

**Mohave Ground Squirrel Technical Advisory Group
Meeting of March 5, 2014**

Agenda and Summary from Judy's notes

CDFW to provide official summary at later date with copies of presentations (the maps, graphs and charts are very informative).

Round-robin Presentations – Results from 2013 and Plans for 2014:

In previous years, several areas were identified where there were no records of trapping or trapping not been done for a long time. Some of these "gap areas" were trapped or camera trapped in 2013, a dry year. Some are scheduled for trapping in 2014.

2013: 6 trap grids completed near Mojave, CA with negative results. 1 trap grid completed south of Adelanto with negative results.

5 west of CA-14 and 2 E of California City on CDFW reserve (Hyundai mitigation lands) have MGSs.

2014: Camera traps planned for CDFW reserve northeast of California City
Leitner plans to trap at 2 sites in Coso area (Coso Basin 3500 ft and Cactus Peak 5000 ft)
Volunteer effort on BLM land at 8 sites W of Cal City toward Mojave
Volunteer effort on 6 LA County parks after permits are obtained

Incursion of RTGS into MGS Range & Effects of Prolonged Drought on MGS Protocol Trapping

Concern expressed for trapping MGS in the third drought year as the stressed animals would be stressed more by trapping.

Photos from Delaney and Leitner work in 2012 between Hinkley and Kramer Junction revisited. Area had many MGS. Eight miles east of Kramer Junction, 1 RTGS was seen and is only one this far west. Until additional data are obtained, it may have hitched a ride on a truck transporting feed or other method. However, recent data indicate the RTGS range is expanding N and W into previously MGS range. Reason is thought to be climate change and disturbance. RTGS is adapted to hotter environments and appears to fair better than MGS in disturbed habitats.

USGS completed habitat suitability modelling and mapping for MGS. There is a 2030 and 2080 map (on CEC website). Maps show rapid loss of habitat in southern portion of range. By 2030 no suitable habitat from Kramer Junction to Hinkley to Fort Irwin. By 2080, only the current extreme northern portion remains with habitat in the Owens Valley.

DRECP mentioned as needing to include monitoring in the document, specifically rangewide monitoring of MGS to detect changes in distribution of the species and habitat and what may be causing these changes.

For example, recent research from UCSC (Barry S.?) indicates PV arrays radiate heat and increase temperatures around them by as much as 1.2 degrees C. Thus the impact of PV on habitat is larger than the footprint of the project.

MGS and DRECP (Amy Fesnock, BLM)

Set the background: Document is a general conservation plan, NCCP, and Land Use Plan Amendment to 2040, about 50+ covered species and covered activities are utility-scale (20 Mw or greater) geothermal, solar, wind energy generation and transmission. CBI website has gateway to DRECP data layers. Only includes current boundary of Mojave Desert and Colorado subdivision of Sonoran Desert in CA. Looks at management from a landscape scale and tries to address habitat connectivity. Proposes existing and new ACECs on BLM land in CDCA. Site specific permits would be needed for nonfederal projects (document is a general conservation plan). Unknown how various state land ownerships will be affected/implemented. On BLM land, 1 percent cap on approved development is not in addition to the 1 percent in the CDCA plans (this was not clear in the presentation so specific question was asked). Part of 1 percent cap will not be reserved for non-energy uses. 1 percent cap measures the surface disturbance, not the perimeter of the project (e.g. wind energy perimeter may be 5,000 ac but BLM would measure the surface disturbance as 200 ac). Funding and monitoring not included in DRECP. Not all counties are “on board.” Alternatives in the draft range from resource protection to flexibility for enhanced energy development (e.g., development in the DTRNA). Final document will likely be a melding of the alternatives. Please provide substantive comments.

Historic and Ongoing Processes Contributing to Genetic Diversity and Divergence in MGS (Marjorie Matocq, UNR)

Mitochondrial DNA analysis – subdivision on MGS aligns with historic presence of water from Owens River System (i.e., 2 source populations with one from north of China Lake complex and one from south). West and north portions of range grew with retraction of Owens River system.

Nuclear DNA microsatellite analysis - three groups of genomes: north, west central, and south but with recent indications of gene flow between three groups.

Combined genetic info with habitat suitability model from USGS for existing habitat locations. Results showed redundancy in paths of connectivity within and between three groups. Conducted a fine scale measure of genetic structure at Freeman Gulch (sample size 40 adults and 97 juveniles). Calculated 1100 meter distance for genetic dispersal in this local populations. Compared results to Harris and Leitner 2005 where average dispersal distance was 1700 meters in the Coso Range.

Modeled MGS across the landscape for 500 generations with static habitat models at 3 time frames (current, 2030, and 2080). By 2080 there is a collapse in connectivity and in area. Genetic diversity: current habitat model shows genetic diversity is high in the south, medium in the middle, and low in the north for current range of MGS. In 2030 and 2080, there is a dramatic decline in genetic diversity with changes in demographic rates.

Landscape Connectivity of the MGS: A multi-scale framework for conservation prioritization (Tom Dilts, UNR)

Looked at climate change, three renewable energy scenarios (on BLM land, DRECP 1 and DRECP 5) and existing land use. The USGS MGS habitat model identified 4 major factors influencing identification of habitat (surface texture, albedo, winter CWD [drought], and winter precipitation). By 2080 all habitat south of Ridgecrest is gone except along the base of the Sierra Nevada. Information is available at www.energy.ca.gov/2014/publications/CEC-500-2014-003/CEC500-2014-003.pdf; also Inman et al. 2013 in *Endangered Species Research* 20:1-18 and

Esque et al. 2013 as a CEC publication (CEC 500-2014-003). These documents discuss habitat modelling, landscape genetics, and habitat connectivity for MGS to help guide renewable energy development.

Proposed Wind Energy Development in Little Dixie Wash (Larry LaPre, BLM)

Two easement requests filed with BLM by a couple. Now want to develop for wind energy. Corporation status is not current. Paperwork has confused the two sites. Plan of development is inadequate. No wind data from the site so likely there will be no investors. When draft DRECP is released to public, all renewable energy projects not in a released NEPA document will be off the table.

Reporting of Trapping Results; Use of BIOS Database (Scott Osborn, CDFW)

Scott reminded trappers of the spreadsheet that must use to submit their information collected on MGS and site conditions. Advised people that the BIOS data base can be queried and suggest that people use it and report how they liked it.

Mohave Ground Squirrel Conservation Strategy – Update (Margaret Mantor & Randi Logsdon, CDFW)

Outline of strategy presented. Currently working on avoidance and minimization measures portion. Other sections remain to be written. Schedule is to have a draft for public review in late fall 2014.

Is It Time to Update the TAG's Mohave Ground Squirrel Conservation Priorities Document? (Scott Osborn)

This is a 3 page document that appears to be current. Suggested compiling where land acquisition has occurred for conservation and use this information to identify where it should occur and add that to the document.