

SURVEYS and RESULTS

- **CLEARANCE SURVEYS**
- **FWS PRE-PROJECT PROTOCOL SURVEYS**
- **DATA INTERPRETATION**
- **RESPONSIBILITIES**

CLEARANCE

**Objective: To find and remove all desert tortoises
and their eggs**

www.fws.gov.ventura/speciesinfo/protocols/guidelines

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**

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

Fort Irwin (2001+2002) and MCAGCC (2008 +2009)²:
4420 adult-sized burrows
Statistically reliably detected at 3-6.5 m: $\bar{x}=5.2$ m

- Woodman (2004 and 2005)
- Karl (2002a, b, 2008, 2009)



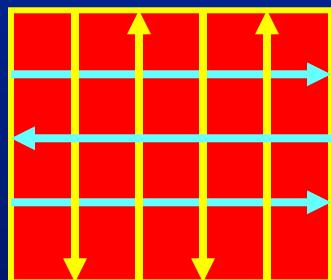
- **NUMBER OF PASSES**

≥ 2

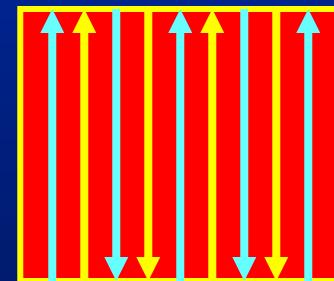
More if tortoises are found on the second or third pass

- **PASS CONFIGURATION**

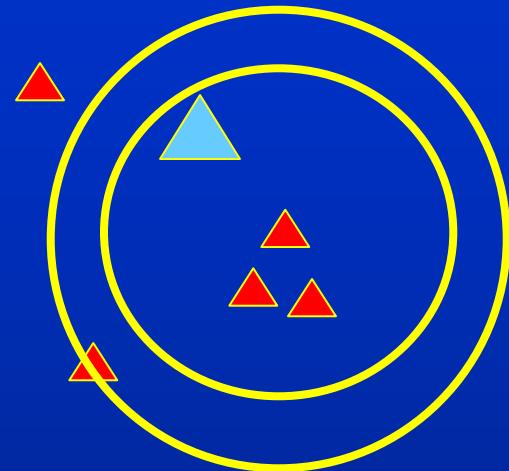
Perpendicular



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

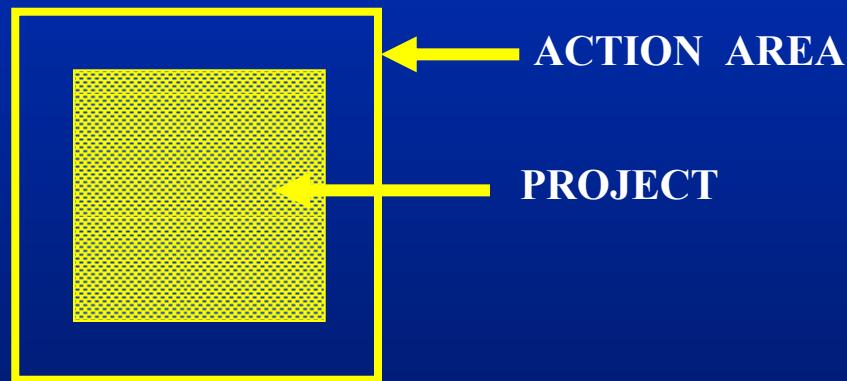
PRE-PROJECT PROTOCOL SURVEYS ARE REQUIRED:

When desert tortoises are possible (R.U., range, habitat)

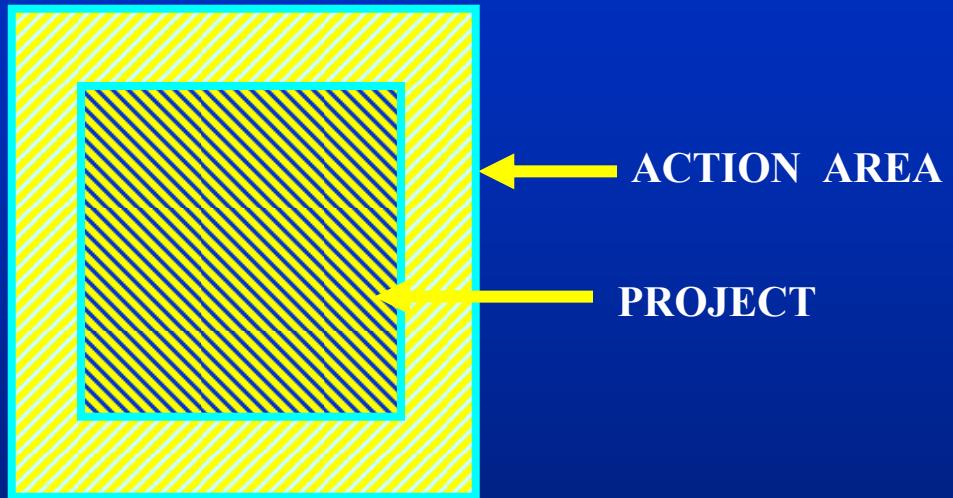
ACTION AREA

“All areas to be affected directly or indirectly and not merely the immediate area involved in the action (50 CFR§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



PROTOCOL SURVEY OPTIONS

**ACTION AREA SIZE
EXCEEDS
THRESHOLDS**

YES

NO

**PROBABLISTIC
SAMPLING**

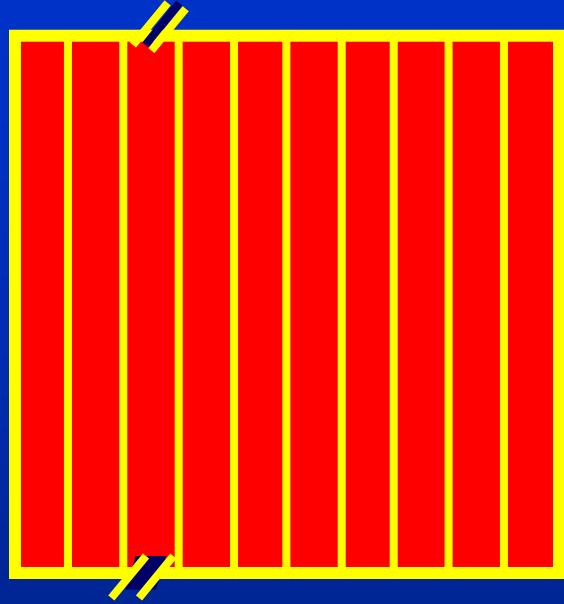
**100%
COVERAGE**

OR

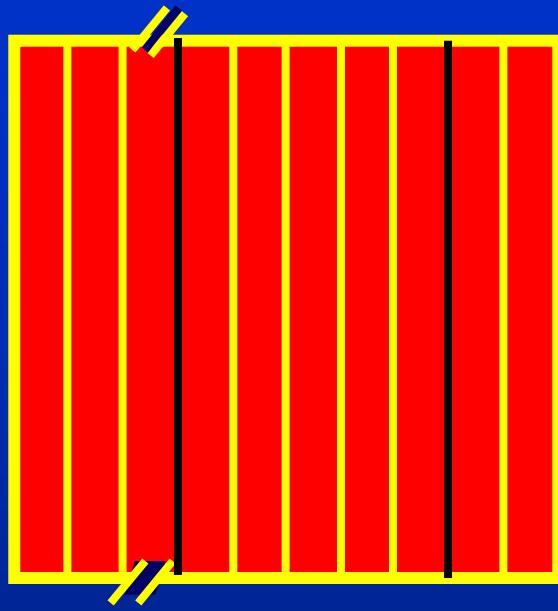
**100% COVERAGE
(MAYBE!!)**

PROBABILISTIC SAMPLING

Recovery Unit	Threshold (Minimum) Action Area Size	Total Length of Km to Sample
Western Mojave	4.3 km ² (1066 acres)	431
Colorado Desert	3.3 km ² (811 acres)	328
North-East Mojave: S	4.5 km ² (1103 acres)	446
North-East Mojave: N	11.3 km ² (2789 acres)	1129
Upper Virgin River	1.1 km ² (270 acres)	109



100%
Cover



Probabilistic
Sampling



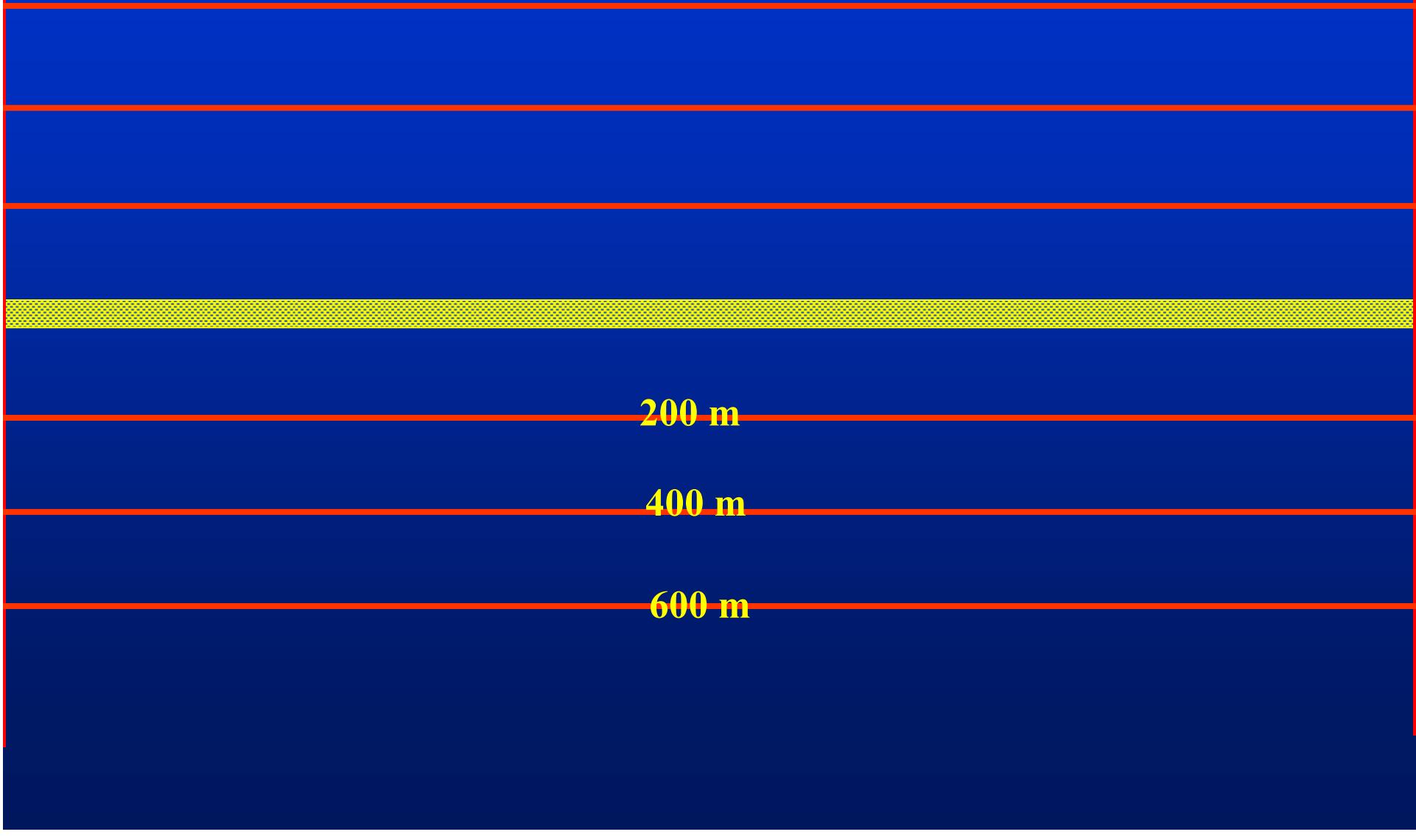
LINEAR PROJECTS or PROJECT AREAS <0.8 km (200 acres)

Action Area?

600 m



WHERE NO TORTOISE SIGN IS OBSERVED
ON LINEAR PROJECTS or PROJECT AREAS <0.8 km (200 acres)



200 m

400 m

600 m

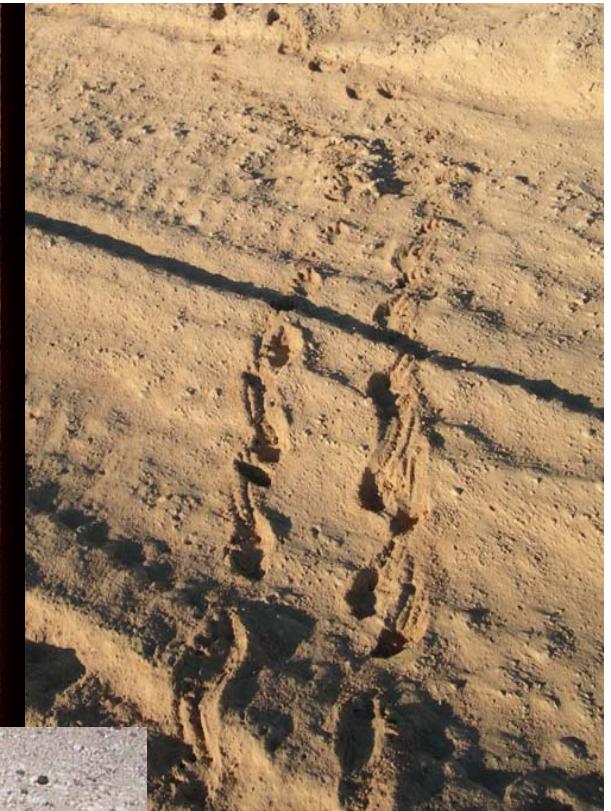
SURVEY TIMING/TEMPERATURES

Based on Tortoise Activity:

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

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



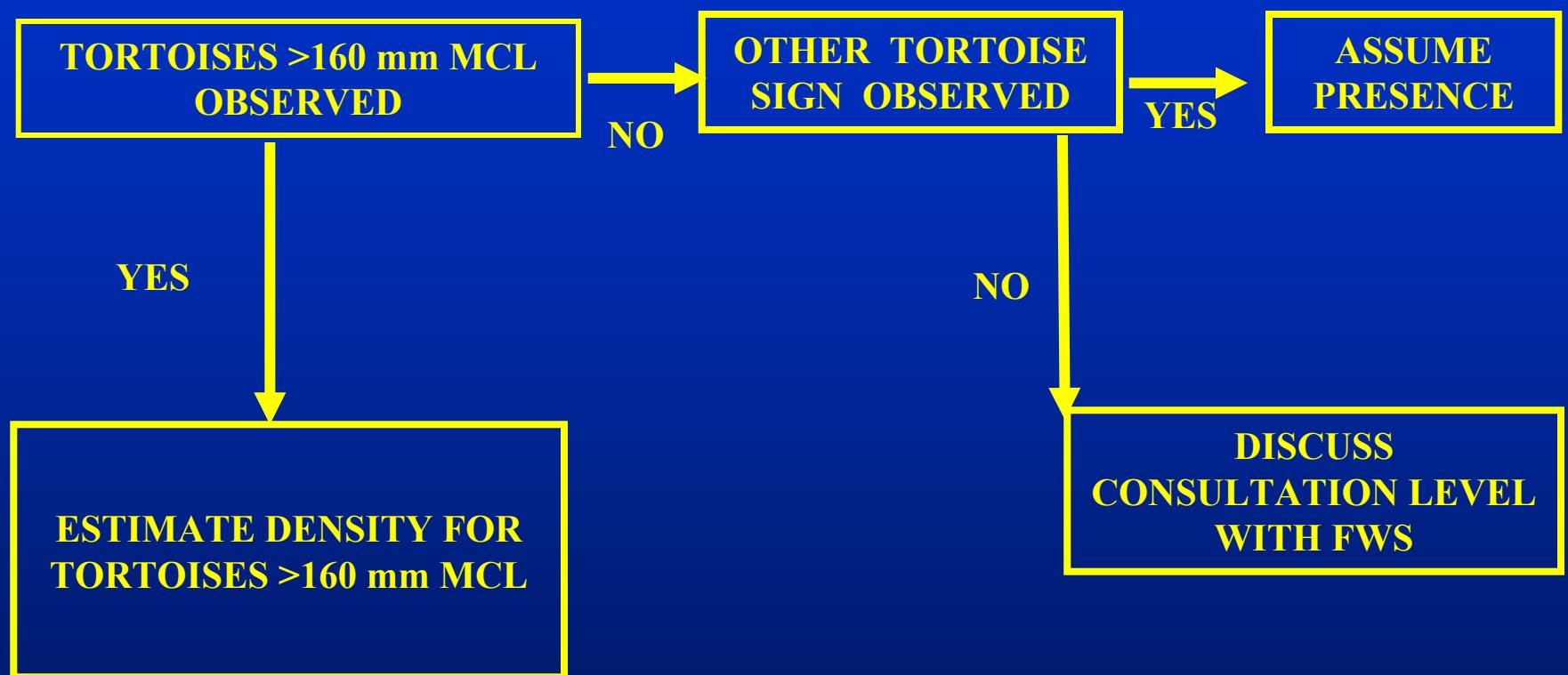
PROTOCOL SURVEY RESULTS BASED ON:

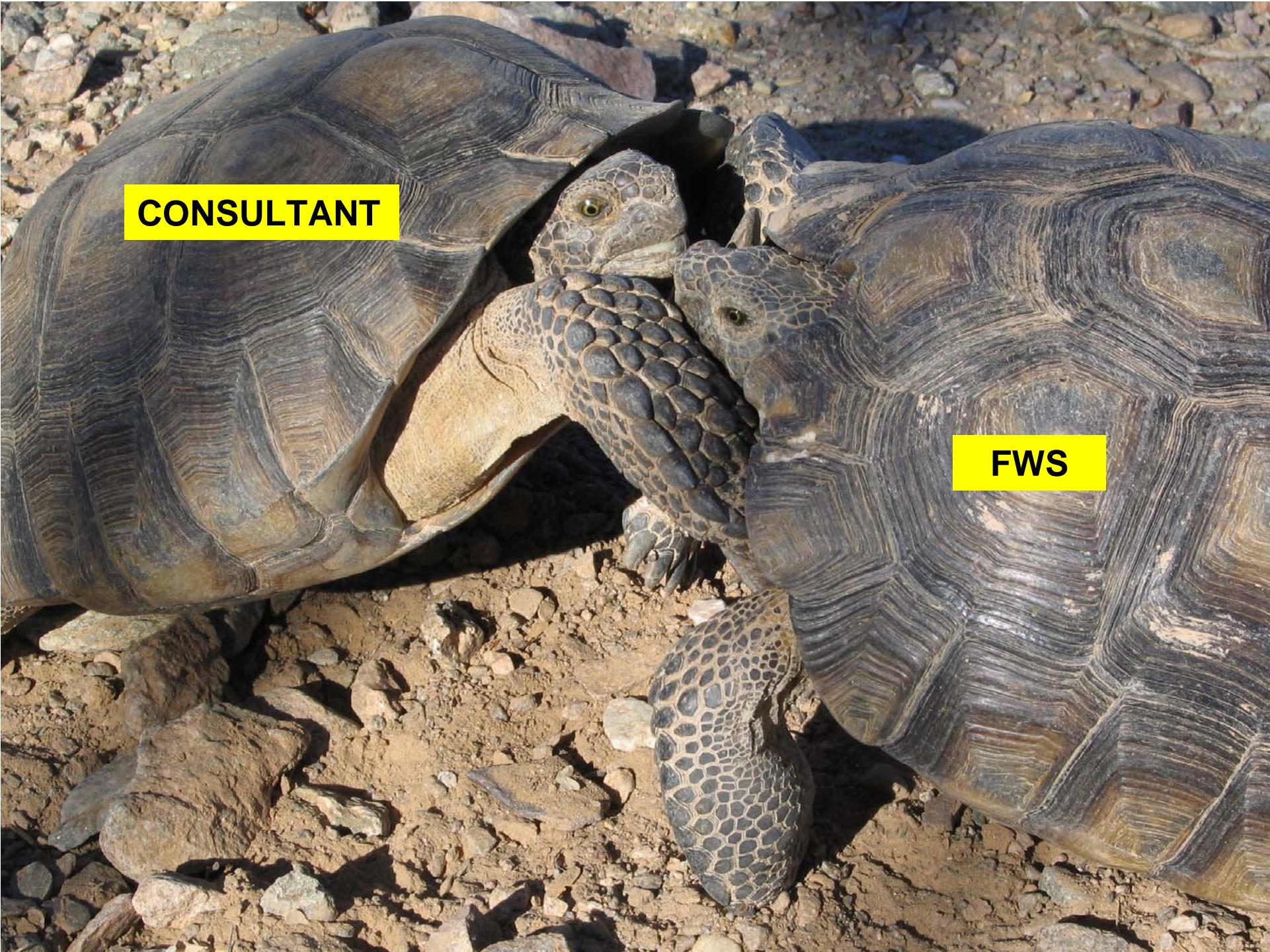
1. The number of active tortoises observed
2. Takes into account:
 - Probability of detecting an above-ground tortoise (P_d)
 - Probability that a tortoise will be above ground (P_a)
 - Rainfall effects on P_a

Based on FWS range-wide, several-year LDS program



ESTIMATING DENSITY or PRESENCE

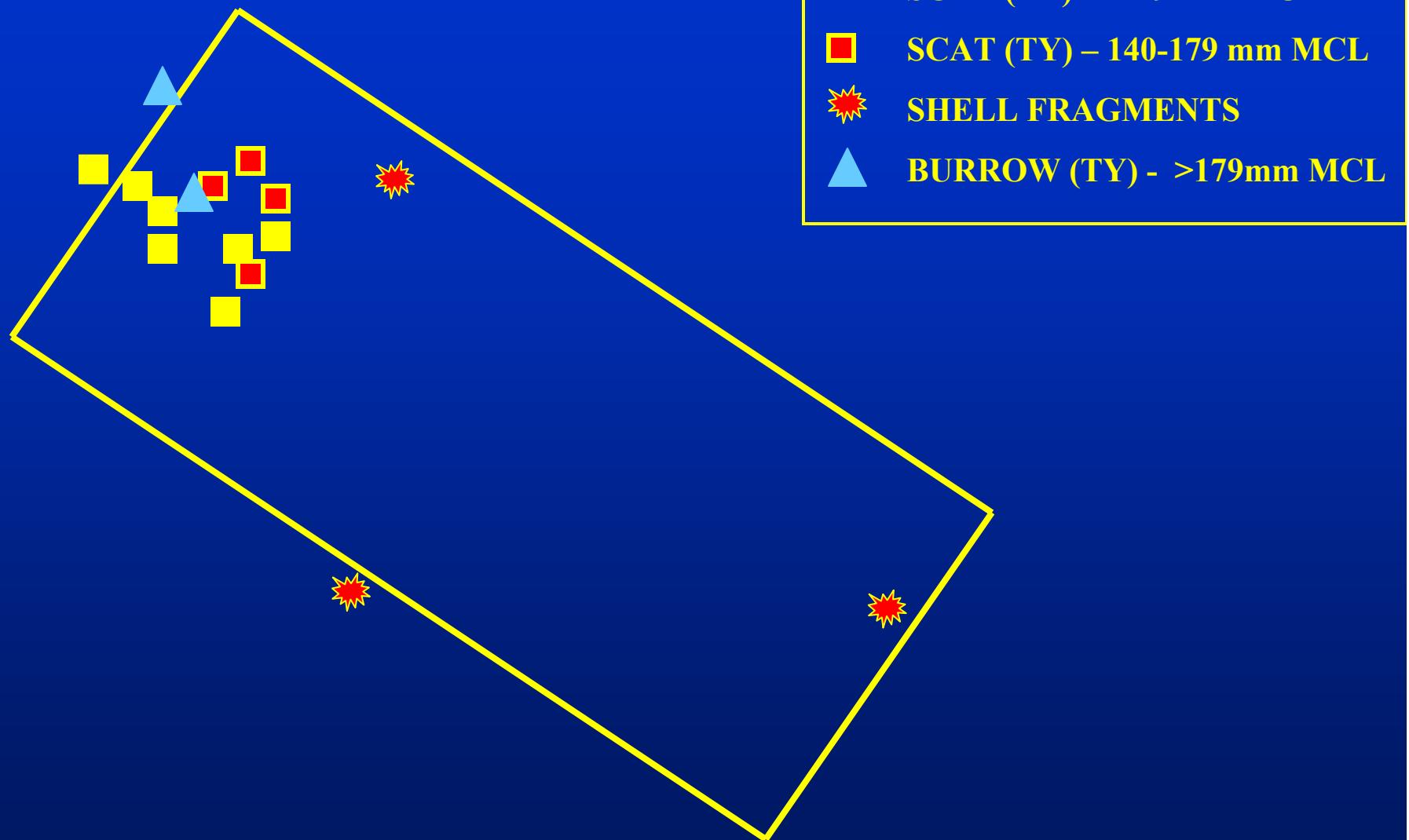


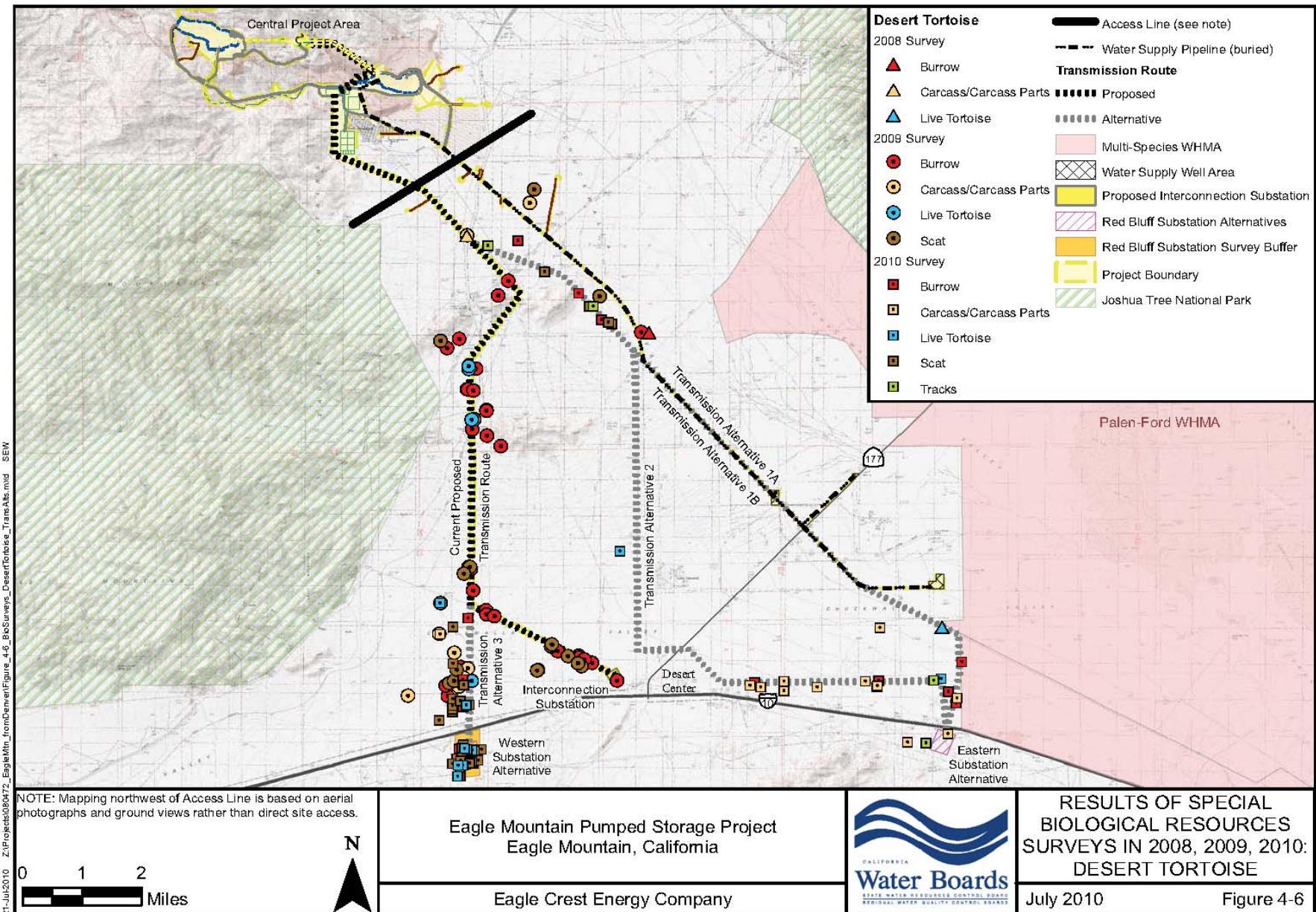


CONSULTANT

FWS

MAPPING SIGN





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!

