Mohave Ground Squirrel TAG Meeting
27-28 October 2021

OCTOBER 27, 2021

Welcome and Introductions: *In attendance* (the following participants were introduced at the beginning of the day with a few added as they joined, some of whom may have been missed): Scott Osborn, Debra De La Torre, Dawn Bradley, Denise LaBerteaux, Misty Hailstone, Ericka Buckreis, Marianne Huizing, Larry LaPre, Don Mitchell, Bruce Garlinger, Erin Whitfield, Howard Clark, Amy Fesnock, Todd Esque, Lisa Gymer, David Davis, Ruby Kwan-Davis, Adam Walters, Lehong Chow, Craig Bailey, Kim Marsden, Ray Bransfield, Jeremy Bisson, Thompson Banez, Dawn Bradley, Rachel Woodard, Ryan Lopez, Craig Bailey, Daniel Shrylock, Jaime Marquez, Phillip Wasz, Julisa Portugal, Ileene Anderson, Erin Martinelli, Caroline Garcia, Kathy Simon, Ryan Lopez, Renee Robison, Ashley Rosales, Mark Massar.

Housekeeping: MGS web pages, Bibliography, Meeting Documents: The Mohave ground Squirrel Technical Advisory Group (MGS TAG) is an informal group that advises CDFW in matters affecting MGS. The MGS TAG portion of the website is at Wildlife.ca.gov/Conservation/Mammals/Mohave-Ground-Squirrel/TAG. This link includes vocalizations of four desert ground squirrel species, the ongoing bibliography, MGS TAG minutes, Power Point presentations, etc.

Action Items from Spring 2019: Osborn's table was recently shared showing the status of numerous items. New and outstanding action items are identified in red font. (1) Dave Delaney and others worked on camera-trapping survey recommendations, which have been discussed and posted (done). (2) Survey protocol revisions for health and welfare have been included in revised guidelines (see discussion below). (3) The need for standardized conservation measures requires more input from CDFW biologists (requires more discussion). (4) Qualified biologist form was initially provided by Ryan Young. Lead biologists are encouraged to contact Osborn to resolve field and communication conflicts (done, but may warrant more discussion). (5) MGS clearance surveys, as per the Desert Renewable Energy Conservation Plan (DRECP), still need to be developed (no such protocol exists, was not discussed, and warrants more discussion). (6) MGS awareness program, previously proposed by LaRue, was abandoned when the videographer abandoned the project (still a good idea, but not actively pursued; MGS Conservation Strategy identifies this as a need; a tri-fold pamphlet would be helpful; no additional discussion, done for now). (7) Becky Jones was to investigate rainfall data in solar project areas, but Jones retired in September 2019, so no recent action. Erica Orcutt used PRISM in her PhD work looked at rainfall distribution (needs more discussion). (8) A survey protocol was discussed with Lindsey Rich. Phil Leitner reported on this survey effort in 2017, but there were no MGS available to test the technology (done). (9) MGS bibliography maintained by LaRue (ongoing, Osborn will post the latest bibliography completed in September 2021). (10) Food/plant ID from scat samples. Orcutt said scat samples should be stored in 95% ethanol. Phil Leitner said that there are samples, but he lacks funding to analyze them. (ongoing, as more MGS scat samples are needed, using Osborn as the central repository). (11) MGS food plant list. Osborn will contact Orcutt on her intent to publish her food plant research. (12) The Scientific Collection Permit (SCP) portal information was discussed several years ago (done, no further discussion). Kathy Simon reported that her application has been in the system for a year, to which Osborn said CDFW wants to complete

SCPs within 90 days. Justin Garcia is the contact person for SCP permits. While permits are pending, biologists are allowed to work under your latest permit until the new one is issued.

Action items from February 2019: (13) Bibliography. (14) Genetics samples are still to be coordinated through Marjorie Matocq. (15) Genetics of family group caught at Harper Lake in 2014, is still an outstanding question, but likely precluded by more important issues. (16) Scat samples, as above. (17) Fort Irwin expansion, LaRue shared that the Blue-Ribbon panel report was submitted to Army as part of their expansion analysis. (18) Trapping protocol was discussed in 2019, with input from many members. (19) Artificial Intelligence (AI) differentiation among species has been discussed by Kathy Simon, Phil Leitner, Misty Hailstone, and others but efficacy is pending. Don Mitchell indicated there has been some progress, which requires deleting non-target species and empty images. Hailstone shared that they have been working on this issue at Edwards Air Force Base, phases 1 and 2 have been completed, but still needs more work, and a report will be available upon completion. Osborn will add artificial intelligence discussions to the meeting agenda in the spring 2022. (20) Discussion of volunteer surveys in 2020, which is ongoing, and should be covered in other items.

Reports from the 2020/2021 Field Seasons:

(1) LaRue showed results of camera and trap work and incidental observations in 2020 and 2021 (Osborn will post this and other available presentations on the MGS TAG web-link). Three under-sized MGS were caught in Olancha in late March 2021. The tissue has been sent to Marjorie Matocq but has not been analyzed. Phil Leitner also caught light-weight MGS at Coso, between 75 and 85 g. So, these are probably MGS that became dormant in an emaciated condition, and likely entered dormancy weighing less than 180 g. So, will they always be small, or will they attain larger sizes in subsequent good years? LaRue showed the image of a prairie falcon that caught an antelope ground squirrel at one of his bait stations. Does it constitute take if predators depredate MGS at camera stations? Denise LaBerteaux pointed out that bait could be put under shrubs, but that would result in lots of empty images of waving branches. In the past, CDFW has said that camera trapping does not require an MOU but if predator issues become a problem, an MOU may be warranted. Matocq would like to have tissue samples from throughout the range, not just at the hybrid zone. Since MGS can backfill their burrows quickly, there is a concern that we are not excavating all burrows or capturing all MGS when sites are developed. LaRue showed one site southeast of Kramer Junction where MGS were only photographed in one of four years. As such, is there a problem when CDFW requires that MGS presence be determined before mitigation land is acceptable? The answer to this question needs more discussion.

(2) In 2020 Phil and Barbara Leitner had to cancel the Coso trapping effort due to the pandemic. In 2021, they performed trapping at Coso where good numbers were trapped (17 at Cactus Peak, 13 at Coso Basin), where body mass was very low, with half of the adults captured weighing under 100 g. They performed trapping for MGS at three Development Focus Areas (DFAs; North of Kramer, Searles Valley, and Rose Valley) using camera trapping and live trapping. Their main work in 2021 was with camera trapping at 55 sites in the central part of the range for the BLM, which repeated the work of 2011 by Phil Leitner and Dave Delaney. They concentrated on five areas between California City and Hinkley. They used bait tubes with 10 mm slots cut throughout the tube. They did not count MGS after 30 minutes to avoid duplicative counts of the same animal. Most of the MGS detections around California City were adjacent to the Desert Tortoise Research Natural Area (DTRNA). They observed MGS at 4 of 12 sites south of Kramer Junction. MGS

were found at 10 of the 12 sites around Hinkley. Finally, MGS were found at most sites north of Kramer Junction. Many of the MGS around California City and south of EAFB appeared to be emaciated. It will be important to determine just how we count MGS encounters; every image as LaRue does it or after 30 minutes as Phil Leitner has done it, which follows research standards for other species. Phil Leitner will repeat this camera study in 2022.

(3) Phillip Wasz and ECORP surveyed along Irwin Road north of Barstow along either side of the road in 2020 and 2021 and did not capture any MGS or round-tailed ground squirrels. ECORP performed a camera study for a 750-acre solar site several miles southwest of Palisades Ranch, west of the Victorville sewage plant, and north of the Southern California Logistics George Air Force Base. They established 32 cameras on 568 acres of suitable habitat, for 10 consecutive days in 2021. The proponent assumed presence, and the incidental take permit required pre-project surveys, including cameras and scopes. One adult MGS image was captured at one camera about a half mile north of the airport. No MGS or AGS were detected during burrow scoping.

(4) Ryan Lopez reported in 2021 there was lots of camera work on 3,600 acres with 600,000-700,000 images. This included Fremont Valley, west of Haiwee Reservoir, and around Red Rock. He emphasized that MGS and AGS are often found together, so we need to be careful to not skip MGS images. They use PVC tubes and a broadcaster device, using sweet cobb and sunflower seed for bait. MGS images were captured at all camera types, from Reconyx to cheaper brands, all of which worked well. No specific data for MGS encounters were in his report.

(5) Denise LaBerteaux and Bruce Garlinger of EREMICO surveyed 25 sites with 5 cameras per site on the south range of China Lake in 2021. All detections, at 13 sites, were in the southern part of the South Range. All detections were of adults, but did include yearlings, which were very thin and noticeably smaller. All MGS were nonreproductive. They detected a round-tailed ground squirrel at the center of the study area, which was the first detection of this species on China Lake, and located about 15 km west of Fort Irwin. In 2020, they had 30 cameras on the conservation easement area at Boron, which is 2,530 acres in size, where they've monitored since 2010. It was very dry, with 20 mm of rain in 2021 compared to 110 mm of rain in 2020. In 2020, they observed adults and juveniles, and only adults in 2021. In both years, MGS were spread throughout the area, including playa areas, where no MGS were detected in 2014 and 2015. In 2015, they detected 8 adults, 10 adults in 2016, 14 adults in 2020, and 20 adults detected in 2021. They used bait blocks in 2015 and 2016, and used bait tubes in 2021. Eight cameras were operated for two weeks before moving to another site, between mid-May and mid-June. Garlinger said that the slots in bait tubes should be more like 5 mm wide, that 10 mm seems too wide.

(6) Kathy Simon shared in 2020 she trapped with and for Phil Leitner including three grids at the Kudu project in California City and three grids in the DFA in Searles Valley. On the Kudu site, four MGS were captured at one grid and seven MGS at a second grid, both south of and proximate to the DTRNA. She had several squirrels travel more than 700 meters during the five-day effort. She caught one juvenile MGS near the Trona Pinnacles. She also performed two volunteer trapping grids in the Searles Valley where MGS were caught in the north parts of the valley. In 2020, she failed to trap MGS along Highway 178 where MGS were caught in abundance in 2006. In 2021, she trapped multiple grids northeast of California City for cannabis growers where she caught two MGS, weighing about 100 g in mid-April.

(7) Patricia Farmer reported she camera trapped inside the Onyx Ranch study area with 20 cameras in 2019 and again in 2021. MGS were found at 10 camera locations in 2021, where cameras were spaced 150 meters apart, alongside roads, some out to 250 meters. No MGS were observed in 2019. They expect to repeat this effort in 2023. She has been using sandwich containers but may begin using PVC tubes, as coyotes have removed the containers from the dowels (LaRue recommended fitting the top of the dowel with a hexagonal nut). The consensus is to not use blocks, and the efficacy of using PVC tubes versus sandwich containers needs more study.

(8) (The following discussion was presented on October 28) David Davis indicated they performed work at Fort Irwin where they had camera trapping in the Western Training Area in 2021. They are still analyzing the images and are using artificial intelligence technology to look at images. MGS were detected but no specific data were shared. David Davis will present more results of the camera trapping effort at the spring MGS TAG.

Plans for 2022: None discussed at this time.

Tomorrow, potential discussion items may include how to select mitigation lands, standard methods for reporting camera trap data, and predation risks during camera trapping.

OCTOBER 28, 2021

Welcome and Introductions: *Only individuals not identified yesterday are listed*: Brian Croft, Skip Moss, Caroline Woods, Eric Weiss.

Revisions to Trapping Protocol – Review and Discuss: The trapping protocol was last revised in 2010. New revisions will likely recommend camera trapping with live trapping, which depending on results, may be a permanent part of the future protocol. The project area includes all parts of a parcel that may be impacted, and capture in any place is interpreted to mean the entire site is occupied. Once MGS are trapped, presence is assumed in perpetuity. Biologists must have an MOU to trap. Osborn is planning to discontinue visual surveys in favor of habitat assessments. Live trapping methods are the same as currently written. Should we include trapping in the first half of June? Currently, the third session is mid-June to mid-July. Osborn will likely change the third session to June 1 to July 15. Trapping all three sessions after MGS are detected in the first session seems counterintuitive, as presence has been established. Since the proponent may assume presence in lieu of trapping and pursue a permit, why would they trap additional sessions? Kathy Simon suggested if MGS are trapped during the first session and the proponent is willing to pay for the next two sessions, then the proponent could be somehow compensated. Maybe if low MGS density is established, the proponent could be given a lower mitigation ratio? Since many animals are emaciated it may be deleterious to continue to capture them. Craig Bailey said there can be impacts associated with the loss of foraging habitat, even if not presently or persistently occupied. Where do we need to trap? Currently, there seems to be inconsistency among different CDFW regions. The consensus is that all sites with suitable habitat within five miles of the boundary depicted in the conservation strategy should be trapped. Kathy pointed out that round-tails are more readily trapped at hotter temperatures, and Phil Wasz pointed out seeing MGS at temperatures above 90 degrees. Recommend having cameras set out simultaneously with live traps. We may use six cameras with two different bait presentation methods, so we can compare efficacy of presentation results. There is a consensus not to use blocks or free bait. Cameras would function for at least the five days of live trapping during each of the three sessions. If there's a high risk of losing cameras, the biologist may opt to forego camera work. Osborn will further

consider the requirements to remain onsite throughout the day, six-inch overlap of shade covers, etc. He is more supportive of guidelines rather than prescriptive language. What is the best way to report camera data? We could list all species detected on cameras and the relative number of images, which may be facilitated by artificial intelligence technology. The protocol will not be ready for 2022 and the TAG will have another opportunity to review the revised draft. It may be a good idea to have CDFW regions identified and contact information listed in the protocol.

MGS Conservation Strategy: **Use of MGS Population Areas maps in the environmental review process**: Kathy Simon has observed CEQA documents where the proponent declined trapping because their site was not within a Core Area, for example. Craig Bailey said CDFW would reject such a finding. He said CDFW is looking at project placement relative to designations in the Conservation Strategy (e.g., Core Areas and Linkage Areas) to see what regional impacts may result. Ruby Kwan-Davis works on projects in LA County where Palmdale and Lancaster planning departments have followed consultant recommendations that MGS trapping not be required in suitable habitats, which CDFW does not support. Although Highway 14 is a boundary west of which MGS has never been detected (south of Highway 58), trapping within five miles west of that highway should still be required. Osborn will add the five-mile buffer area around the known range to the webpage with a description that trapping is required in suitable habitats within that buffer area.

MGS Recovery Planning – Possible TAG Position Paper: Osborn shared that the Conservation Strategy recommended that a Recovery Plan be developed, and Ray Bransfield gave a presentation of USFWS' approach to recovery planning in 2019. Even though the Recovery Plan was recommended in 2019, there was insufficient staff at that time. Osborn indicated that there will soon be dedicated staff to begin working on a Recovery Plan. He plans to write a position paper that will likely require that a Recovery Plan be developed. Osborn will develop a contact list of wildlife biologists, their regions, and their expertise, to be shared with TAG members and (if not already) posted on the website.

New viral diseases and MGS: **Are RHDV2 and SARS-CoV-2 a threat?** Is COVID a risk to MGS? Osborn contacted several experts who provided the following information. Since COVID may have originally resulted in bats, there was a question if North American bats may be affected. Infections in felids were subsequently documented. In response, CDFW suspended authorization to work with bats pending more research. Work with rodents and carnivores was not suspended in California. Osborn found research that indicates hamsters and *Peromyscus maniculatus* can be infected with SARS-CoV-2 and show mild symptoms. Rabbit hemorrhagic disease (RHDV2) has affected both wild and pet rabbits, and there is evidence in the literature that it has been transmitted to wild mice in Eurasian species in labs and alpine musk deer. There is no evidence that MGS or AGS are at risk to this virus.

Update on DRECP, North of Kramer Development Focus Area decision: Amy Fesnock introduced herself as a BLM employee working on desert issues over the last 13 years, and recently transitioned from Sacramento to the California Desert District as their DRECP specialist. There has been a five-year moratorium on solar development within the "Bowling Alley," formally known as the "North of Kramer DFA" in the DRECP. Over the last few years, BLM has funded studies in the three DFAs, including North of Kramer, Searles Valley, and Rose Valley areas. During these five years, none of the local counties developed MGS-specific strategies within their respective general plans. This five-year review period ended in September 2021. Two dozen

documents were submitted on resources within these three DFAs. The North of Kramer DFA has high resource value for MGS. The technical team's report has been written and is being reviewed by the state office. BLM is obligated to provide for multiple land use and the current administration is promoting renewable energy. The moratorium will remain in place until the technical team's report is finalized and coordination with CDFW is complete. At least two prospective solar developers have been told they cannot develop facilities there, pending results of a BLM-CDFW decision memorandum. Although the decision will be signed by BLM and CDFW, it will also involve USFWS review. In answer to Osborn's question, Fesnock shared that she had hoped BLM would have already been working with CDFW, but that January 2022 is more realistic. LUPA (Land Use Planning Amendment) BIO-IFS-36 and BIO-IFS-37 require that development within a Core Area will not impair the conservation function of that area and that development will occur on previously disturbed lands, respectively. They found that habitats in the North of Edwards DFA are not disturbed and have good habitat resource quality. She thought a project could be designed to satisfy DRECP requirements on a case-by-case basis that may allow development in a Core Area. There is a law that allows relinquishment of grazing allotments to provide for wildlife conservation and mitigation. There is an ongoing cooperative agreement between BLM and CDFW regarding conservation in the Rudnick Commons allotment west of Highway 14. Fesnock shared there has been no recent BLM contact with San Bernardino County, and that she will talk to her supervisor about contacting the county soon. There are MGS data gaps, and the Conservation Strategy fails to prioritize the best way to fill the gaps.

CDFW's Cannabis Program – Permitting and Enforcement in the MGS Range: The TAG is talking about this issue in response to Kathy Simon's concern with the prevalence of cannabis grow farms in the desert. Sarah Paulsen of CDFW shared that the issue is being addressed at both the regional and law enforcement levels. In 2016, Proposition 64 in California legalized cannabis propagation. Staff was increased since growing would likely require issuance of 1602 Streambed Alteration Agreements, and in one case an incidental take permit was issued for MGS. CDFW law enforcement gets involved when environmental laws are violated. Although many crimes were reduced from felonies to misdemeanors with passage of the proposition, violation of environmental laws, including CESA, may constitute felonies, and particularly violation of Fish and Game Code 1600, which prohibits polluting streams, is commonly associated with grow farms. CESA is more difficult to enforce because take needs to be demonstrated. Fines, clean-up, and remediation may be required of violators. California City and Adelanto allow cannabis cultivation, which is prohibited in Kern, Los Angeles, and San Bernardino counties. Inyo County does allow grow farm development when they are legally permitted. Grow sites may be dangerous and should be avoided, as drug-, human-, and arms-trafficking may also be involved, and some sites are booby-trapped. There are also dangerous pesticides involved. Sites can be reported to regional supervisors and CalTIP (1-888-334-CalTIP, 1888-334-2258).

Joshua trees have also been affected by some grow farms. When cannabis cultivation impacts Joshua trees, Randy Rodriguez is CDFW's main contact (randy.rodriguez@wildlife.ca.gov, 562-342-2143) and Victoria Tang (victoria.tang@wildlife.ca.gov) and Erinn Wilson (erinn.wilson-olgin@wildlife.ca.gov) are the CDFW contacts for impacts to and conservation of Joshua trees where cannabis is not involved. Eric Weiss (eric.weiss@wildlife.ca.gov), among others, is the main contact in Los Angeles County where cannabis is involved. The Cannabis Restoration Grant Program link is available at https://wildlife.ca.gov/Conservation/Watersheds/Cannabis-Restoration-Grant.

TWS Workshop: There was an MGS session in about 2005 in Ridgecrest in conjunction with The Wildlife Society (TWS), and more recently a two-day session at the TWS Western Section. Kathy Simon has been approached by TWS and several others, including BLM and USGS, to have another workshop. Kathy thought it may be possible to have the workshop in late 2022. Kathy suggested training students to help them qualify as biological monitors and assistants on permits. It is essential that the workshop has CDFW biologists as instructors and presenters. Concern was expressed that a one-time workshop like this is problematic for authorizing biological monitors; that even experienced people have recently been rejected. There may be differing degrees of monitoring, like the person who will excavate burrows and handle MGS versus a less-experienced person who is watching heavy equipment or checking trenches. Renee Robison indicated that CDFW has been asking that specific measures in an incidental take permit be identified for specific individuals, so that one biologist may be able to do one thing (e.g., watch trenches) while another is authorized to handle MGS. We might want to revisit the MGS qualification form at a future TAG meeting. Fesnock said that BLM would like to focus on data gaps in the science, which is best addressed with input from pertinent scientists. The Conservation Strategy appendix needs to be revisited to prioritize impending studies, which could be discussed at the workshop. It may be appropriate to conduct strategy session(s) (e.g., identifying and prioritizing studies, discussion mitigation strategies for selecting compensation lands, standardized ways of reporting camera results) that follow the more science-based presentations of the workshop. Osborn will provide pertinent documents from a 2012 Department of Defense gathering with Kathy Simon to help her strategize the workshop.

ITP measures – Can the TAG work towards improving measures to benefit MGS? It may be best to have a break-out discussion at the workshop to discuss this issue, which is too large to discuss today.

Binned Discussion Topics; Other Topics? Volunteer opportunities include trapping Los Angeles County Parks (contact LaRue), and in the southern part of China Lake (contact Erica Buckreis) to trap and collect tissue for hybrids. CDFW personnel and all others are welcome to join volunteer trappers. Please share volunteer trapping efforts with LaRue who will then share the information with the TAG distribution list.

Next meeting: The next meeting was not discussed, but typically occurs in March, in 2022, hopefully in person.

These minutes were respectfully submitted by Ed LaRue, with prior review and approval by Osborn and Leitner.