SURVEYS and RESULTS

- CLEARANCE SURVEYS
- FWS PRE-PROJECT PROTOCOL SURVEYS
- DATA INTERPRETATION
- RESPONSIBILITIES
Objective: To find and remove all desert tortoises and their eggs

www.fws.gov.ventura/speciesinfo/protocols/guideline
**Authorized Biologist**

**Demonstrated knowledge, experience and skills**

- Conduct clearance surveys
- Conduct presence/absence surveys
- Conduct other activities for permit

**Overall responsibility for the outcome of all project-related desert tortoise activities**

- Approve, train, and oversee desert tortoise monitors
- Ensure implementation of tortoise and habitat protection measures

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**Desert Tortoise Monitor**

Monitor project activities
Record data
Move tortoises out of harm’s way
Assist Authorized Biologist

***NOT APPROVED*** to conduct clearance surveys, **EXCEPT** under direct supervision of Authorized Biologist
TRANSECT WIDTH

FWS (2009): 5 meters

BASIS:

LDS (2004+2005): 227 live tortoises detected at 0-2m
  177 (78%) - 2 - 4 m
  138 (61%) - 4 - 6 m
  109 (48%) - 6 - 8 m

Statistically reliably detected at 3-6.5 m: $\bar{x}=5.2$ m

- Woodman (2004 and 2005)
- Karl (2002a, b, 2008, 2009)
• **NUMBER OF PASSES**
  
  ≥ 2
  
  More if tortoises are found on the second or third pass

• **PASS CONFIGURATION**
  
  Perpendicular  
  Offset
• CONCENTRATED SEARCHES

• “RAT-HOLING”
SURVEY TIMING:

“When tortoises are most active”:

April-May

September-October
2010 FWS PRE-PROJECT SURVEY PROTOCOL

ENDANGERED SPECIES ACT COMPLIANCE

- DENSITY AND/OR ABUNDANCE OF TORTOISES AFFECTED
- POPULATION AND SPECIES IMPACTS
- MITIGATION/COMPENSATION PROGRAMS
- APPROPRIATE LEVEL OF CONSULTATION
- STANDARDIZED METHOD OF GATHERING DATA AND REPORTING RESULTS

PRE-PROJECT PROTOCOL SURVEYS ARE REQUIRED:
When desert tortoises are possible (R.U., range, habitat)
“All areas to be affected directly or indirectly and not merely the immediate area involved in the action (50 CFG § 402.02).

The action area is not limited to the “footprint” of the action or jurisdiction. Rather, it is a biological determination of the reach of the proposed action on listed species.”
SURVEY COVERAGE

ACTION AREA

PROJECT
PROTOCOL SURVEY OPTIONS

ACTION AREA SIZE EXCEEDS THRESHOLDS

YES

PROBABLISTIC SAMPLING

OR

100% COVERAGE

(MAYBE!!)

NO

100% COVERAGE
<table>
<thead>
<tr>
<th>Recovery Unit</th>
<th>Threshold (Minimum)</th>
<th>Total Length of Km to Sample</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Action Area Size</td>
<td></td>
</tr>
<tr>
<td>Western Mojave</td>
<td>4.3 km² (1066 acres)</td>
<td>431</td>
</tr>
<tr>
<td>Colorado Desert</td>
<td>3.3 km² (811 acres)</td>
<td>328</td>
</tr>
<tr>
<td>North-East Mojave: S</td>
<td>4.5 km² (1103 acres)</td>
<td>446</td>
</tr>
<tr>
<td>North-East Mojave: N</td>
<td>11.3 km² (2789 acres)</td>
<td>1129</td>
</tr>
<tr>
<td>Upper Virgin River</td>
<td>1.1 km² (270 acres)</td>
<td>109</td>
</tr>
</tbody>
</table>
• Insert a beautiful habitat slide. This is the intro to Clearance.
LINEAR PROJECTS or PROJECT AREAS <0.8 km (200 acres)

Action Area?

600 m
WHERE NO TORTOISE SIGN IS OBSERVED ON LINEAR PROJECTS or PROJECT AREAS <0.8 km (200 acres)
SURVEY TIMING/TEMPERATURES

Based on Tortoise Activity:

- April through May, and late September through October
- $T_a @ 5 \text{ cm} < 40^\circ C$
IMPORTANT CONSIDERATIONS

- Pre-Project Discussions With FWS and CDFG
- Provide qualifications of surveyors
- Alterations in Sampling Design
  - GET APPROVAL FROM FWS!!!
- Validity of Survey Results - 1 Year
PROTOCOL SURVEY RESULTS BASED ON:

1. The number of active tortoises observed

2. Takes into account:
   - Probability of detecting an above-ground tortoise ($P_d$)
   - Probability that a tortoise will be above ground ($P_a$)
   - Rainfall effects on $P_a$

Based on FWS range-wide, several-year LDS program
ESTIMATING DENSITY or PRESENCE

TORTOISES >160 mm MCL OBSERVED

YES

ESTIMATE DENSITY FOR TORTOISES >160 mm MCL

NO

OTHER TORTOISE SIGN OBSERVED

NO

DISCUSS CONSULTATION LEVEL WITH FWS

YES

ASSUME PRESENCE
SCAT (TY) - >179mm MCL
SCAT (TY) – 140-179 mm MCL
SHELL FRAGMENTS
BURROW (TY) - >179mm MCL
IDENTIFYING PROJECT EFFECTS

• PROJECT ELEMENTS
  – CONSTRUCTION:
    – LENGTH, SEASON, TYPE
  – OPERATION:
    – FOOTPRINT SIZE, SHAPE, LOCATION
    – LONGEVITY

• TYPES OF EFFECTS
  – DIRECT, INDIRECT
  – ON SITE, ADJACENT
  – TEMPORARY, PERMANENT
  – MITIGATION EFFECTS – BENEFICIAL and NEGATIVE
RESPONSIBILITIES

❖ SURVEYS
  • GOALS
  • ADEQUACY
  • APPROVALS

❖ DATA INTERPRETATION

❖ REPORTING
  • CLARITY
  • COMPLETENESS

❖ RECOMMENDATIONS
  • PROJECT EFFECTS
  • CONSERVATION
BUG OFF!