrel + bag) - 12 g (Bag) = 127 g (Body mass)

BODY MEASUREMENTS (mm):

Pes (hind foot) length _____ Leg (knee to ankle) length _____

Head length _____ Head width _____ Tail length 59.1 mm

FEMALE REPRODUCTIVE CONDITION:

Circle appropriate choices:

BREEDING SEASON (Feb-early Mar) Estrus Non-estrus

POST-BREEDING SEASON Pregnant / Lactating / Post-lactating / (Non-reproductive)

Nipple condition _____ Nipple length _____mm

MALE REPRODUCTIVE CONDITION:

Circle one: Testes Scrotal If scrotal: Length (mm) _____ Width (mm) _____

Testes Non-scrotal

RECAPTURES:

Date	Time	Station
4-28	10:48	9-66

INDIVIDUAL RECORD

ESRP MOHAVE GROUND SQUIRREL STUDY

GRID: HINKLEY 12 (Name and No.) TRAP STATION: B-4

COLLECTOR: A. NAPIATEK PIT TAG NO: _____ TAGGED PREVIOUSLY? Y N

DATE: 4/26/13 MILITARY TIME: 1428 TISSUE SAMPLE CODE: PURPLE

SPECIES: (MGS) AGS (Circle one) SEX: (M) F (Circle one) AGE: (ADU) JUV (Circle one)

BODY MASS: 148 g (Squirrel + bag) - 12 g (Bag) = 136 g (Body mass)

BODY MEASUREMENTS (mm):

Pes (hind foot) length _____ Leg (knee to ankle) length _____

Head length _____ Head width _____ Tail length _____

FEMALE REPRODUCTIVE CONDITION :

Circle appropriate choices:

BREEDING SEASON (Feb-early Mar) Estrus Non-estrus

POST-BREEDING SEASON Pregnant / Lactating / Post-lactating / Non-reproductive

Nipple condition _____ Nipple length _____mm

MALE REPRODUCTIVE CONDITION:

Circle one: Testes Scrotal If scrotal: Length (mm) _____ Width (mm) _____

(Testes Non-scrotal)

RECAPTURES:

Date	Time	Station
4/27	1029	12-C9
4/28	1115	12-A7
4/30	1044	12-C9

INDIVIDUAL RECORD

ESRP MOHAVE GROUND SQUIRREL STUDY

GRID: HINKLEY 10 (Name and No.) TRAP STATION: A-9

COLLECTOR: A. NARIATEK PIT TAG NO: _____ TAGGED PREVIOUSLY? Y N

DATE: 4/26/13 MILITARY TIME: 1551 TISSUE SAMPLE CODE: PURPLE X

SPECIES: (MGS) AGS (Circle one) SEX: M (F) (Circle one) AGE: (ADU) JUV (Circle one)

BODY MASS: 135 g (Squirrel + bag) - 12 g (Bag) = 123 g (Body mass)

BODY MEASUREMENTS (mm):

Pes (hind foot) length _____ Leg (knee to ankle) length _____

Head length _____ Head width _____ Tail length _____

FEMALE REPRODUCTIVE CONDITION :

Circle appropriate choices:

BREEDING SEASON (Feb-early Mar) Estrus Non-estrus

POST-BREEDING SEASON Pregnant / Lactating / Post-lactating / (Non-reproductive)

Nipple condition _____ Nipple length _____mm

MALE REPRODUCTIVE CONDITION:

Circle one: Testes Scrotal If scrotal: Length (mm) _____ Width (mm) _____

Testes Non-scrotal

RECAPTURES:

Date	Time	Station
4/27	1116	10-B9
4/29	1118	10-A10

INDIVIDUAL RECORD

ESRP MOHAVE GROUND SQUIRREL STUDY

GRID: HINKLEY 10 (Name and No.) TRAP STATION: D-1

COLLECTOR: A. NARATEK PIT TAG NO: _____ TAGGED PREVIOUSLY? Y N

DATE: 4/26/13 MILITARY TIME: 1620 TISSUE SAMPLE CODE: PURPLE GREEN

SPECIES: (MGS) AGS (Circle one) SEX: M (F) (Circle one) AGE: (ADU) JUV (Circle one)

BODY MASS: 155 g (Squirrel + bag) - 12 g (Bag) = 143 g (Body mass)

BODY MEASUREMENTS (mm):

Pes (hind foot) length _____ Leg (knee to ankle) length _____

Head length _____ Head width _____ Tail length _____

FEMALE REPRODUCTIVE CONDITION :

Circle appropriate choices:

BREEDING SEASON (Feb-early Mar) Estrus Non-estrus

POST-BREEDING SEASON Pregnant / Lactating / Post-lactating / (Non-reproductive)

Nipple condition _____ Nipple length _____mm

MALE REPRODUCTIVE CONDITION:

Circle one: Testes Scrotal If scrotal: Length (mm) _____ Width (mm) _____

Testes Non-scrotal

RECAPTURES:

Date	Time	Station
4/28	1638	10-D1
4/29	1132	10-E2
4/30	1021	10-E1

Mail to:
California Natural Diversity Database
California Dept. of Fish & Wildlife
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@wildlife.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): 04/26/2013

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Gopherus agassizii*

Common Name: Desert tortoise

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

Total No. Individuals 3 Subsequent Visit? ☐ yes ☐ no

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

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Leo Simone
Address: 20 Executive Park, Suite 200

E-mail Address: leo.simone@lsa-assoc.com
Phone: (949) 553-0666

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

5 # 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: San Bernardino Landowner / Mgr.: BLM

Quad Name: Twelve Gauge Lake Elevation: 2,225 ft to 2350 ft

T 9N R 4W Sec 2, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): _____

T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____

DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐ Horizontal Accuracy _____ meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☐

Coordinates:

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):*

Desert scrub

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:

Visible disturbances: ORV use, illegal dumping

Threats:

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 ☐

Mail to:
California Natural Diversity Database
California Dept. of Fish & Wildlife
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@wildlife.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): 04/26/2013

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Xerospermophilus mohavensis*

Common Name: Mohave ground squirrel

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

Total No. Individuals 5 Subsequent Visit? ☐ yes ☐ no

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

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Leo Simone
Address: 20 Executive Park, Suite 200

E-mail Address: leo.simone@lsa-assoc.com
Phone: (949) 553-0666

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

5 # 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: San Bernardino Landowner / Mgr.: BLM

Quad Name: Twelve Gauge Lake Elevation: 2,225 ft t0 2,350 ft

T 9N R 4W Sec 2, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): _____

T____ R____ Sec ____, ____ ¼ of _____¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____

DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☐ Horizontal Accuracy _____ meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☐

Coordinates:

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):*

Desert Scrub

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:

Visible disturbances: ORV use, illegal dumping

Threats:

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 ☐