



Appendix D

Mohave Ground Squirrel Protocol Survey Report

Kimley»»Horn



Rincon Consultants, Inc.

8825 Aero Drive, Suite 120
San Diego, California 92123
760-918-9444

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Kimley-Horn Project No: 099997004

Stephanie Loucas
Chief Development Officer
RPCA Solar 13, LLC
44 Montgomery Street, Suite 3150
San Francisco, California 94104
Via email: stephanie@renewprop.com

Subject: Mohave Ground Squirrel Protocol Survey Report for the Proposed Sunrise Road Solar Project, Unincorporated San Bernardino County, California

Dear Ms. Loucas:

Rincon Consultants, Inc. (Rincon) conducted a protocol survey for Mohave ground squirrel (MGS, *Xerospermophilus mohavensis*) for the Sunrise Road Solar Project (Project) at the request of Kimley-Horn and Associates, Inc. (Kimley-Horn) and RPCA Solar 13, LLC. The survey was designed and implemented in compliance with the requirements of the *California Department of Fish and Wildlife Mohave Ground Squirrel Survey Guidelines* (California Department of Fish and Wildlife [CDFW] 2023) for the approximate 80-acre Study Area (Project parcels; Accessor Parcel Numbers [APNs] 0498-111-04 and 0498-111-05) along 20 Mule Team Road in unincorporated San Bernardino County east of Boron, California (Figure 1, Figure 2). Rincon understands a solar project is planned for a portion of the project site. The MGS protocol survey was conducted to ensure proper analysis of potential impacts to the species from project activities. The report herein describes the results of the MGS protocol survey.

Mohave Ground Squirrel Characteristics and Distribution

The MGS is listed as threatened under the California Endangered Species Act. This species has been found in all major desert scrub habitats within the western Mojave Desert in California (Laabs 2006). MGS has been found between Palmdale and Victorville to the south, Owens Lake to the north, the eastern escarpment of the Sierra Nevada Mountain range to the west, and to the Mojave River Valley to the east (Leitner 2008).

The MGS is a medium-sized ground squirrel averaging approximately nine inches from nose to tail and displays only slight size differences between sexes (Laabs 2006). The dorsal surface is light gray or brown with a cream-colored ventral surface (Best 1995). The MGS is easily distinguishable from the white-tailed antelope squirrel (*Ammospermophilus leucurus*) which has a white dorsal-lateral stripe along each side. The MGS emerges from aestivation in spring, typically between mid-February and March, when it actively forages for vegetation, seeds, arthropods, and fruit. The MGS tends to stay close to its burrow while foraging (Best 1995). Burrows are used for aestivation and hibernation, predator avoidance, and thermoregulation. The breeding season occurs soon after emergence, and gestation lasts approximately 30 days (Best 1995). After acquiring fat stores, the MGS typically enters aestivation in July or August.



Habitat conversion due to agricultural development, suburban and urban land development, energy development, and military base development and operations has contributed to a decline in the abundance of the MGS (Laabs 2006). In addition, the species could be impacted where development occurs near the species habitat. Domestic cat (*Felis catus*) and dog (*Canis familiaris*) could be introduced predators and the use of pesticides or rodenticides may directly affect the species (Desert Managers Mohave Ground Squirrel Work Group [MGSWG] 2016). In addition to introduced predators, endemic avian and terrestrial predators of the MGS include the Mohave green rattlesnake (*Crotalus scutulatus*), desert kit fox (*Vulpes macrotis arsipus*), coyote (*Canis latrans*), American badger (*Taxidea taxus*), bobcat (*Lynx rufus*), prairie falcon (*Falco mexicanus*), golden eagle (*Aquila chrysaetos*), and red-tailed hawk (*Buteo jamaicensis*) (Best 1995).

Survey Methods

Live Trapping

The trapping survey followed the guidelines described in the *California Department of Fish and Wildlife Mohave Ground Squirrel Survey Guidelines* (CDFW 2023). Trapping was conducted by CDFW MGS Memorandum of Understanding (MOU)-holder Amy Leigh Trost. Three trapping sessions were conducted: the first from April 8 to April 12, 2024, the second from May 13 to May 17, 2024, and the third from June 3 to June 7, 2024. Sherman live traps measuring 3 inches wide, 3.75 inches tall, and 12 inches long were used. Traps were placed in six-inch cardboard box shades assuring air movement around the traps. Traps were spaced approximately 35 meters apart and the 10 trapping grid lines were oriented on an east-west axis with 10 traps on each line (totaling 100 traps) (Figure 3). Each trap was labeled with a unique identifier (ID). Traps were opened within one hour of sunrise and baited with a mixture of sunflower-free birdseed, sweet cob, and peanut butter powder. Traps were checked every two hours, if temperatures were expected to reach 32.22 degrees Celsius (°C; 90 degrees Fahrenheit [°F]), or every four hours if temperatures were not expected to reach 32.22 °C. Traps were closed beginning one hour before sunset or when temperatures reached 32.22 °C in the shade measured one foot above ground. Per the protocol, on days when traps were closed due to high temperatures four hours or more after opening, the effort was considered a full trap-day. Weather conditions and start/stop times for each trap check were recorded.

The trap ID and species were recorded for each animal that was trapped. Each animal was marked with a non-toxic marker to denote recapture. All animals were released unharmed at the specific trap site immediately following processing. In the event of an MGS capture, additional information was recorded including the weight, sex, age, health and reproductive status; a scat sample was also taken.

Camera Trapping

The camera trapping portion of the protocol survey followed the methods outlined in the *Mohave Ground Squirrel Survey Guidelines* (CDFW 2023). Camera trapping was conducted by CDFW MGS MOU-holder Amy Leigh Trost during each of the three live-trapping sessions. Five camera stations were placed approximately 170 meters (~558 feet) apart within the Survey Area during each session. Each camera station consisted of a single motion-activated wildlife camera mounted on a T- or U-post facing north, aimed at the ground. The center of each camera's field of view was approximately 140 cm (55 inches) from the camera. A bait station with birdseed, sweet cob livestock feed, and peanut butter powder was placed at the center of each camera's field of view. Bait tubes with horizontal slots for small mammal access to the bait were staked to the ground at each camera station. Camera stations were set up on the first day of each session and taken down on the last day of each session. Each station was left up for five days and checked in the middle of each week to ensure the cameras were



working correctly and to top off the bait tubes and change batteries, as necessary. Photos were downloaded from the remote cameras and reviewed to confirm presence/absence of MGS and document other wildlife observed during the survey.

Survey Results

Live Trapping

Habitat within the trapping grid consists of *Atriplex Polycarpa* Shrubland – Allscale Scrub Alliance (Sawyer et al. 2009). Dominant species in the tree layer include Joshua tree (*Yucca brevifolia*; State Candidate Endangered). Dominant species in the shrub layer include spiny saltbush (*Atriplex confertifolia*), cattle spinach (*Atriplex polycarpa*), hop sage (*Grayia spinosa*), Anderson thornbush (*Lycium andersonii*), Cooper’s boxthorn (*Lycium cooperii*), white bursage (*Ambrosia dumosa*), burrobush (*Ambrosia salsola*), and creosote bush (*Larrea tridentata*). Dominant species in the herbaceous layer include bristly fiddleneck (*Amsinckia tessellata*), red brome (*Bromus rubens*), rose buckwheat (*Eriogonum gracillimum*), red stemmed filaree (*Erodium cicutarium*), yellow desert primrose (*Oenothera primiveris*), mediterranean grass (*Schismus barbatus*), and tumble mustard (*Sisymbrium altissimum*). Photographs are presented in Attachment 1.

The Survey Area contained habitat suitable for MGS occupation, characterized by abundant small mammal burrows at the base of shrubs, sandy to gravelly soils, and appropriate desert scrub vegetation communities. Additionally, the Survey Area is within the known yearlong range of MGS (Zeiner et al. 1988-1990).

The topography of the trapping grid is relatively flat. Active burrows and sign of white-tailed antelope squirrel and kangaroo rat (*Dipodomys* sp.) were observed within the grid. Disturbance in the form of off-highway vehicle tracks and trash was observed throughout the Survey Area.

Dates of and conditions during each trapping session are detailed in Table 1, Table 2, and Table 3, along with a summary of the number of trap checks per day, times traps were opened and closed, and average weather conditions. Temperatures of at least 32.22 °C occurred for most of the May and June sessions resulting in traps being closed early in the day. Traps were open for at least four hours each day resulting in full-trap days each day.

Table 1 April 8 – April 12 Session - Timing and Conditions

Trapping Date	Time Traps Open	Time Traps Closed	Begin Temp (C)	End Temp (C)	Windspeed (mph)	Precipitation
4/8/2024	0710	1925	3.33	12.22	1-0	No
4/9/2024	0615	1910	3.33	18.88	0	No
4/10/2024	0600	1930	5.55	22.22	0	No
4/11/2024	0630	1510	7.77	32.22	0	No
4/12/2024	0630	1955	7.77	16.66	0-10	No

**Table 2 May 13 – May 17 Session - Timing and Conditions**

Trapping Date	Time Traps Open	Time Traps Closed	Begin Temp (C)	End Temp (C)	Windspeed (mph)	Precipitation
5/13/2024	0535	1220	17.78	32.78	0-5	No
5/14/2024	0525	1215	15.56	33.33	0-3	No
5/15/2024	0525	1220	18.89	33.89	0-3	No
5/16/2024	0525	1200	16.67	33.89	0-3	No
5/17/2024	0525	1215	17.78	34.44	0-8	No

Table 3 June 3 – June 7 Session - Timing and Conditions

Trapping Date	Time Traps Open	Time Traps Closed	Begin Temp (C)	End Temp (C)	Windspeed (mph)	Precipitation
6/3/2024	0510	1140	17.78	34.44	0-3	No
6/4/2024	0510	1100	17.22	33.33	0-3	No
6/5/2024	0510	1050	18.33	37.78	0-3	No
6/6/2024	0510	0950	20.56	37.22	0-3	No
6/7/2024	0510	1025	24.44	36.11	0-3	No

A total of 89 white-tailed antelope squirrels and one Merriam’s kangaroo rat (*Dipodomys merriami*) were captured over the three trapping sessions. Both juvenile and adult life stages of antelope squirrels were captured and all individuals were in good health. No MGS individuals were captured or observed within the trapping grid. In addition, various common lizard species were incidentally captured and released. The completed CDFW trapping form is included as Attachment 2.

Other species observed within the trapping grid moving through the Survey Area included Great Basin whiptail (*Aspidoscelis tigris tigris*), spiny desert lizard (*Sceloporus magister*), Mojave rattlesnake (*Crotalus scutulatus*), common raven (*Corvus corax*), northern mockingbird (*Mimus polyglottos*), and loggerhead shrike (*Lanius ludovicianus*).

Camera Trapping

A total of 62,816 photos captured ten different species during the camera survey. The species captured included white-tailed antelope squirrel, desert kit fox (generally protected as a fur-bearing mammal by the California Fish and Game Code Section 4000 et. seq.), kangaroo rat (*Dipodomys* sp.), pocket mouse (*Perognathus* sp.), desert cottontail (*Sylvilagus audubonii*), domestic cat, common raven, loggerhead shrike, California horned lark (*Eremophila alpestris actia*), western fence lizard (*Sceloporus occidentalis*), and Great Basin whiptail. No MGS individuals were captured on camera or observed during the habitat assessment survey or camera check site visits.

Conclusions and Recommendations

Per the MGS protocol, no detection of MGS (negative survey results) are interpreted to mean that MGS are not present on the project site. These survey negative results are valid until the next MGS survey period (March 2025).

Minimization and avoidance measures are outlined in the Initial Study-Mitigated Declaration (Kimley Horn 2024) to reduce impacts to wildlife detected during the surveys including a project-specific Worker Environmental Awareness Program (WEAP, MM BIO-2), nesting bird surveys and avoidance



(MM BIO-10), desert kit fox pre-construction surveys and natal den avoidance (MM BIO-6, MM BIO 7), and standard construction Best Management Practices (BMPs).

Thank you for this opportunity to support your project. If you have any questions regarding this submission or any of the information provided herein, please contact Andrea Maben at 442-325-7967 or amaben@rinconconsultants.com, or Angie Harbin-Ireland at 858-243-1505 or aharbin@rinconconsultants.com.

Sincerely,
Rincon Consultants, Inc.

Amy Leigh Trost
Biologist

Andrea Maben
Senior Biologist/Project Manager

Angie Harbin-Ireland
Director of Natural Resources

Attachments

- Figure 1 Regional Location
- Figure 2 Survey Area Location
- Figure 3 MGS Protocol Trapping Grid for the 80-acre Survey Area
- Attachment 1 Trapping Grid Photographs
- Attachment 2 CDFW Trapping Form

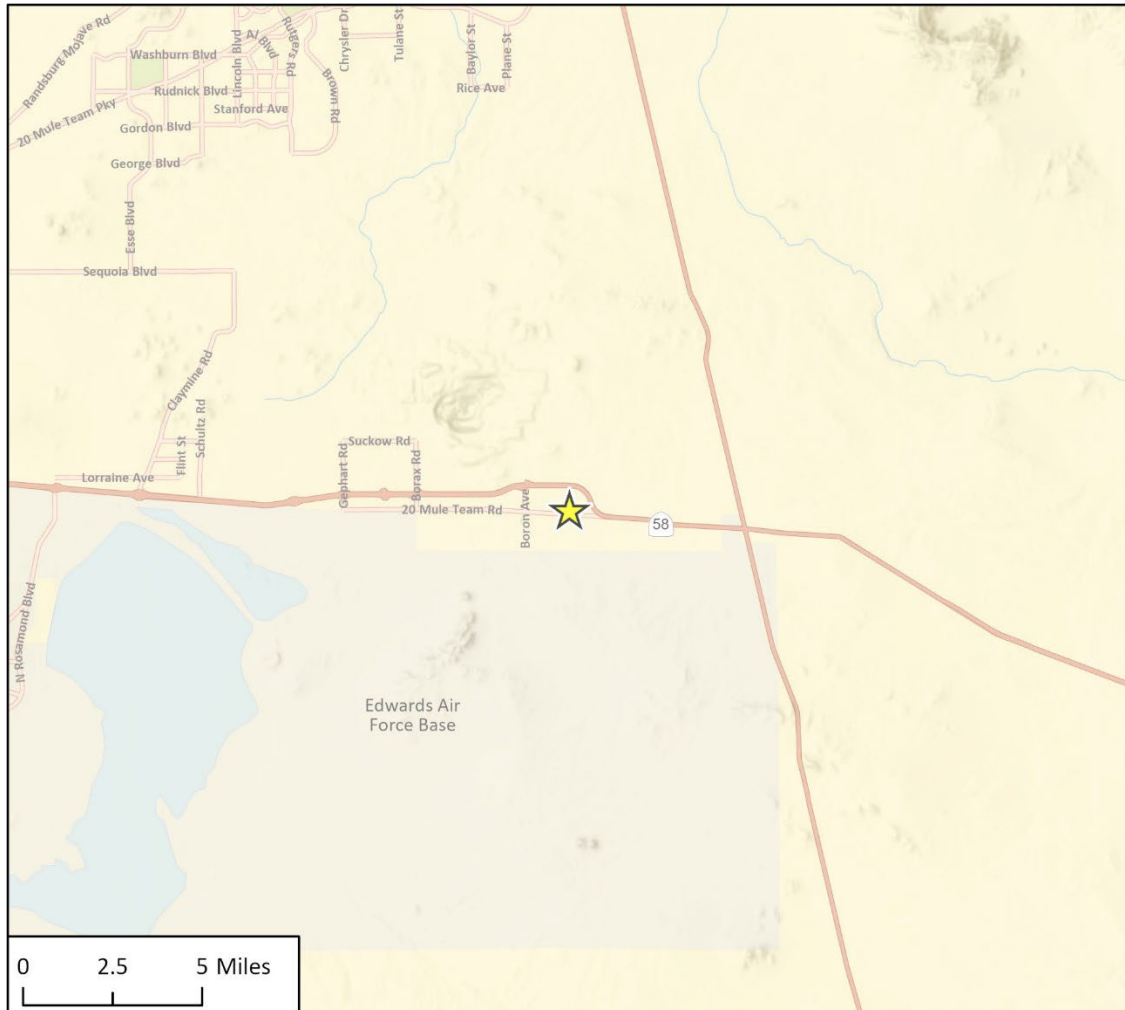


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Figures

Figure 1 Regional Location



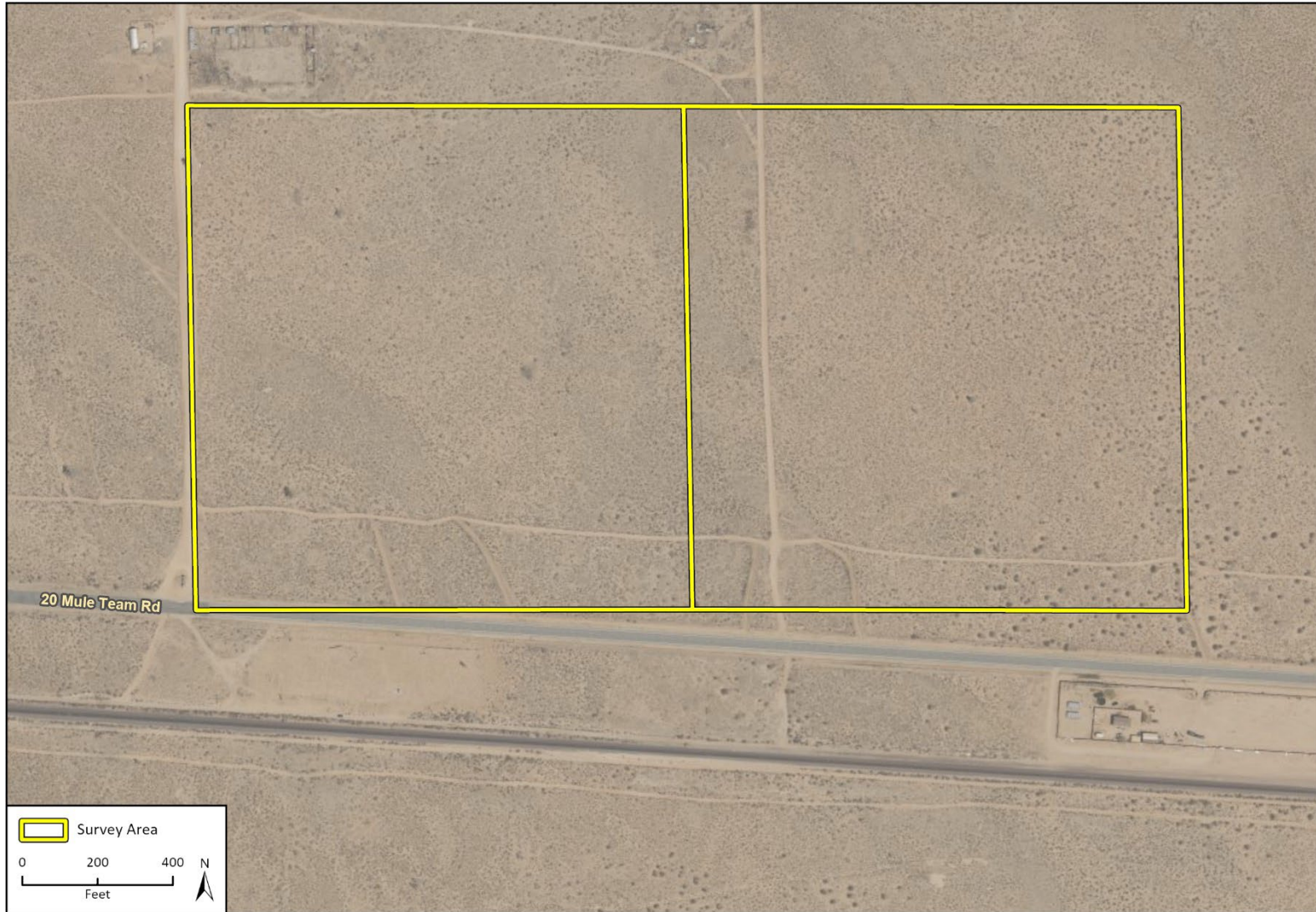
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23-15079 Sunrise BIO
 Fig. 1 Regional Location_Sunrise

Project Location



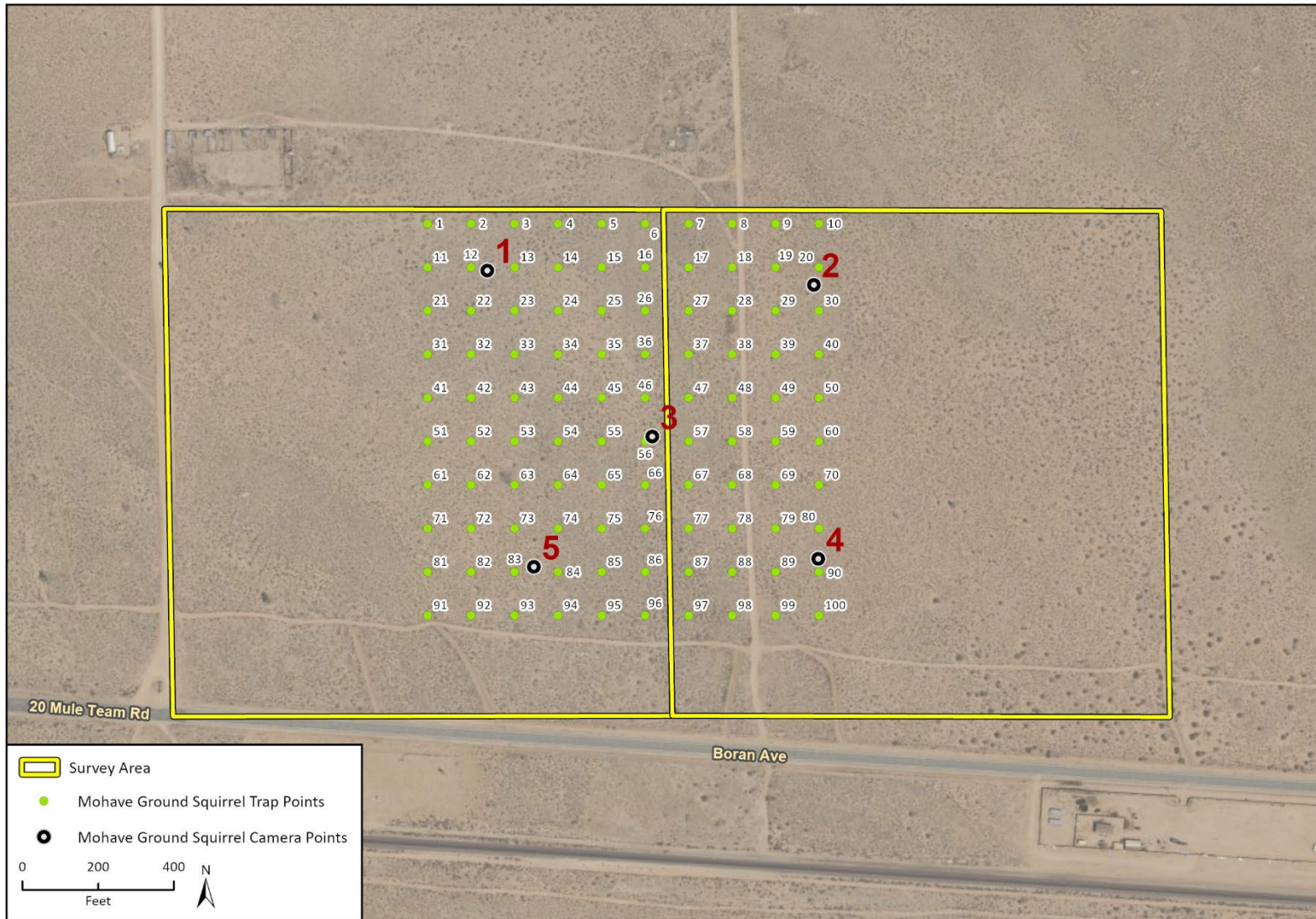
Figure 2 Survey Area Location



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23-15079 Sunrise BIO
Fig 2 Survey Area_Sunrise

Figure 3 MGS Protocol Trapping Grid for the 80-acre Survey Area



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23-15079 Sunrise BIO
Fig X MGS Trapping Results

Attachment 1

Trapping Grid Photographs



Photograph 1. View of habitat within MGS trapping grid, facing northwest.



Photograph 2. View of habitat within MGS trapping grid, facing southwest.



Photograph 3. View of MGS trap in shade, facing south. A rattlesnake was observed coiled next to shade.



Photograph 4. Juvenile white-tailed antelope squirrel captured during MGS trapping.

Attachment 2

CDFW Trapping Form