Draft Meeting Summary
DMG Mohave Ground Squirrel Partnership Ad Hoc Work Group
February 28, 2006
NPS Office, Barstow, California

Purpose:

1. Refine elements of Conservation strategy
2. Agree on what method to use for obtaining population/statistical information
3. Set date for next working group meeting.

Participants:

Becky Jones (CDFG)-chair
Cynthia Wilkerson (DoW)
Annette Tenneboe (CDFG)
Lorelei Oviatt (Kern County)
Denyse Racine (CDFG)
Tonya Moore (CDFGS)
Manny Joia (MCLB)
Clarence Everly (DOD)
Robert McMorran (FWS)
Shannon Collis (EAFB)
Brian Shomo (NTC)
Patrick Kelly (ESRP)

Meeting Summary/Conclusions:

1) Introductions were made and agenda approved

2) Lorelie gave a presentation on the East Kern Initiative for a landfill that is proposed to be placed adjacent to the DTNA.

3) Patrick gave an overview of the ESRP proposal for the quest that had gone out for a population biologist/statistician to determine most effective/efficient method for surveying/monitoring for MGS. The goal of the ESRP proposal was to develop an economically feasible, statistically robust, and scientifically defensible survey and monitoring protocol by: 1) Holding a two-day workshop in the Ridgecrest area this spring or summer; 2) Workshop would be by invitation but participation would be

representative of the necessary expertise area (MGS biologists, Mojave Desert plant communities, experimental design, conservation and population biologist, GIS, etc.); 3) Some of the invitees will not be familiar with MGS ecology; they will have very specialized skills in population biology, experimental design, and statistics; they will also provide an unvarnished "outside' perspective on the issues involved; 4) Ideally, the workshop would include a short site visit; 5) Invited workshop participants would be paid an honorarium plus expenses for their participation; 6) Some participants would have much more extended involvement - more time would need to be budgeted for their involvement; 7) Immediate tasks included literature review, workshop coordination and completion, synthesis of inputs, draft the survey and monitoring protocols with assistance of workshop participants, finalize protocols; 8) ESRP personnel would take a lead on coordination and development of the protocols, but with specialized assistance from other experts, the workshop participants, and the DMG; and 9) Draft Schedule: coordinate and complete workshop by June 30, 2006, complete draft protocols no later then Sept. 30, 2006, and the final protocols shortly thereafter.

4) Becky presented the USGS proposal and one recommendation that she received. They areas follows-

USGS
An important first step towards an experimental design would be to utilize existing field data to develop a more precise map of the potential MGS distribution. We can take advantage of biologically-robust spatial modeling techniques to produce a range-wide distribution map that would help guide subsequent field efforts and monitoring design.

Field work to study MGS throughout its range is going to be highly labor intensive and thus expensive, so utilizing existing data to the greatest extent possible and following up with carefully planned field surveys would greatly improve the efficiency of any field efforts and more quickly lead to solid range-wide conclusions about MGS. Otherwise there is the risk of accumulating more field data at great cost that do not provide any greater resolution than what might be gained from existing data.

After the 2005 workshop, I spent some spare time modeling the MGS range from locality records to assess the feasibility and utility of such an effort, as I have done a similar process for desert-dwelling carnivore species. My initial modeling attempt for MGS showed great promise in identifying more specific areas of occurrence.

Once a predictive distribution map is developed and validated, we could assess the suite of environmental characteristics with which squirrels are most closely associated and even how these might vary from year to year. However, I did my quick initial attempt with only a subset of the pertinent MGS data, and without the statistical analysis and design expertise of Julie Yee or the detailed ecological knowledge of the region and its rodents that Phil Medica has. As a team working on this project and

utilizing other resources within our USGS Center, we would be able to provide a report on the squirrels and a map of their distribution that would answer some of the current questions and would provide crucial guidance for any field efforts.

The work that we are suggesting would lead to the development of a reliable range-wide distribution map of the localities that MGS are most likely to inhabit. If this sounds like a logical first step that you would like to consider having us pursue, we could probably start this summer and finish by year's end (Dec. 2006).

Then we could begin designing field surveys that could be ready to initiate during the squirrels' active season in 2007.

A quickly derived estimate would be a total of $30,000 - $40,000. If the funding comes from a DOI agency, the amount could be less because USGS overhead rates are higher for funding that comes from outside DOI.

Other recommendation

The advice is inexpensive, takes very little time, and is enormously useful in designing experiments and surveys, analyzing data, and reporting/interpreting results. The USGS has Dr. Julie Yee, who oversees all our work. In addition, I contract with Dr. Wayne Alley, recently retired Professor from Cal State LA. He does some of the more complex work for me, thereby assuring that I'm not stepping out on a cliff edge.

Two new books are of interest for the MGS. The first is "Sampling Rare or Elusive Species (Concepts, Designs, and Techniques for Estimating Population parameters), edited by William L. Thompson, published by Island Press, date: 2004. This is a great and useful book. Dr. William L. Thompson pulls together many different techniques, ideas, and examples and has a chapter on the topic of the second book (below) on estimating occupancy. This book is an outcome of a special session at a Wildlife Society Meeting. (I think this book is about $25)

The second book (single thought-directed) is titled "Occupancy Estimation and Modeling: Inferring Patterns and Dynamics of Species Occurrence" by D. I. MacKenzie, James D. Nichols, J. Andrew Royle, K. H. Pollack, L. L. Bailey, and J. E. Hines. Hot off the press, available from Amazon for $64.95. Both are available for $99 from Amazon.

I do not think that hiring a statistician to work on MGS is the way to go; consulting and a fee, yes. If all are lucky, Dr. Thompson might contribute his time free. He is an ecologist/biometrician with the National Park Service in Anchorage, Alaska, were he oversees the design of long-term monitoring programs for plants and animals in five national parks in southwestern Alaska. He also provides technical training and statistical assistance to biologists and resource managers and is senior author of Monitoring Vertebrate Populations.

Need to prepare a written outline of what is needed first (summary of data collected; what has been found, how much survey time per MGS per study), then a list of questions to be addressed, then do the approach to him. It shouldn't be hard to do. You will get the best answer if you are well prepared ahead of time with good questions and a good outline of what is already available.

5) Discussion took place on the different proposals. Though all have merit and some advantages. In general the group liked the ESRP proposal. It is similar to what was done with the desert tortoise. The group felt this was an unbiased approach to coming up with a solution. Additional information was requested regarding cost estimates, selection of group and more details on products.

6) We then reviewed the Objects and tasks. Some changes were made to the wording and tasks were added. Changes are underlined.

Objective 1) Determine the extent of the MGS range

Task 1) Prioritize areas to be surveyed or monitored to determine presence/absences inside and outside currently drawn boundaries.
Task 2) Update current MGS map
Task 3) Determine the most efficient and statistically valid method of locating MGS
Task 4) Conduct presence/absence surveys

Objective 2) Determine ecological requirements

Task 1) Determine environmental parameters and limiting factors
Task 2) Determine habitat elements of population sources, sinks and corridors.

Objective 3) Develop and implement effective conservation measures to sustain long term viability of the species

Task 1) Limit the loss of habitat and effects on MGS populations through the application of effective conservation measures and when applicable through mitigation and compensation
    Subtask 1) Avoid and minimize impacts to MGS and its habitat
    Subtask 2) Restore and enhancement of habitat
Task 2) Secure and/or manage sufficient core habitat and corridors to maintain self sustaining populations
Task 3) Develop and implement interim conservation measures
Task 4) Maintain genetic variation through out the range

Objective 4) Develop and Implement an Adaptive management plan

Task1) Long term monitoring for status trends
Task 2) Population estimates and baseline population data
Task 3) Continue to support research that promotes conservation of the species
    SubTask 1) Locate core populations

SubTask 2) Determine important corridors between core areas.
SubTask 3) Determine barriers to movement and id measure to minimize barriers
SubTask 4) Document genetic variation through out the range

Task 4) Create and maintain central data base
Task 5) Standardize data collection techniques
Task 6) Investigate potential for translocation/ reintroduction of MGS
Task 7) Assess the need for and develop as necessary education materials that will assist in the conservation of the species.
Task 8) Effectiveness monitoring of conservation measures and appropriate changes in implementation

Objective 5) Foster communication and coordination among participants and other interested parties to identify opportunities for collaborative action to further species recovery and the acquisition, protection, restoration and management of MGS habitat.

Task 1) Continue commitment to DMG MGS working group.
Task 2) Identify funding opportunities
Task 3) Identify other collaborators

7) We reviewed different formats for conservation strategies. The following is the format we agreed would be best.

Executive Summary
Preface
Overview
Species Description
Threats
Listing History
Conservation Strategy
Overall goal
Conservation Objectives
Overview and Purpose
Planning Actions
Summary of current Management Actions
Implementation Schedule
Habitat Management
Mitigation
Compensation
Monitoring Program
Restorative Measures.
Literature Cited
Appendices

8) **Agreed upon next steps** –

- Those who did not attend the meeting (or even those who did) will review changes to Objectives and task to see if they have any problems with the changes. They should also review the proposed format for the Conservation Strategy.
- Comments should be sent to Becky by April 3.
- Becky will send out Island Fox Recovery Strategy, amended Objectives and Task, and proposed Conservation Strategy.
- Becky will present Goals and Objectives and Conservation Strategy format to the MGSTAG.
- Denyse will check on using endowment funds to help fund the ESRP proposal. Becky send out the proposed scope of work to several biologist, familiar with MGS, for review and comment.
- Becky and Cynthia will be meeting with ESRP to discuss some of the additional information requested above.

9) **Next meeting** – April 26th 10:30am at NPS office in Barstow.