



Post-Cedar Fire Arroyo Toad Monitoring Surveys at CRSP



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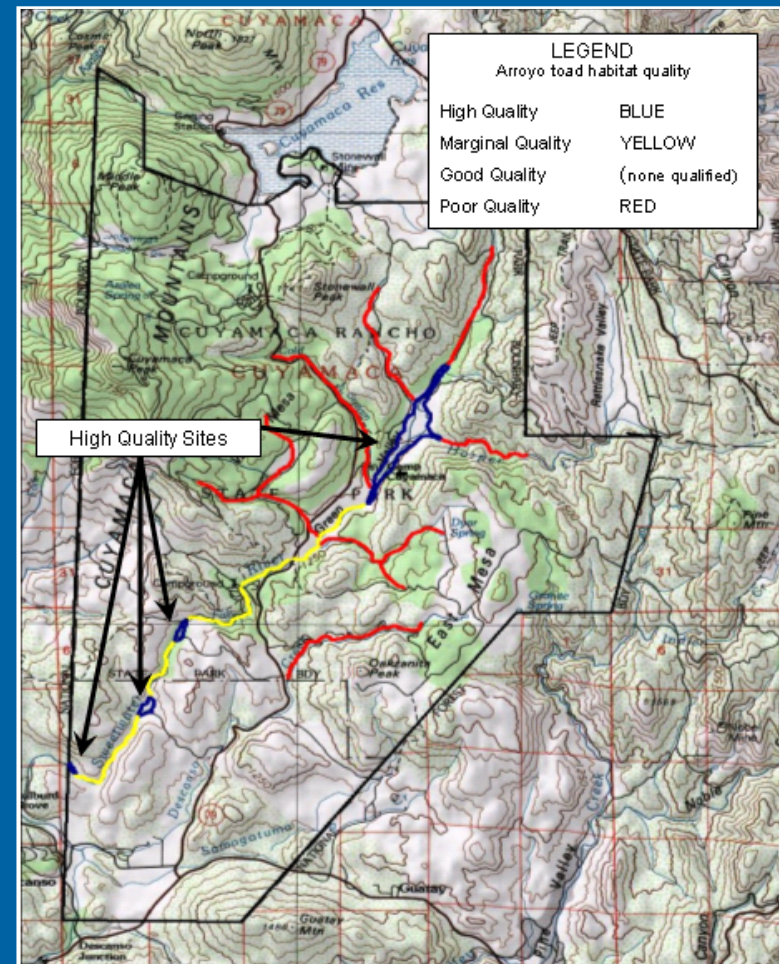
U.S. Department of the Interior
U.S. Geological Survey

Outline

- **Background**
 - Previous research on ATs at CRSP
 - Fire & amphibians
- **Methods**
 - Study area & species
 - Reach-by-reach surveys
- **Results I, II, III**
- **Discussion**
- **Summary & Management Recommendations**

Previous Research

- ATs observed in southwest CRSP in 1999
- USGS contracted to monitor in 2002-2003



Before...

...During...

...After



Arroyo Toad

- Favors shallow pools and open sand & gravel flood terraces of dynamic, intermittent or perennial stream systems
- Ranges from Monterey Co. to NW Baja
- Significant decline due to habitat loss & modification, introduced aquatic species

Sweetwater River, Cuyamaca RSP

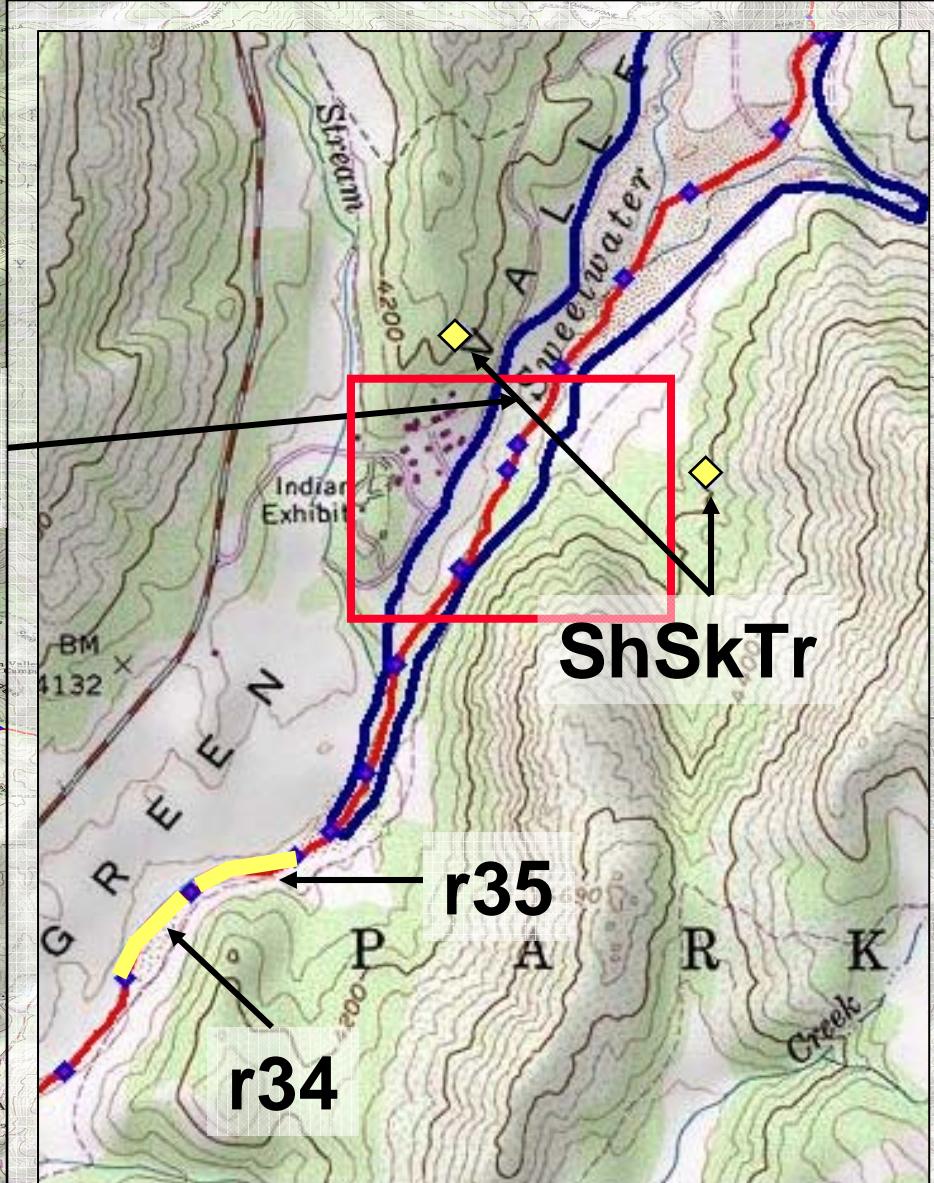
- 3rd - order system with dendritic drainage; protected & not dammed → natural flow
- Coniferous forest, mixed chaparral, grassland, oak woodland, & willow riparian
- Marked seasonal & annual fluctuations in rainfall → variable wet portions
- Runoff water leached from School Camp area

Methods

- 10 shrub skeleton transects
→ Fire severity levels around each of 4 sites
- 5 daytime surveys
→ Habitat evaluation & immature AT searches
- 5 nocturnal surveys
→ Focused AT (adult) searches

Reach-by-reach Surveys

2002-03 Sites



Results I – Shrub Skeleton Transects

- All 4 sites had similar fire severity levels
- Mid-range on the severity scale
- Any differences in AT presence at 4 sites may not be related to fire severity

Results II – Daytime Surveys

			Physical Characteristics			
Reach	Length (km)	Quality Level	Sandy Substrate	Sandy Terraces	Channel Braiding	Disturb's & Threats
r1	0.25	Good	✓		✓	
r2	0.25	Good	✓		✓	
r3	0.25	Good	✓		✓	
↓			↓			↓
r63	0.25	Marginal	✓			V
r64	0.25	Poor				
r65	0.25	Marginal	✓			G, V
Totals		High	Good	Marginal	Poor	
<i>Length</i>	16.9	3.6	4.1	7.4	1.8	
<i># Reaches</i>	69	15	17	30	7	

Results II – Daytime Surveys (cont.)

- High/Good quality habitat for nearly half of Sweetwater River in CRSP
- 45 of 67 *AT observations*
- Larvae & metamorphs found in a continuous 5.2-km stretch in lower third of River (r01-r18)
- Found in r36 & r37 also → all 4 sites of 2002-03

Results II – Daytime Surveys (cont.)



Results III – Nocturnal Surveys

- ATs (all life history stages) recorded in 14 reaches
- 5 adults detected visually & aurally
- Included one adult female at an elevation record in SRW of 1354 m (4442 ft)



More Animal Species Observed

- Pacific & CA treefrog (*Hyla regilla* & *H. cadaverina*), Western toad (*Bufo boreas*)
- Two-striped garter snake (*Thamnophis hammondi*) & 4 other snake species
- Just 1 individual fish → AT success
- Wild turkey (*Meleagris gallopavo*) & Steller's jay (*Cyanocitta stelleri*)



Discussion

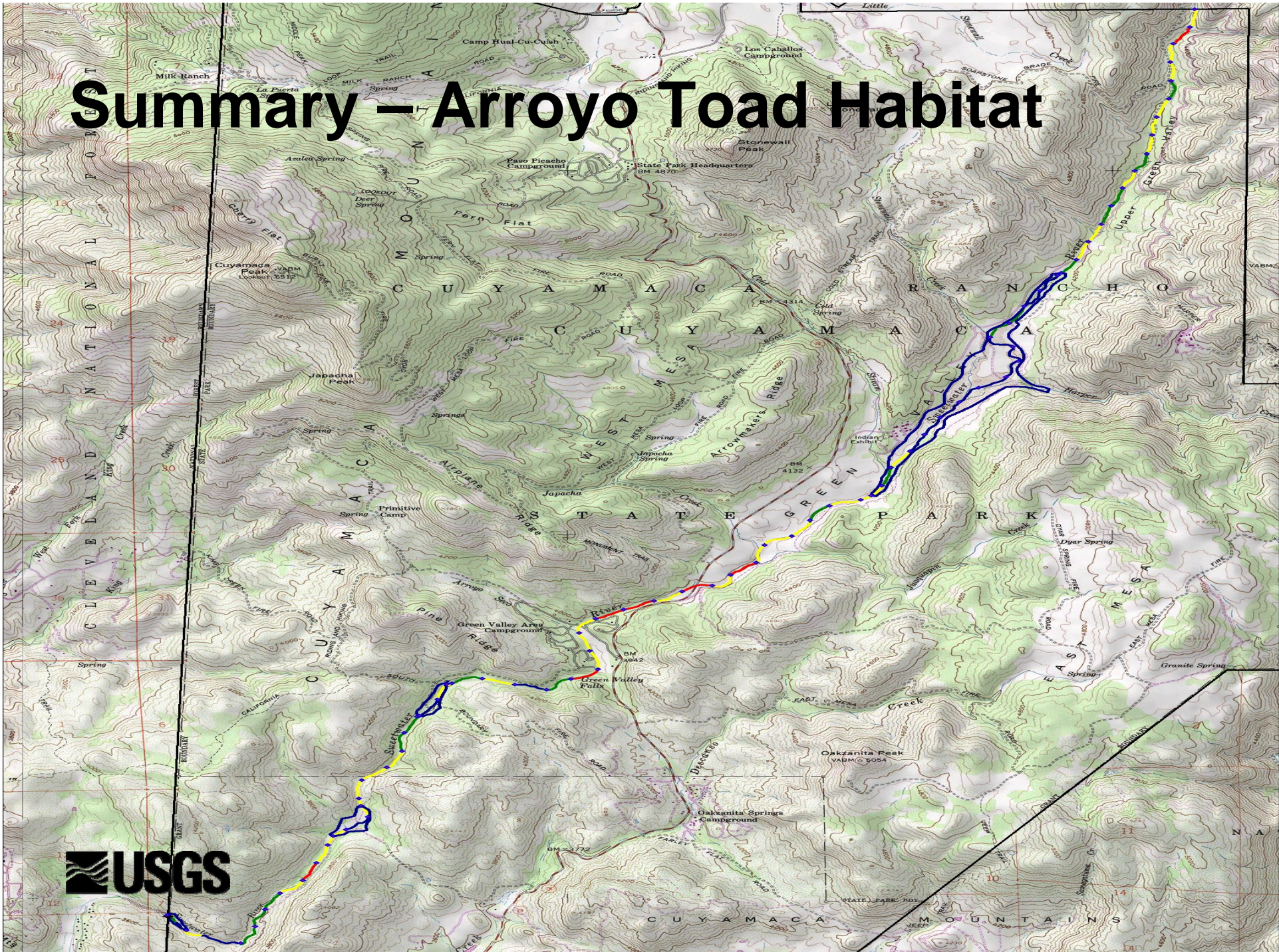


.Fire riparian habitat loss in the Grand Staircase-Escalante National Monument, Utah

Summary – Arroyo Toad Habitat

The map displays the Arroyo Toad habitat in the Cuyamaca Mountains, California. The habitat is highlighted in blue and yellow, showing a network of trails and roads. Key features include:

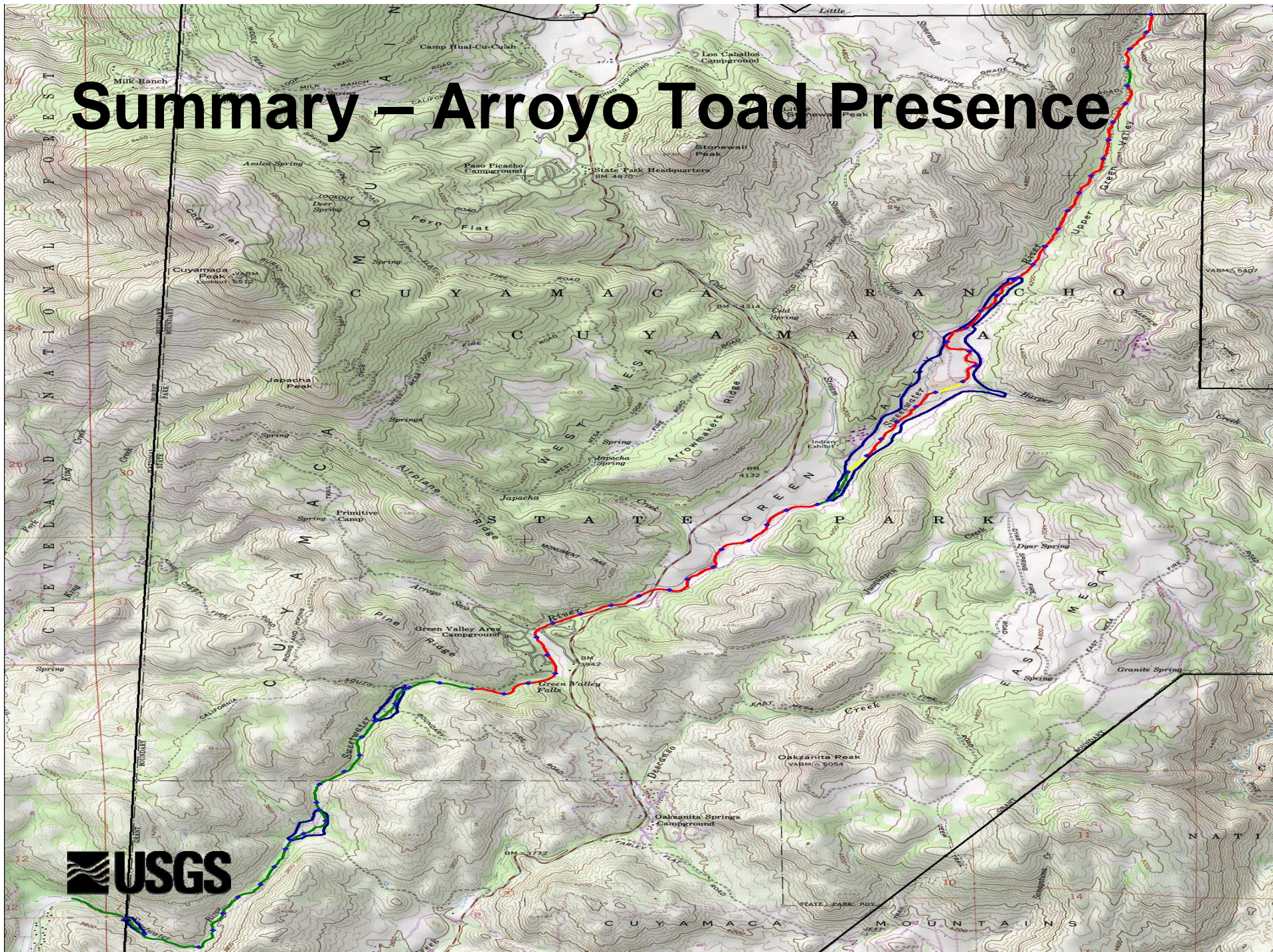
- Geographical Features:** Cuyamaca Mountains, Arroyo Toad Ridge, Pine Ridge, Green Valley Area, and Oakzanita Peak.
- Trails and Roads:** Various trails and roads are marked, including the Arroyo Toad Trail and the Pine Ridge Road.
- Campgrounds:** Several campgrounds are identified, such as the Green Valley Area Campground and the Oakzanita Springs Campground.
- USGS Logo:** The USGS logo is visible in the bottom left corner.



Summary – Arroyo Toad Habitat

The map displays the Arroyo Toad habitat in the Cuyamaca Mountains. The habitat is defined by a blue and yellow line tracing the Arroyo Toad Creek and its tributaries, including the Upper Green River and Lower Green River. The map shows the distribution of the toad across the mountain range, with the highest concentrations in the central and eastern sections. Key geographical features include Cuyamaca Peak (5512'), Oakzanita Peak (5054'), and various campgrounds such as Green Valley Area and Oakzanita Springs. The map is overlaid with a grid and includes a USGS logo in the bottom left corner.

Summary – Arroyo Toad Presence



Summary & Management Recommendations

- 2002 – general habitat assessment & surveys
- 2003 – surveys focused on 4 high quality sites
- 2004 – post-fire habitat assessment & surveys
 - Present & breeding at all 4 sites
 - Increased distribution of suitable habitat & ATs
 - Cedar Fire did not have a negative effect (short-term) on ATs
- 2005 – cont. monitoring ATs for post-fire effects
 - Restrict human recreational traffic near River
 - Re-introduction potential for CA red-legged frogs
 - Discourage future fish stocking

Acknowledgements

- Daniel Palmer & Denise Clark – USGS
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- Carlton Rochester & Melanie Madden-Smith – USGS
- Ed Ervin – Merkel & Associates, Inc.
 - Reports available at www.werc.usgs.gov/products/



A photograph of a frog, likely a toad, sitting in a field of dry, yellowish-brown grass and scattered brown leaves. The frog is light-colored with dark spots and is facing away from the camera, slightly to the left. The ground is dark and appears to be dirt or sand.

Thank you... Questions?