

**Mohave Ground Squirrel Technical Advisory Group**  
**21-22 February 2017**  
**Bureau of Land Management, Ridgecrest CA**

Attendees (for one or both days): Phil Leitner, Bill Vanherweg, Bruce Garlinger, Denise LaBerteaux, Carrie Woods, Tom Egan, Ed LaRue, Leo Simone, Shari Heitkotter, Maryanne Huizing, Howard Clark, Brad Haley, Brian Berry, Ileene Anderson, Rachel Woodard, John Hays, Erin Martinelli, Sarah Barrera, Lehong Chow, Linda Connolly, Don Mitchell, Liana Aker.

Partial List of Web-X Attendees: Scott Osborn, Becky Jones, Agnieszka Napiatek, Benessa Espino, Dave Hacker, David Delaney, Carol Watson, Scott Harris, Nancy Frost, Kim Marsden, Lori Bono, Lisa Gymer, Adam Walters, Amy Fesnock, Ryan Young, Kathy Simon.

When you search “MGS TAG” on the CDFW website, there is now a formal website with updated information through February 2016. Presentations shared today and in future meetings will be posted. Herein Action Items are underlined with responsible parties in bold.

**Tuesday, 21 February 2017**

**Field Efforts for 2016 and Plans for 2016**

Liana Aker. Liana indicated at Fort Irwin in 2016 they had 600 total camera trap days with 125 MGS images at 7 of 12 camera stations, which is their best year yet. Not sure how many different MGS, but had 2 males, 1 female, and 2 juveniles that could be distinguished as individuals. They had a fair number of badger images at 4 of 12 camera stations, which is where MGS were also photographed. Are badgers eating MGS? In 2017 she will be using soil moisture probes at known MGS historic locations in the Superior Lake area. Cameras were put out about 10 days ago, with only eight cameras out right now. The work has been restricted to the Western Expansion Area in both known MGS locations and in other unique spots. She has been working with her pit bull mix that is fairly good at differentiating between RTGS and MGS. H.T. Harvey & Associates has also been working with dogs to detect certain species in the Los Angeles area; **Maryanne** will share H.T. Harvey & Associates contact names with Liana. Bill Vanherweg indicated his dog was good with MGS but not other species, such as RTGS, and that his dog detected animals that could have been long since gone. Most dogs react with target species but not non-target species.

Phil Leitner has received three years of funding from BLM, and this will be the first of three years using money from that grant. This year he and his crew will be monitoring populations in the Little Dixie Wash and Coolgardie Mesa Core Areas. Last year, only one MGS was captured in Little Dixie Wash and none on Coolgardie. So, he will be trapping three grids in Little Dixie Wash and three more in Coolgardie. He is also looking at areas west of Hinkley to see how far west the RTGS population is extending. Only one of six grids trapped last year had *Xerospermophilus*, with genetics not completed yet. He will be performing camera trapping west of Hinkley towards Harper and Helendale Roads, with cameras at 16 sites for five days each. These cameras will be put out in April with subsequent live-trapping where *Xerospermophilus* are photographed. He will also be trapping at Cactus Peak at Coso, but not Coso Basin, and for fewer days without pre-baiting. Phil has two journal articles that will be released in the next few months in Western North American Naturalist. One of these is foraging preferences of MGS at Coso and the other is on genetics through 2015 west of Hinkley. **Phil** will send the pdf of his new publication(s) to Scott in the next week or so.

Ed LaRue reported on coordinated trapping efforts in the Bowling Alley, along the west side of Highway 395 north of Kramer Junction. A total of 13 MGS were captured on 11 grids between March 8 and June 22, 2016. He, Sharon Dougherty, and Lehong Chow trapped the last three of six 5-day grids in northeast L.A. County, including Mescal, Theodore Payne, and Alpine Butte with no MGS encountered. It would be reasonable to trap Phacelia (where MGS were captured in 2014), Carl O. Gerhardy, and Theodore Payne again during the 10-year permit period but probably not Mescal (south of aqueduct), Butte Valley, or Alpine Butte. In 2017, Ed will trap one protocol grid at El Mirage and three camera studies including two square miles southeast of Kramer Junction and one at Cuddeback Lake. Early in 2017, he is working with some alternative bait presentations at cameras using wire cages, which appear promising (see agenda item below). He doesn't expect to trap any grids in the Bowling Alley this year. He added two references to the bibliography in November 2016 and just added five new references last week, so there are about 230 references in the current bibliography. Scott will soon post the updated bibliography to the MGS TAG website.

Leo Simone indicated that LSA may want to trap in the Bowling Alley this spring. Scott indicated that based on the information collected last year and previously by Phil and Dave Delaney's camera studies, CDFW is satisfied that the existing data for the Bowling Alley is sufficient to demonstrate the importance of this area, which will be documented in the CDFW Conservation Strategy; the Bowling Alley is considered to be necessary for continued survival of the species.

John Hays indicated LADWP will be performing three grids at Haiwee Reservoir this spring, where they've caught only AGS in recent years.

**“Distribution and genetic status of *Xerospermophilus* ground squirrels in the Barstow region.”** Many people have provided samples up through 2015 that were used in this genetics study by Phil, Jennifer Rippert, and Marjorie Matocq. The main focus is on the hybridization between MGS with its limited range and RTGS with a very extensive range. MGS has been listed as Threatened since 1984. The westward expansion of RTGS seems to be along Highway 58. In 2004 a RTGS was captured on the northeastern corner of Edwards Air Force Base. Phil reviewed MGS records from 1970's through 1993 but no RTGS reported from this same region in that time period. There have been no definitive studies on foraging ecology of RTGS in California.

Phil looked at museum records for the distribution of RTGS, and found records from 1914 through 2009 all along the Mojave River east and west of Barstow, and along Highway 58. Some of the “MGS records” out by Coyote Lake south of Fort Irwin and Daggett collected by Dave Hafner in the early 1980's had been misidentified as MGS in the CNDDDB but were actually identified in 1983 as RTGS. Marjorie assessed 127 tissue samples including 55 from the Barstow region. F1 hybrids result when pure MGS and pure RTGS reproduce. F2 hybrids result when two F1 hybrids produce offspring. Backcrosses are hybrids mating with a pure MGS or RTGS. Based on Marjorie's analysis, RTGS genes have been discovered as far west as Harper Lake Road. Tissue samples were sent out a year ago for the latest gene sequencing techniques (SNP analysis), but the results have still not been revealed. Phil and Dave Delaney captured images of both MGS and RTGS near the Hawes Relay Facility several years ago. In 2007, Don Mitchell caught both MGS and RTGS on the same grid south of Highway 58 and east of Helendale Road. We do not know how long hybridization has been occurring.

Bill Vanherweg indicated that he captured relatively more RTGS on slightly hotter days. Some of these animals that were RTGS had short, blunt tails with black bands across the tip. As trappers are approaching their traps, RTGS typically emits a high-pitched chirp whereas MGS, when they do vocalize, tend to growl. Erica Orcutt from Davis hopes to look at dispersal potential of RTGS.

### **Survey Methods – Camera Trapping.**

**Bait presentation for camera studies, 2016 and 2017 results:** Ed noted last year in the Bowling Alley that ravens were not visiting camera stations with wire bird cages and suet cages. Between February 4 and 17, 2017 Ed put camera stations out at the Mescal Wildlife Sanctuary, finding that ravens are not regularly visiting modified cages with wooden boxes. The three-inch deep boxes with ½ x ½ inch wire mesh covers maintained grain at five stations for a total of six days without being visited by ravens or being depleted by rodents. Ed should shorten the time elapsed on his cameras to five seconds between triggers rather than one minute used. Ed will continue to look at this presentation at the Phacelia Wildlife Sanctuary or BLM lands and create two-inch deep wire-covered boxes for comparison. MGS were captured at Phacelia in 2014, so may be a good place to test. Scott will post a pdf of Ed's presentation on the CDFW website.

**Testing different methods of baiting trail cameras for Mohave ground squirrels – study proposal:** Phil and Bruce Garlinger will be looking at the following approaches including camouflaged bait tubes, bait blocks, and automated feeders. The automated feeders would release grain several times each day. They are looking particularly at bait tubes to see the longevity of their attraction to squirrels, first detection of MGS, and repulsion of ravens. Want to be able to provide the three methods to the same MGS to see which they may prefer. Four-way would be used at all presentations except bait blocks. The study would begin the latter half of March, likely in the Little Dixie Wash area. Each array of three methods needs to be more than 50 meters apart, maybe up to 100 meters apart. The PVC tubes would have a relatively larger diameter than those used by Mary Logan at the Desert Tortoise Research Natural Area. Lehong put peanut butter on with her tubes last year and did not have significant raven attraction. They may want to set up several different types of cameras pointed at the same image.

**Recommendations for use of camera traps in MGS studies:** Dave Delaney, Dave Hacker, and Phil presented this information. Two handouts were distributed and are available on the CDFW website. Want to have quick trigger (<0.5 seconds; Browning Dark Ops are 0.7 seconds, Reconx <0.2 seconds), quick recovery (second or less), and a minimum of 60 Mb capacity on the SD card. Need to determine how to minimize the number of empty camera shots. Will be a cost-benefit analysis to see lower versus higher quality cameras function with corresponding lower and higher costs. In 2009, Dave found that the Reconx had the better durability after starting with lower quality cameras that did not hold up more than a few seasons. Need to look at physical set-up as it affects the number of false images. Also the issue of facing downwards versus horizontally onto the bait pile. The goal is to not miss any MGS images. The advantages include not needing to handle the animals, require less expertise, and minimize the level of effort. Dave Delaney would like camera trappers to provide the specifications for the cameras they are using. Individuals are asked to provide feedback to Dave Delaney about their camera settings. • Ed will ask permission to send the management plan from Richard Lyons to Dave Hacker and find out who the CDFW biologist is who approved the management plan.

## Survey Methods – Live-trapping Protocol.

**Update on CDFW trapping protocol revision:** Suggest the current protocol be modified to extend trapping beyond initial detection (currently, stop trapping with first detection) to include the entire five days in a given session. This change cannot be made for the 2017 season but should be ready by 2018. Don asked if compensation levels change as a result of MGS encounters. Becky Jones indicated that if there are more animals, compensation would be higher because it implies higher quality habitat. Bill Vanherweg indicated he would like to see the entire 15 days be required, not just five. The protocol implies that a positive result is good in perpetuity but should state that so the project proponent can see it in writing.

**Additional recommendations for protocol revision for MGS health and welfare:** Bruce Garlinger had additional recommendations that could be considered for the 2018 season and beyond. These include being sure the cardboards extend out beyond the ends of the trap, that should be at least 17 inches long. He also paints the doors tan to minimize the amount of reflection. Don Mitchell indicated they use a six-inch Uline shade that is cooler than the smaller cardboard. Leo stakes the cardboards and uses putty to keep the trap inside the cardboard. **Bruce and Scott** will continue to discuss some of Bruce's other recommendations. Don has found that Avery's waterproof mailing labels are a good way to identify the permit holder without washing off, and they indicate that theirs is a hanta virus study, and reduces vandalism. **Everyone** is encouraged to submit their trapping techniques to Scott see what works best.

**2017 Volunteer trapping ideas.** As per Scott's earlier statement, we do not plan on trapping the Bowling Alley this spring. It is most useful to consultants to trap in places where MGS occur, to continue to look for data gaps, and other areas that may be threatened with development (such as the Bowling Alley). Phil indicated that west of Highway 14 and south of Highway 58, south of Edwards, and Lucerne Valley may be areas devoid of MGS, where we would not focus our limited volunteer effort. Also discussion as to whether a range reduction is called for, where future trapping would no longer occur. Tom Egan indicated that Defenders would like to see if MGS occur south of Edwards and the relic population in the Adelanto area and north of old George Air Force Base. Problem here is the amount of private lands in these areas. They would also like to see more trapping efforts on the east side of Highway 395 north of Highway 58. Carrie indicated that BLM would be receptive to more camera trapping in the DTRNA, which would require a specific request so the BLM can write a letter of consent. They would like to trap a 300+/- acre parcel just west of the DTRNA. **Phil** will provide Carrie with his 2004 results in this area.

Shari Heitkotter indicated there are several wildlife reserve areas that she would like to have trapped to see if MGS are persisting. **Shari** will send locations of several CDFW wildlife reserves to Phil so he can share them with Leo and others who are looking for volunteer trapping opportunities. Except for some L.A. County lands, most of the volunteer effort has been focused on BLM lands. It is still very difficult to get permission to trap private lands. Resource Conservation Investment Strategy (RCIS) units have been identified in LA County where land acquisition will be focused. Don indicated that ECORP may not have any volunteer time this year. Ed has identified several BLM parcels south of Edwards that can be trapped.

Tom is interested in trapping the area between old George Air Force Base and Palisades Ranch, with one record 15 years ago around Colusa Road. Bruce has a few records between the aqueduct and southern Adelanto. Don indicated that it would be good to contact some of the absentee MOU holders (Mark Hagan was identified) to perform volunteering trapping. All agreed that putting cameras out may be the best way to determine live-trapping areas. Kathy said Ironwood can trap several grids this season and put out some cameras. Phil is also interested in trapping several miles south of Kramer Hills and about five miles east of Highway 395, which is about as far south as MGS have been detected in recent years (trapped in 2011). Phil will produce a higher resolution map (compared to his 2008 lower resolution maps showing under-represented trapping areas) identifying areas where exploratory trapping is needed. Bruce may be able to trap along the river, and expressed the importance of training MOU holders to collect tissue samples so that this skill can be added to their MOUs. It is acceptable to train with surrogate species, especially antelope ground squirrels. Brian Berry and Maryanne Huizing both asked to be contacted to help volunteer. • Liana will check with Fort Irwin to see if they can host a volunteer effort in occupied habitats for training purposes. Liana would also like to have fresh scat from all AGS, RTGS, CAGS, and MGS to continue to train her dogs.

## **Tuesday, 21 February 2017**

**Standard conservation measures for ITPs, CEQA projects – Update:** Benessa Espinosa, Aga Napiatek, and Ed LaRue were to work on this. There has been no new work on this issue since last spring. This effort goes back several years, beginning with Dave Hacker. This would serve as a MGS TAG product even if it is created by several members. There is a table of mitigation measures that Aga developed. There are about 60 existing measures with 18 measures that have been addressed and in places reworded. Ryan Young indicated that some of the measures restrict the Designated Biologist's ability to report directly to CDFW. Ed will send the current version of this table to Scott, Bruce, Don, Tom, and Benessa. • Ed asked that Scott and CDFW biologists provide feedback if he and Aga are on the right track with the measures already addressed.

**Standard qualifications form for designation of MGS Qualified Biologists.** Ryan Young has taken the lead on this exercise, which would create a specific qualification form for MGS work (CDFW currently uses USFWS tortoise qualification form). Liana wanted to know if "Designated Biologist" was well defined. This person is the same as the USFWS' Authorized Biologist, who is responsible for quality control, supervising implementation of protective measures, and basically the lead biologist on a project during project implementation. Becky Jones indicated she would like to see research and volunteer trapping added to the list of project types and experience levels. Scott indicated that once you are approved, a list of approved people would be maintained. For a listed species do not need a scientific collecting permit, but do need the SCP if you handle other species, including antelope ground squirrels. Denise advised Ryan that he should include education level and if the person is a biologist or not, and what biological expertise. Ryan feels that the form is complete and is herein turning it in to CDFW for their consideration and adoption with or without modifications. Denise, Brad Haley, and Ed agreed to complete the form to see how well it works. • Scott will work with CDFW biologists to get feedback from them.

**Update on CDFW MGS Conservation Strategy.** The responsibility to complete the Conservation Strategy has been passed onto Scott. It has already been through internal peer review by the TAG and by a few individuals whose comments have yet to be addressed. Scott and Margaret Mantor plan on working on this after July 2017, to be finished by the second half of 2017. Phil has also been asked to lend support and review the draft strategy and agreed today that he will help after the field season. Once approved, the Conservation Strategy would be used to identify specific research needs and other measures, such as conserving Key Habitat Areas, so that CDFW can begin to reference the strategy. This would also drive limited funds to specific research identified in the strategy.

**Desert Renewable Energy Conservation Plan; Bowling Alley Development Focus Area.**

Amy Fesnock shared that BLM is planning to fund renewing the MGS range and habitat use model developed for the DRECP, which had data for MGS locations up through 2012 and did not include vegetation communities. She wanted to know what other data should be added. Phil indicated that the new MGS location data should definitely be added and is important to include the new vegetation layers. Amy indicated that only about a million of the 22-million-acre DRECP area remains incomplete for the vegetation data layer. This data layer also includes the prevalence of roads and human disturbance. Sounds like BLM may have the USGS Henderson staff (Rich Inman) rework the model with this new information (though Rich is currently finishing his PhD work). Marjorie Matocq's genetics results will produce a database that may be important to this exercise, as it would reveal gene flow and necessary connectivity and interrelatedness across the range.

Ed spoke to San Bernardino County Planning Commissioner, Paul Smith, last week. Paul indicated that the Bowling Alley technical report was viewed by the other four commissioners as the only new information brought forth to the November 2016 Planning Commission meeting. Paul was not aware of any formal resolution or shift in the County's position and said he will get back to Ed once he knows more. Tom Egan indicated that First Solar received approval from BLM (CACA 566666) on 3/3/2016 to develop a 3,193-acre 440 MW solar facility north of Kramer Junction. The Peak Valley site could be developed on private lands north and south of Highway 58, west of Highway 395, on 1,045 acres. Phil indicated there is a fair amount of private land at the south end near Kramer Junction and that the substation there has available capacity to transmit additional energy. Regardless of the County's policy, a conditional use permit would still allow renewable energy development.

The DRECP indicated that new planning documents such as the CDFW Conservation Strategy will serve as what BLM is looking for to determine levels and locations of new development. At this time, Amy agreed that there may not need to be new trapping in the Bowling Alley since the Conservation Strategy is slated to be completed by year's end. The BLM will adopt the Conservation Strategy and implement its recommendations as part of the DRECP moving forward. Scott and Margaret Mantor have already talked about incorporating the new Bowling Alley data into the Conservation Strategy.

Amy indicated that clearance surveys still need to be discussed between the BLM and CDFW. Scott has indicated that CDFW generally does not support translocation projects. The BLM standard is to look to CDFW for a clearance survey protocol, so this still needs to be resolved. If

there is no guidance from CDFW, then BLM will develop its own protocol. Amy stated that none of the five projects proposed under the DRECP are in MGS habitats. Liana said she would begin developing a tentative clearance survey protocol to be considered by the MGS TAG.

Maryanne Huizing asked about the CDFW and BLM's ability to identify and implement project design that could maintain some or all habitats associated with new solar development. Scott Harris indicated he has not been able to find any literature on the value of residual habitats following solar development. Brad shared that many of the solar sites require extensive removal of soil and re-contouring 18" below grade for hydrological reasons. All solar projects do require monitoring but no central clearing house on results. Amy indicated that BLM does have the capability to implement measures that may provide for suitable habitats for some species after the site has been developed. Bill Vanherweg indicated it may be appropriate to leave animals onsite during development, assuming the project does not completely eliminate all habitats. Becky was aware that kit fox was accidentally killed during construction of the Ivanpah facility. She is also concerned about increased temperatures associated with solar panels.

**Additional discussion items.** Ed asked the TAG about the importance of producing an awareness program video for MGS conservation to be presented to workers during and prior to construction projects. Ed has several hours of footage at construction sites, power plants, and a 20 minute interview with Becky Jones. Ed will contact the cinema photographer to see if he can resume this effort. ECORP already does this in a power point format. Most people felt that it would be good to include MGS with tortoise and other species, like burrowing owl. Don Mitchell indicated that Edwards has a good vocal population of MGS at the north end of the base where individuals could perhaps be filmed in a few days. Dave Delaney may also have some footage.

At the next meeting we will start off with action items to be sure nothing is falling through the cracks. Scott will send out a Doodle Poll to see the best dates for a meeting in early August and whether attenders want a one- or two-day format.

These minutes were recorded by Ed LaRue and are subject to his interpretation. They were reviewed by Phil Leitner and Scott Osborn prior to being considered finalized. Even so, if anyone feels they have been misrepresented, please let Ed know so he can modify the minutes accordingly.