MOHAVE GROUND SQUIRREL RESEARCH AND MONITORING ACTIONS

These activities should be carried out over the next 6 years (2015-2020) until a comprehensive research and monitoring program is developed and implemented under the DRECP.

Overall Goal: Collect field data that are critical to guide Mohave ground squirrel conservation and management activities over the next 6 years.

Research and Monitoring Tasks:

1) **Monitor Important Populations** – Conduct live-trap mark-recapture surveys at 2 sites in each of 4 important population areas: Coso Range, Little Dixie Wash, EAFB, and Coolgardie Mesa-Superior Valley (WEA)

   Surveys should be carried out annually in late March-early April to assess abundance of the adult population. These data will allow detection of trends in abundance over time in 4 representative and geographically separated parts of the range.

2) **Monitor Trends in Occupancy** – Repeat the 2011-2012 trail camera surveys over 10 different sections of the range every 5 years.

   These surveys will allow an assessment of trends in occupancy at approximately 120 sites over much of the geographic range, effectively complementing the annual surveys of 4 important populations. Schedule for 2016-2017.

3) **Investigate Interactions between Mohave and Round-tailed Ground Squirrels** – Carry out comprehensive studies of the relationship between Mohave and round-tailed ground squirrels in the region between Hinkley and Kramer Junction, as well as on Fort Irwin.

   There is evidence that round-tailed ground squirrels are expanding their range westward in 2 areas: the region from Hinkley west to Kramer Junction and on parts of Fort Irwin. There is also evidence that hybridization is occurring in both areas. Live-trapping and camera trapping surveys can be used to document the changing distribution in these areas. Studies should include documentation of annual activity patterns, genetic analyses, comparison of diets, and radiotelemetry of juvenile dispersal patterns and breeding season interactions.

4) **Document MGS Status in Data Gap Areas** – Conduct live-trap and/or camera trapping surveys in areas where Mohave ground status is not well understood.

   There are significant gaps in our understanding of Mohave ground squirrel distribution, including the desert portion of Los Angeles County, certain parts of China Lake NAWS, and along US395 north of Adelanto.

5) **Identify Important Areas for Acquisition of Conservation Land** – In order to ensure adequate connectivity between certain Mohave ground squirrel populations, it is important to pursue targeted acquisition of conservation land.

   At this point, the highest priorities seem to be securing corridors linking the MGS population on EAFB with that at the DTRNA and the population in Little Dixie Wash with that in the Ridgecrest area. However, further research may identify other corridors that require protection.

6) **Investigate Potential Changes in Shrub Composition in Key Areas** – Carry out repeat surveys of shrub composition in key areas of the MGS range, focusing on potential changes in the cover and density of important MGS forage species.

   Some shrub species that are important in the MGS diet, especially winterfat and spiny hopsage, are Great Basin plants that reach their southernmost distribution in the western Mojave Desert. On-going climate change is likely to bring about significant alteration in the composition of shrub communities in the western Mojave Desert, with likely adverse effects on these plants. Shrub surveys can be repeated at up to 68 sites where data are available from the period 2002-2010.

NOTE: This is a first-version proposal for discussion, hopefully leading to a consensus document that can help to solidify agency support for studies that are needed to guide management actions over the next few years. I welcome all comments and suggestions!

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