

**MOHAVE GROUND SQUIRREL TECHNICAL ADVISORY GROUP  
CARRIAGE INN CONFERENCE CENTER  
RIDGECREST, CALIFORNIA  
SEPTEMBER 24, 2009**

**M E E T I N G   N O T E S**

**START TIME:** 10:00 A.M.

**END TIME:** 4:30 P.M.

**ATTENDEES**

**WELCOME AND INTRODUCTIONS**

- Scott Osborn introduced himself as the California Department of Fish and Game (CDFG) replacement as facilitator of the Mohave ground squirrel (MGS) Technical Advisory Group (TAG). Scott Osborn replaces the role formerly held by John Gustafson.

**HISTORY OF THE MGS TAG**

- Phil Leitner and Kristin Berry suggested the formation of an advisory group in the 1990s. Becky Jones stated that the California Energy Commission (CEC) and the Desert Tortoise Council (DTC) were the original founders of the MGS TAG and that CDFG became participants several years after the inception of the group.
- The MGS TAG is now an informational group that is open in terms of membership. Danielle Dillard suggested there should be more formal representation at MGS TAG meetings for participating agencies and groups. This would give the group more consistency and perhaps benefit the mission of the TAG.

**INFORMAL DISCUSSION OF FIELD SEASON RESULTS**

**2009 MGS surveys at Marine Corps Logistics Base and Status of MGS and Round-tailed ground squirrels (RTGS) in the Barstow Area (Phil Leitner)**

- Phil Leitner showed a map of the historic range of the MGS which clearly demonstrated that the Marine Corps Logistics Bases is outside of the known MGS range and that the population status of MGS in Barstow is unknown.
- Six (6) study sites were selected non-randomly based on the habitat characteristics of the area. Studies were concentrated on areas that were more likely to contain MGS (e.g. focused on areas of wash habitat with alluvium, while areas of rocky terrain were avoided). These areas were not subjected to protocol trapping. There was one trapping session for a period of five (5) days. No MGS were found at any site. RTGS were detected at Yermo.
- Phil Leitner stated that from a regional perspective there are MGS records east and west of the base, as well as a visual record south of Barstow. Phil Brylski asked if

Phil Leitner had double checked the records for authenticity and the answer was no. Phil Leitner stated that he doesn't trust all of the sighting records. For example, a 1981 sighting in the Daggett area and Coyote Dry Lake were actually RTGS. Another record from Barstow in 1993 is being removed from the California Natural Diversity Database (CNDDDB). Two of the changes were initiated by the reporters of the sightings due to later uncertainty.

- Phil Brylski stressed the importance of reporting *possible* sightings to the CNDDDB. Stating a sighting "may have been an MGS" is important because that data point may raise future questions regarding the occurrence of the species.
- Tom Campbell commented on the lack of sightings reported in the CNDDDB by Denise LaBerteaux and Jeff Aardahl. Shelley Ellis stated that it often takes years for submitted sightings to be posted in the database after submission.
- Kathy Simon stated that trapping west of Highway 14, west of the town of Mojave was negative for MGS, but a small population of desert tortoises was found west of Highway 14.

### **MGS Surveys on CDFG owned lands (Shari Heitkotter)**

- In 2008 five (5) trapping days using 100 traps in mid-April resulted in the capture of zero (0) MGS and five (5) Antelope ground squirrel (AGS).
- Five (5) days of trapping with 144 traps occurred in the CDFG owned Section 1 which abuts the southwestern corner of the Desert Tortoise Research Natural Area (DTNA) resulted in the capture of zero (0) MGS and four (4) AGS.
- Trapping at Indian Wells, near Little Dixie Wash, resulted in the capture of zero (0) MGS and twenty (20) AGS.
- Trapping in the Freemont Valley Preserve in June resulted in the capture of zero (0) MGS.
- Phil Leitner expressed concerns that no MGS were sighted on reserve lands. Ryan Young stated that low trapping success may result from the drought year of 2008. He noted that after some rain there was a spike in juveniles and the second trapping session of the year. Colleen Brock confirmed that she witnessed this same spike during her surveys of 2008.

### **MGS Surveys in the West Mojave Ecological Reserve (Denyse Racine)**

- Surveys were conducted to locate MGS, desert tortoise, and rare plant species in three areas north of Kramer Junction and east of Highway 395. Phil Leitner helped select the sites for trapping grids. Three (3) sessions of trapping using 100 traps were conducted. Protocol desert tortoise surveys were not conducted.
- Area 1 was previously grazed and habitat currently consists of creosote and shadscale shrub. One (1) male juvenile MGS was found, as well as six (6) AGS. New locations were found for the Barstow Woolly Sunflower (a native rare plant species). Two desert tortoises were encountered (one male and one female).
- Trapping in Area 2 resulted in zero (0) detections of MGS or AGS. No desert tortoises were sighted although several active burrows and other signs were detected. Barstow Woolly Sunflower was present in Area 2.

- Area 3 was the most remote of all surveyed sites and had the best habitat. No MGS or AGS were detected. Four (4) desert tortoises were encountered in addition to two (2) Mojave green rattlesnakes.
- There are plans to trap remote mitigation lands in 2010. CDFG is currently trying to secure funding for these surveys.
- Glenn Stewart stated that Area 1 was used as a relocation site for 25 desert tortoises in 1987 that came from the solar power plant near Kramer Junction. The transmitters were never removed. Based on the information provided by Denyse Racine at least one of the translocated males survived.
- Jeff Aardahl referenced a ground squirrel survey in 1980. In 36 trap hours, eight (8) adult females, two (2) adult males, and 23 juveniles were trapped.

#### **MGS Survey Results for Edwards Air Force Base (Kathy Simon)**

- There are 60 long-term monitoring plots at Edwards Air Force Base (EDAFB). Thirteen of these sites were trapped for MGS this year. Seven (7) of the 13 plots were positive for MGS. A total of 22 MGS were trapped. There was evidence of recruitment this year as multiple juveniles were trapped.
- Phil Brylski commented on the great trapping records produced by EDAFB. Kathy Simon stated that long-term trapping for MGS has only been occurring for the last ten years although there is a great deal of long-term plant information which provides a great opportunity to make a correlation between MGS and ideal habitat.

#### **Fort Irwin Western Expansion Area (WEA) Study: Trapping Results (Phil Leitner)**

- MGS survey results from 2006-2007 were positive for MGS at 10 of 12 sites.
- Surveys conducted in 2009 used non-random site selection and re-sampled sites with the highest MGS numbers from 2006-2007 surveys. In 2009 MGS were only trapped in two locations. This information reinforces the difficulty of finding MGS.
- Throughout the trapping sessions there was no evidence of MGS reproduction or recruitment. This information also emphasizes the effect of drought on MGS populations. MGS seem to need 65-80 mm of winter rain for reproduction.

#### **Fort Irwin WEA Study: Audio-visual Monitoring of Feeding Trays (David Delaney)**

- The use of audio and visual monitoring can improve our knowledge of presence and absence surveys and therefore make trapping more effective.
- Three to five audio-visual systems were set up per grid five (5) days after they were trapped by Phil Leitner (see Ft. Irwin WEA Trapping Results above).
- Feeding trays were established and monitored for 24 hours. Four (4) distinct individuals were recorded. Also caught on video was evidence of the dominant characteristics of the MGS. An MGS was recorded chasing away an AGS. AGS typically stayed on the periphery of dishes. No RTGS were recorded.
- Additional issues to consider when using this time of monitoring: the attraction of human subsidized predators (especially ravens) and how to mark individual ground

squirrels for identification. Ground squirrels were detected at comparable (or greater) units than trapping surveys.

- Recordings were also made of ground squirrel vocalizations. Vocalization behavior did not appear to be different with or without a researcher present. The primary frequency of vocalization is in the 6.5-7 kHz range. One animal appeared to be responding to a Mockingbird. A female was also observed calling to a juvenile. Phil Leitner stated that this information indicates this is communication rather than basic alarm calls. Phil Brylski suggested using play back of calls where MGS are known to occur in order to determine the amount/likelihood of a response.

#### **UPDATE ON THE CDFG BIOS DATABASE FOR MGS (Scott Osborn)**

- The goal is to have the BIOS Database updated by next year with help from Phil Leitner.
- Currently high resolution links of the maps aren't available. If anyone is interested in have copies of the maps Phil Leitner will mail them a copy of a CD with the images.

#### **ENERGY PROJECTS-UPDATES AND GROUP DISCUSSION (Tonya Moore & Kathy Simon)**

- The federal government made a list of priority projects that are to be fast tracked. Phil Leitner asked how we find out about projects that have been proposed on private lands. The CEC web site has all solar thermal and some of the photovoltaic projects posted, although Tonya Moore mentioned that the site is not updated.
- Phil Leitner expressed his concern about the Mojave Corridor. Kathy Simon inquired about the existing knowledge of the north to south movement of MGS through that area. Phil Leitner stated that little is known at this juncture, but he believes that this development will still cut off the north EDAFB population from the rest of the range. Phil Leitner says there are two obvious corridors that should be purchased by the state and force alternative energy producers to work elsewhere.
- Russell Scofield stated that the Conservation Land Acquisition Work Group is looking at this very issue and plans to coordinate acquisitions to achieve maximum benefit of resources, especially for the benefit of imperiled plant and animal species, as well as cultural resources.
- Scott Osborn asked the group to define the role or mission of the MGS TAG.
- Tonya Moore stated that there is an immediate need for MGS information for many of the smaller projects north of Highway 58. Kathy Simon made the point that the West Mojave Plan (WEMO) only addresses these issues on Bureau of Land Management (BLM) lands and does not cover private lands (this is one of the reasons that CDFG doesn't back the WEMO).
- Becky Jones suggested the delineation of corridors to show impacts (a "conceptual corridor plan") and then project proponents can be directed away from these areas.
- Tonya Moore stated one problem is the majority of project proponents are assuming MGS presence rather than conducting surveys resulting in a lack of hard science proving the range of the species. Another problem is that soon there won't be appropriate mitigation habitat left.

- There are 1.8 million acres in MGS conservation areas and 1.3 million of those acres occur on BLM land. One percent of these lands can be disturbed. Larry La Pre had several suggestions for ways the MGS TAG can provide immediate assistance to the BLM.
  - The BLM District Manager wants criteria for giving away the 1% of disturbance. So far we know that power plants can't be in core areas and that they can't break linkage corridors. One of the problems is that the linkages are still unknown. The MGS TAG needs to provide *proof* of linkages between core areas.
  - Recommend the size of core conservation areas and to provide information on the delineation of the sizes.
  - Provide recommendations for translocations of animals (including badgers and kit foxes).
  - Provide information on the potential for captive breeding of MGS.
  - Determine if habitat can be compatible with transmission lines.
  - Determine if required habitat can be compatible with Off-road vehicle use.
  - Contribute to the Desert Renewable Energy Conservation Plan.
- Steve Juarez suggested the MGS TAG provide our best guess at linkages as quickly as possible for the benefit of the species.

#### **GENTIC STRUCTURE OF MGS POPULATION SUBDIVISIONS BASED ON MICROSATELLITE MARKERS (Marjorie Matocq)**

- Studies have been conducted using Cytochrome B to determine the distinction between lineages of MGS and RTGS. Based on data analysis there is a 4.7% divergence that occurred approximately 1.7 million years ago. The majority of the diversity appears to come from the Sonoran populations.
- MGS diverged more recently, which is evidence by the fact that the tree generated by the study has less structure. RTGS show long-term stability in southern locations. MGS along the northern and western portions of the range show a signal of expansion.
- To determine if MGS are a unique or transitional species, nuclear microsatellites were compared at 12 location for MGS and six (6) locations for RTGS. Data indicate that the MGS is a unique species with its own distinct evolutionary lineage. There is potential for hybridization between the two species.

#### **DESERT MANAGERS GROUP MGS WORK GROUP (Russell Scofield)**

- The Desert Managers group (DMG) was formed in 1994 as an interagency partnership to serve as a collaborative forum to manage, conserve, and enhance the California desert.
- A great deal of conservation planning occurred in working sessions in 2007 prior to the loss of a major funding source. Now it is important to step back from planning that occurred in previous working sessions and look at the reality of issues in 2009, especially in light of renewable energy development. The conservation strategy for MGS needs to be revised and taken to completion.

- Major needs/issue are:
  - Determine the range of MGS and the location of corridors
  - Manage from a multi-species landscape perspective
  - Determine how much land is needed to sustain MGS populations
  - Develop an MGS data repository. There is overlap among managers, but very little in the scientific community
- The suggestion of the creation of a MGS “data dump” by DMG was supported by the majority of the MGS TAG. Dave Delaney expressed the concern that scientific research could be scooped from the web site. Methods of restricting access to the site were discussed briefly.

#### **UPDATE ON PETITION TO LIST MGS UNDER ESA (Judy Hohman by phone)**

- The following is a brief summary of the review process when a species is petitioned to be added to the ESA list. A petition is submitted and a Staff Biologist writes a finding which is then submitted to the Regional Office. At that point the document is reviewed by the Regional Office and then sent the Washington Solicitor’s Office. The USFWS then publishes a 90-day finding in the Federal register. If the finding is positive a status review is initiated. If the finding is negative USFWS states why they aren’t moving ahead with a listing
- The 90-day finding is currently being reviewed by the Washington D.C. office. This means the petition to list MGS (originally submitted in 2005) is currently halfway through the review process.
- Only information included in the original submission will be included in the USFWS review process. This means that the effect of renewable energy will not be included in the review of MGS status as this information wasn’t included in the original petition for listing the species.
- If the 90-day finding is positive another 12 month review period begins during which the species will be given no special status for protection. Don Mitchell asked about the requirements for emergency listing with the new current threats (i.e. renewable energy development). Judy Hohman stated there would be a two year minimum for a new petition with updated information to be reviewed. Jeff Aardahl suggested calling the Washington D.C. office to learn more about the process.

#### **DEVELOPMENT OF MGS MONITORING PROGRAMS AT EAFB (Ted Donn)**

- The existing monitoring program at EAFB consists of 60 fixed long-term monitoring locations, with 10 to 15 locations sampled on rotating basis each year. Grid design (4 x 25 traps at 35 m spacing; 8.8 ha). Trapped for 5 days (500 trap-days). Provides numbers of animals caught and locations
- This project’s objectives were to consider alternative approaches that would provide scientifically defensible and cost-effective estimates of population size.
- Concurrent with the 2009 monitoring effort, implemented two phase design which included dispersed track stations (for occupancy) and a web-grid trapping design (for population estimates). Placement was stratified by four basic habitat types.

- Track plate trials using linear discriminant analysis yielded correct species identification for MGS and AGS 71 to 88% of the time.
- Track stations showed no occupancy of MGS at 22 transects and one or more sets of tracks at 13 transects.
- For the web-grid trapping, a distance-detection function was developed.
- Total EAFB MGS population size point estimate from the web-grids was 15,900 with 95% CI range of 2,900 to 38,100 individuals.

### **GENERAL DISCUSSION ABOUT THE FUTURE OF MGS TAG**

- Marjorie Matocq volunteered to help get habitat suitability modeling accomplished
- TAG should provide input to South Coast Wildlands project
- Should the TAG develop smaller subgroups to address specific tasks?
- Should the TAG meet more frequently to help make progress on specific tasks?
- Should the TAG have meetings focused on specific issues or tasks?
- Someone needs to assemble an MGS database!
- Phil Leitner's maps from his *Transactions of the Western Section of TWS* article should be shared
- Develop an MGS Conservation Strategy; should address both Core areas and Linkages
- TAG should review and support the CAPP letter prepared for the Wildlife Conservation Board
- A scientifically-defensible and comprehensive geographic range map for MGS needs to be made available – where are surveys and mitigation for MGS needed?