

**Mohave Ground Squirrel Technical Advisory Group
18 November 2014**

Partial List of Attenders: Larry LaPre, Phil Leitner, Don Mitchell, Tom Campbell, Bruce Garlinger, Glenn Stewart, Becky Jones, Reagen O’Leary, Tonya Moore, Erin Whitfield, Ed LaRue, Eric Weiss, Curt Uptain, Scott Harris, Chris Titus, Darren Newman.

Partial List of Web-X Attenders: Scott Osborn, Moshe Wolfe, Judy Hohman, Dave Hacker, Dave Delany, Amy Fesnock, Margaret Mantor, Julie Vance, Ryan Young, Lehong Chow, Jeff Aardahl.

Reports from the Field

(Presenters are asked to provide power points and pdfs to Scott Osborn and Eric Weiss).

Liana Aker summarized camera studies for spring 2014 at Fort Irwin where they had 26 camera stations from March through June in western expansion area. They had two young of the year on cameras and two animals observed by staff, for a total of four. They attempt to locate stations near weather stations and vice versa.

Ed LaRue summarized trapping efforts west of Harper Lake Road and at three L.A. County parks, including Phacelia Wildflower Sanctuary where MGS were trapped. Nine MGS (including one hybrid) were trapped 30 times on Hinkley 7 site and 5 were trapped 9 times at Phacelia.

Kathy Simon summarized trapping southeast of Olancha along east shoulder of Highway 395 at a proposed solar site, where they caught both male and female MGS on the transmission line between the two sites. No sign of reproduction at that site, which is consistent with Coso. Kathy also trapped four grids in the foothills of Tehachapi, about eight miles west of Mojave that were all negative; there was high rainfall, and bear scat everywhere. This raises the question of the need for more trapping west of Highway 14, which should be considered at the next meeting.

Phil Leitner summarized other volunteer trapping efforts from spring 2014. He valued the volunteer effort at about \$100,000. Edward AFB has funded camera work in a study to identify photographic subjects to species, with a report forthcoming. Vocalization identification may work when young are present but would not work throughout the season.

- Camera Trapping. Dave Delaney and Phil performed camera studies west of California City on eight sites on BLM land. Much of this area is identified as a Development Focus Area under the DRECP. All eight 2014 camera trapping efforts were negative. Phil is becoming more suspicious of both visual sightings and camera identifications. Tissues should be taken from any squirrels east of Kramer Junction and south of Harper Lake.

- At Coso, there was no indication of reproduction in several adult females trapped. The 2012 year was a record high for MGS, and only 10 squirrels trapped in Coso in 2014, following two dry years.

- Reproduction. There was reproduction in L.A. County, Fort Irwin, and south of Harper Lake. Three inches of rain is still considered to be the minimal threshold to promote reproduction. There were 12 trapping grids in recent years between Barstow and near Harper Lake Road. There has been no trapping on Edwards since 2011. One of Marjorie Matocq’s students found a round-tailed ground squirrel on the east part of Edwards in 2006.

Mohave Ground Squirrel Conservation Update

Margaret Mantor has been working on the conservation strategy for the past year.

- Background. The strategy was started in 2006, and then reinitiated in 2010 and again in 2012. Draft 2 distributed for internal review by CDFW in 2013, mostly by Randi Logsdon. Margaret is now the lead on the strategy. She has requested that the strategy be released to the TAG, but still on hold. Wants it to be reviewed and draft 3 released in the fall or winter of 2015, for public input in summer of 2015. The final document is to be released in early 2016.
- Components. Goals are to assess current understanding; formulate achievable objectives; and provide conservation measures, including those addressing climate change. The strategy does not currently have prescriptive measures. Strategy has five parts: Habitat Protection (by identifying important core areas and purchasing private lands for protection), Conservation Mechanisms (standard survey methods and field techniques, landscape conservation, restoration/enhancement, and education programs), Research Needs (map shows areas needing more study), Climate Change (reduce existing stressors, multiple scenario projections, establish conservation areas), and Adaptive Management (assess effectiveness, research results, assess climate change impacts).
- DRECP relationship. Margaret gave a brief overview of DRECP. The strategy was originally intended to be provided to DRECP planners. DRECP presumably governed by NCCP, which is intended to protect larger regions. There is concern that the DRECP does not support earlier drafts of the conservation strategy. She then showed a map of conservation areas independent of the DRECP, which may be in conflict. The recently extended DRECP deadline for comment is 23 February 2015. Margaret's goal is to have comments/concerns to MGS TAG before the comment deadline.

DRECP Discussion

- Be sure to check Appendix H, CMA (Conservation Management Actions) in DFAs for some region-specific measures, including higher compensation areas just north of Edwards, where ratios could be 5:1 in the final analysis.
- Jeff Aardahl indicated there are three places where DFAs (open to geothermal, solar, and/or wind) occur within the MGS Habitat Management Area (HMA) and linkages. These are from north to south, as follows: (1) The DFA located in Rose Valley (275 MW power plant already there), which affects the entire valley (BLM already completing a Draft EIR/EIS independent of the DRECP for expanded geothermal in Rose Valley). (2) The area north of Edwards Air Force Base and south of California City, which extends east to Borax mine areas, and may cut off the connectivity between DTRNA and Edwards AFB inclusive of the four-section Borax conservation area. (3) The proposed Special Assessment Area (SAA) west of Highway 395 and north of Edwards AFB ("Bowling Alley") is a key habitat linkage between Edwards and populations to the north. Was not identified as a DFA (Opti-Solar bought out by First Solar studied the Bowling Alley area in mid- to late 2000's, but application withdrawn).
- Concerned about acquisition of private land as part of NCCP and General Conservation Plan (GCP). There is a Conservation Planning Area west of the Bowling Alley that has conservation value for MGS and desert tortoise, which are lands predominantly private that may be targeted for purchase under the NCCP and GCP. This would be the targeted area for compensatory habitat. These would become 70% of the effective conservation area of MGS and tortoise under the USFWS' GCP and CDFW's NCCP through land acquisition by DEREK fees.

- Dave Hacker thinks Bowling Alley is more of a Core Area than a linkage area. DRECP shows “Important MGS Habitats,” which includes the Bowling Alley as a key population area. Mosheh Wolfe and Phil Leitner explained there are excesses of subdivision roads, small private parcels, heavy OHV use, and persisting sheep grazing in the intended conservation area.
- Alternatives 3 and 4 show the DTRNA as being eliminated and reclassified as a DFA; portions (500 acres?) would also be available for development under the Preferred Alternative.
- Can a DFA be changed to Future Assessment Area or Special Assessment Area? Important to remember that each DFA has specific management prescriptions, so not applied programmatically. The DRECP will look specifically at the final designation on the Bowling Alley (now a SAA), which will be determined in the Final DRECP. Don’t look at the Preferred Alternative, only, as components of all alternatives are likely to be incorporated in the final decision. As envisioned, Renewable Energy Action Team believes that only 50% of a given DFA may be developed; could recommend that less than 50% of a given DFA be developed.
- Special Recreation Management Areas and Extensive Recreation Management Areas are identified for camping, recreation, and OHV in addition to photography and low-use recreation. BLM (Amy Fesnock) believes that recreation and conservation are compatible. No new routes or roads planned. Designation protects against development by putting SRMA and ERMA on top of an ACEC, as a given area would function for both conservation and recreation and therefore be “doubly protected.” These areas coincide with existing recreational uses. Will designating something as an Extensive Recreation Management Area be construed by the public as a newly targeted area for off-road vehicle activity? No definitive answer.
- Scott Osborn encouraged individual comments, but said MGS TAG should not comment.

Needed Studies for Conservation (2015 through 2020)

- Phil Leitner provided the following overview. Need to monitor four core areas identified as “Key Population Areas” in Phil’s 2008 summary. We would need to perform mark-recapture trapping to judge population stability and fluctuation. Areas include Little Dixie Wash, Coolgardie Mesa, Western Expansion Area of Fort Irwin, and Edwards AFB. Coso uses 441 traps, which could be repeated in the core areas. May also perform camera studies as those performed in 2011 and 2012 (123 sites were selected) to be studied every five years. He used two lines of five cameras, two grids 100 meters apart with stations 150 meters apart. For the long term, may establish 100 specific stations to be operated every five years. Stations are now on BLM lands, and eventually, hopefully on military lands.
- Issue of hybridization? Climate change may be supporting range extensions by round-tailed ground squirrels. Need additional studies to determine round-tail dormancy periods, genetics, dispersal capabilities, and foraging, among others. Phil showed a map from Nussear and Esque predicting a major reduction of MGS habitat within the existing range, additional areas north and east that may be newly occupied, and areas where there is No Change (much of which coincides with DFAs to the southwest). Given the hybrid situation, camera studies must be supplemented by tissue sampling.
- Data gap areas include L.A. County, south and north of Adelanto to Shadow Mountains, and parts of China Lake. Tom Campbell is concerned that there should be additional studies north towards Death Valley and west over Walker Pass, as the range may extend into these two outside Gustafson’s 1993 range revision. China Lake is unable to fund MGS trapping for a species that is not federally listed. Phil then showed polygons from his 2008 summary where new efforts are needed.

- Need to identify priorities for acquiring conservation lands, both under the DRECP and the MGS conservation strategy. Phil believes that a corridor along the north side of Highway 58 several miles wide and south of Inyokern are several priority areas.
- Winter-fat and hopsage are Great Basin species that reach their southern limit in the range of the MGS. Climate change may affect the distribution of these species. Tom Campbell just resurveyed transects first surveyed in early 1980s that did not show much change (he will share with Phil). In 1998 Ed LaRue performed triangular transects where he collected shrub data.
- Scott Osborn would like the MGS TAG to look at Phil's recommendations and prioritize actions that should be pursued immediately and eventually.

How Can Trail Cameras Be Used in Protocol Trapping?

- For now, the need for tissue collection depends on locations of the grid.
- For protocol trapping, the limitation is that you stop as soon as you catch a MGS. Cameras allow you to sample squirrels when temperatures are excessive.
- Methods are cost effective, but what about photo analysis? Analysis is cost effective if you're just looking at presence/absence. Camera surveys are definitely cheaper than trapping, with one person running 50 to 60 cameras. No need for skilled labor. Do not need to check daily if there's some way to keep bait present. Some have seen bait stations attract ravens. Has anyone run cameras without bait? Not any experience with mineral baits, which may attract squirrels.
- There needs to be a science-based study that looks at efficacy of trapping versus camera studies, baited versus un-baited camera stations, etc. Also methods where hair samples may be collected from squirrels at bait stations. Hair can be used but need follicles. One can also determine genetics from scat.
- Dave Delaney and Phil caught 8 MGS at Fort Irwin in traps, then set up cameras and obtained photographs of all 8 animals and a few extra animals.

Genetic Studies

- Known contact zone is between Hinkley and Kramer Junction. Thanks to volunteers in 2013 and 2014, we have been able to collect hybrid data in this area. Marjorie Matocq will soon report results. In Hinkley Valley, Bill Vanherweg caught what appeared to be round-tailed ground squirrels that later turned out to have MGS genes. "Backcross" is the term Marjorie uses to describe a pure MGS mating with a hybrid. Dave Hafner found hybrids in the Helendale area, based on protein analysis.

Next Meeting

- MGS TAG should plan on having a two-day meeting in the spring, which will focus on reviewing the then-current draft of the MGS conservation strategy; continue to look at data gaps in and adjacent to the geographic range; and continue to consider research needs.
- We should plan on meeting during first two weeks of March to avoid beginning of protocol trapping period.