

# Burrowing Owl and Mohave Ground Squirrel

Survey Protocols

Best Management Practices Workshop

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# Burrowing Owl Survey Protocols

- Burrowing Owl Protocols may be found online
  - [http://www.dfg.ca.gov/wildlife/nongame/docs/bo\\_consortium.pdf](http://www.dfg.ca.gov/wildlife/nongame/docs/bo_consortium.pdf)
- Four Phase Process to document the presence of Burrowing Owls on a project site

# Burrowing Owl Survey Protocols

- Phase I – Habitat Assessment
  - Habitat Description (including 500 ft buffer)
    - Vegetation description
    - Presence of suitable refugia
    - Evidence of use by Burrowing Owls
- If suitable habitat exists and/or evidence of use exists, Phase II is appropriate.

# Burrowing Owl Survey Protocols

- Phase II – Burrow Survey
  - Entire site, plus 500 ft buffer is walked at 100 ft intervals, closer if vegetation prevents all of the site from being inspected
  - Multiple observers are recommended if the site is larger than 100 acres.
  - If burrows or Owls are detected, Phase III
  - Common for 30-day pre-construction surveys to be required

# Burrowing Owl Survey Protocols

- Phase III Burrowing Owl Surveys, Census and Mapping
  - Nesting Season Surveys April 15-July 15
    - Varies by season and latitude
    - 4 visits on 4 separate days
    - Conduct from 2 hours before to 1 hour after sunset, or 1 hour before to 2 hours after sunrise
    - Map locations of all burrows with Owls or sign of Owls

# Burrowing Owl Survey Protocols

- Phase III Continued

- Avoid surveys during heavy rain, high winds, or dense fog, i.e., select survey period that will maximize the opportunity to observe Owls
- Record numbers of pairs, numbers of juveniles and behavior
- Map the approximate territory boundaries and forage areas, if known

# Burrowing Owl Survey Protocols

- Phase III continued
  - It is possible to detect resident Owls outside of the recommended survey periods, but lack of detection outside these periods is not accepted as evidence of non-occupation.

# Burrowing Owl Survey Protocols

- Phase IV – Resource Summary, Written Report
  - Phase I
    - Date and time of visit(s) including weather and visibility conditions; methods and personnel
    - Site description including location, size, topography, vegetation communities, other animals observed
    - An assessment of habitat suitability for Burrowing Owls
    - A map of the site

# Burrowing Owl Survey Protocols

- Phase IV – Resource Summary, Written Report
  - Phase II
    - Date and time of visits including weather conditions, survey methods including transect spacing
    - A more detailed site description including a partial plant list of the primary vegetation, distance to closest freshwater source, animals observed during transects
    - Results of survey transects including a map showing the location of burrow(s) (natural or artificial) and owl(s) if present

# Burrowing Owl Survey Protocols

- Phase IV – Resource Summary, Written Report
  - Phase III
    - Date and time of visits including weather and visibility; survey methods including transect spacing and personnel
    - Report and map the location of all Burrowing Owls and Owl sign. Burrows occupied by owl(s) should be mapped indicating the numbers of owls at each burrow. Owl sign should also be mapped and reported.

# Burrowing Owl Survey Protocols

- Phase IV – Resource Summary, Written Report
  - Phase III, continued
    - Behavior of Owls should be recorded (such as mate-courting behavior)
    - Both winter and nesting season surveys should be summarized.
    - Include historical data of Burrowing Owls on site

# Mohave Ground Squirrel Survey Guidelines

- Survey Guidelines are available by contacting the Department of Fish and Game.
- Surveys should only be conducted if the project applicant believes there is no risk of taking a Mohave Ground Squirrel during the life of the project.
- Survey guidelines are intended for projects that would impact  $\leq$  180 acres or linear projects of  $\leq$  5 miles.

# Mohave Ground Squirrel Survey Guidelines

- Project-specific survey guidelines should be developed in consultation with the Department of Fish and Game for projects exceeding 180 acres or linear projects greater than 5 miles.

# Mohave Ground Squirrel Survey Guidelines

- If trapping of Mohave Ground Squirrel is deemed appropriate or needed, only qualified individuals with a Memorandum of Understanding and a Scientific Collecting permit, issued by the Department of Fish and Game, are authorized to handle Mohave Ground Squirrel.

# Mohave Ground Squirrel Survey Guidelines

- Visual surveys to determine Mohave Ground Squirrel activity and habitat quality shall be undertaken during the period of March 15 through April 15.
- All potential habitat on a project site shall be visually surveyed during daylight hours by a biologist who can readily identify Mohave Ground Squirrel and White-tailed Antelope Squirrel.

# Mohave Ground Squirrel Survey Guidelines

- If visual surveys do not reveal the presence of Mohave Ground Squirrel, small mammal grids shall be established in potential habitat.
- Grid configuration shall be subject to the configuration of the project area.
- All grids will consist of 100 appropriately sized live traps.

# Mohave Ground Squirrel Survey Guidelines

- For linear projects, a grid configuration of 4 X 25 shall be established per mile of project; traps shall be spaced at 35 meter intervals.
- For all other projects, a grid configuration of 10 X 10 shall be established for each 80 acres; traps shall be spaced at 35 meter intervals.

# Mohave Ground Squirrel Survey Guidelines

- Each grid shall be trapped for a minimum of 5 consecutive days.
- If no Mohave Ground Squirrel are observed, up to 3 trapping sessions may be required.
- All trapping shall be conducted during appropriate weather conditions, avoiding periods of high wind, precipitation, and low temperature (< 50°F).

# Mohave Ground Squirrel Survey Guidelines

- The First trapping term shall begin and be completed between March 15 and April 30.
- A 2-week interval is required between each subsequent trapping term.
- If a Second trapping term is required, it shall begin and be completed between May 1 and May 31.
- If a Third trapping term is required, it shall begin and be completed between June 15 and July 15.

# Mohave Ground Squirrel Survey Guidelines

- A maximum of 100 traps shall be operated by each qualified biologist. Each trap shall be covered by a non-metallic shade structure. Trap and shade structure shall be oriented in a North-South axis. All traps shall be opened within an hour of sunrise and closed an hour before sunset.

# Mohave Ground Squirrel Survey Guidelines

- Traps shall be checked a minimum of every 4 hours to minimize heat stress.
- When traps are open, ambient temperatures shall be taken in the shade at one foot from ground level at least once every hour. Traps shall be closed when ambient temperatures exceed 90°F and may be re-opened the same day if temperatures fall below 90°F.

# Mohave Ground Squirrel Survey Guidelines

- Survey results are recorded and submitted with a written report on a Survey and Trapping form, supplied with the Survey Guidelines.
- Variations to the guidelines are allowed with prior written Departmental approval, reflected in the Memorandum of Understanding.

# Mohave Ground Squirrel Survey Guidelines

- Failure to detect Mohave Ground Squirrel on a project site is not necessarily evidence that ground squirrel do not exist on the project site or prove the site has no potential to support Mohave Ground Squirrel. However, the Department will stipulate that the site harbors no Mohave Ground squirrel for 1 year past the final survey date.