California Spotted Owl Module: 2008 Overview

- **John Keane, Sierra Nevada Research Center, PSW.**

Field Project Leaders &: GIS Analysis:

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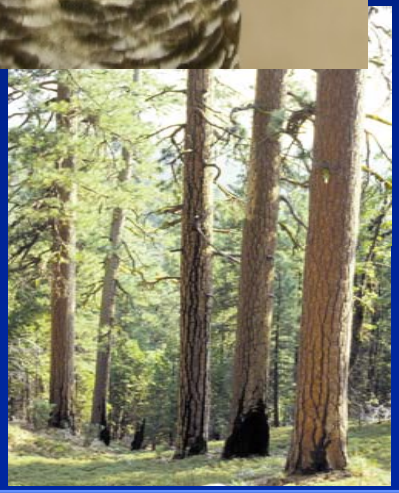

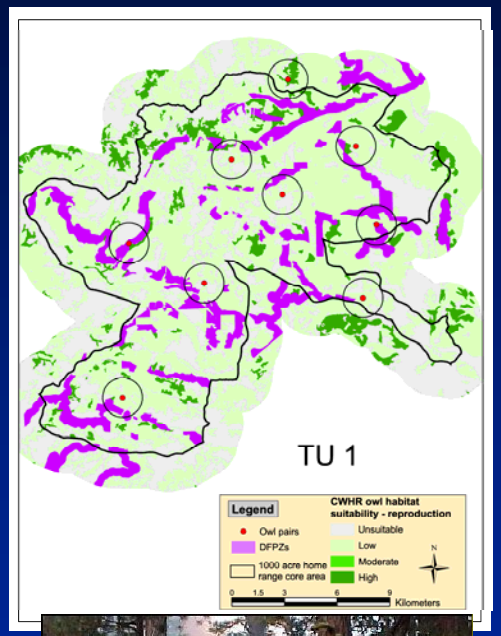

Plumas-Lassen Study: Acknowledgments.

•National Forest Service Region 5.
•Plumas and Lassen National Forests.
•National Fire Plan.
•Peter Stine, Sierra Nevada Research Center, PSW.
•QLG Members.

- **Field Researchers: Brian Gill, Rachel Kussow, Dave Smith, Mason Werner**

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2008 PLS Annual Report

- **Monitor density, reproduction & demographics of CSOs.**
- **Address other potential stress factors (Barred Owls, WNV).**
- **Radio-telemetry status**
- **Moonlight-Antelope Complex Wildfire CSO surveys**
- **Meadow Valley Project Area CSO surveys.**
- **FY2009 Research Objectives.**

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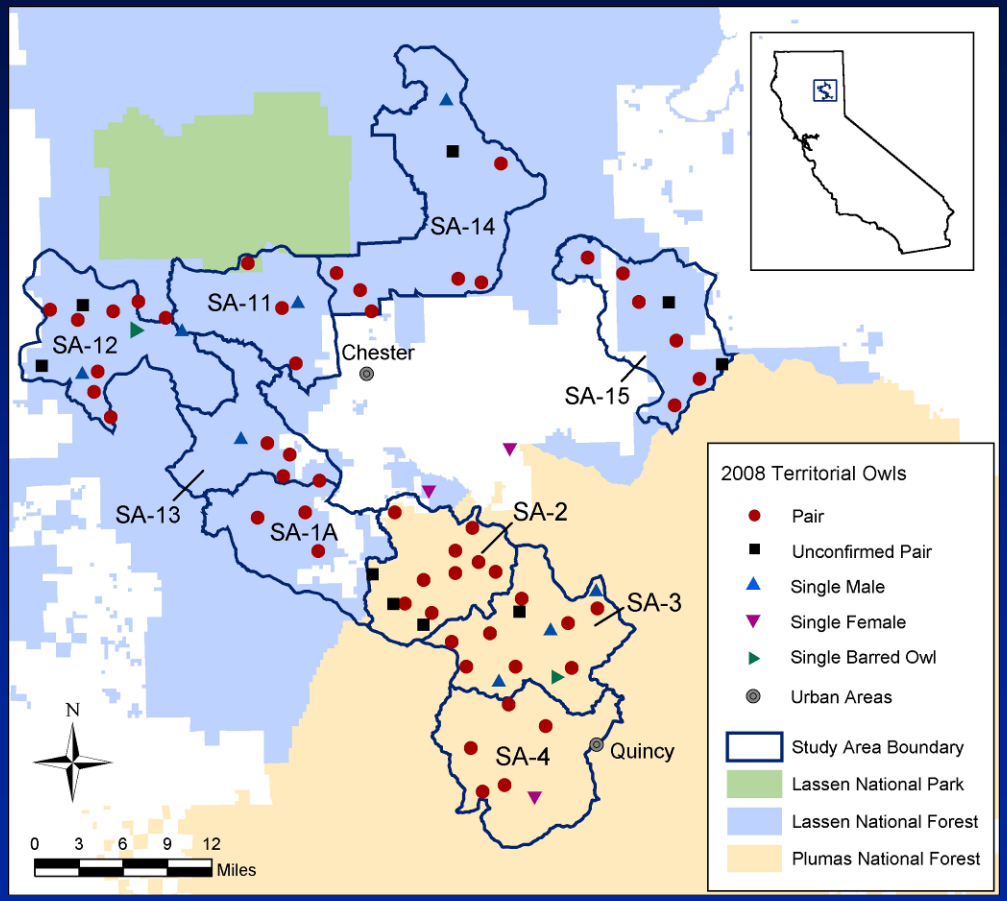
CSO Density Across the PLS Area

- **Surveyed 1,877 km^2 (468,500 acres)**
- **72 territorial sites – 52 confirmed pairs, 9 unconfirmed pairs, 11 t-singles.**
- **Ten sites with successful nests (16.4%).**
- **Fledged 1.70 young/successful nest.**



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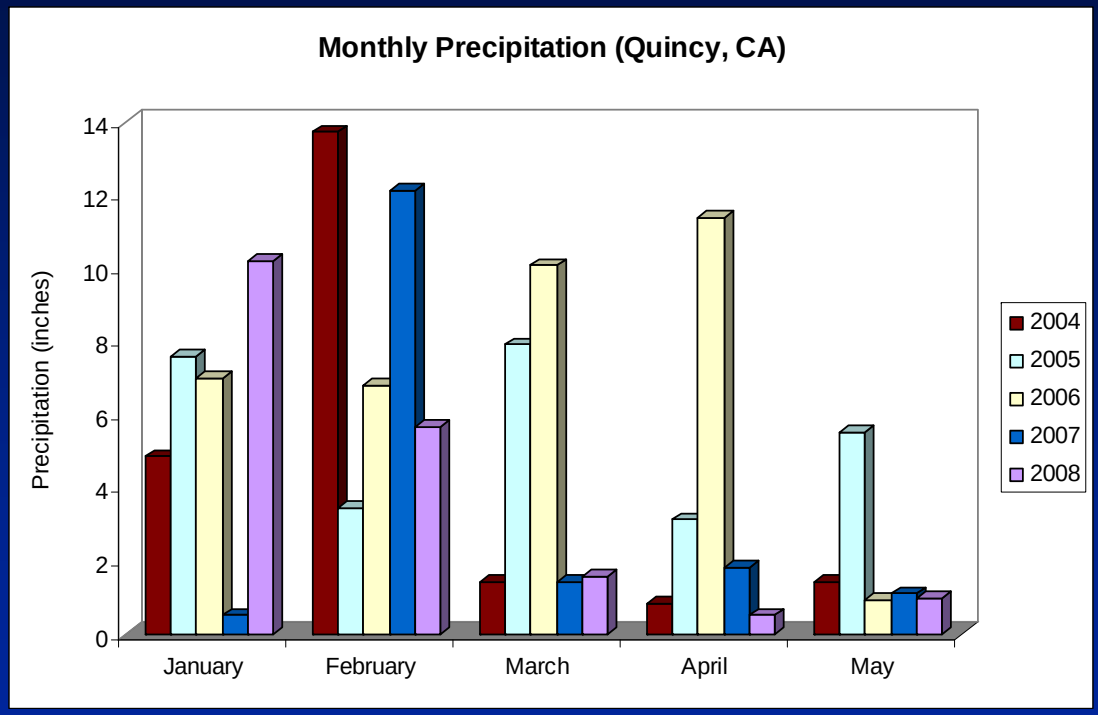
Nesting Success 2004-2008

Year	% Successful Nests	Young Fledged / Nest
2004	49.4%	1.61
2005	18.3%	1.53
2006	13.8%	1.50
2007	55.4%	1.81
2008	16.4%	1.70



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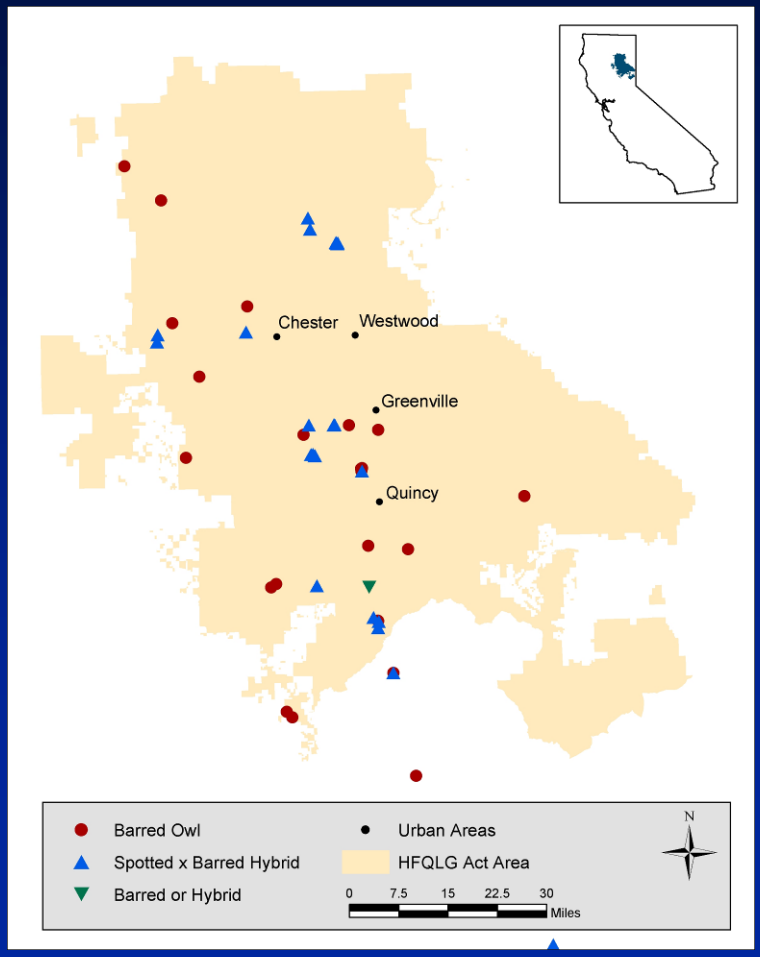
Barred/Sparred Owl Status in the PLS and Sierra Nevada

- Documented 3 Barreds and 4 Sparreds in PLS during 2008.
- First record in 1989, first repro in 1991.
- Minimum of ~38 records within HFQLG area and ~51 records for Sierra Nevada 1989-2008.
- 17 records of pairing/repro among barred/sparred/spotteds.
- Data suggest Barred Owls increasing in the Sierra Nevada – population increase, reproduction, long-distance colonizers



West Nile Virus in the HFQLG Area

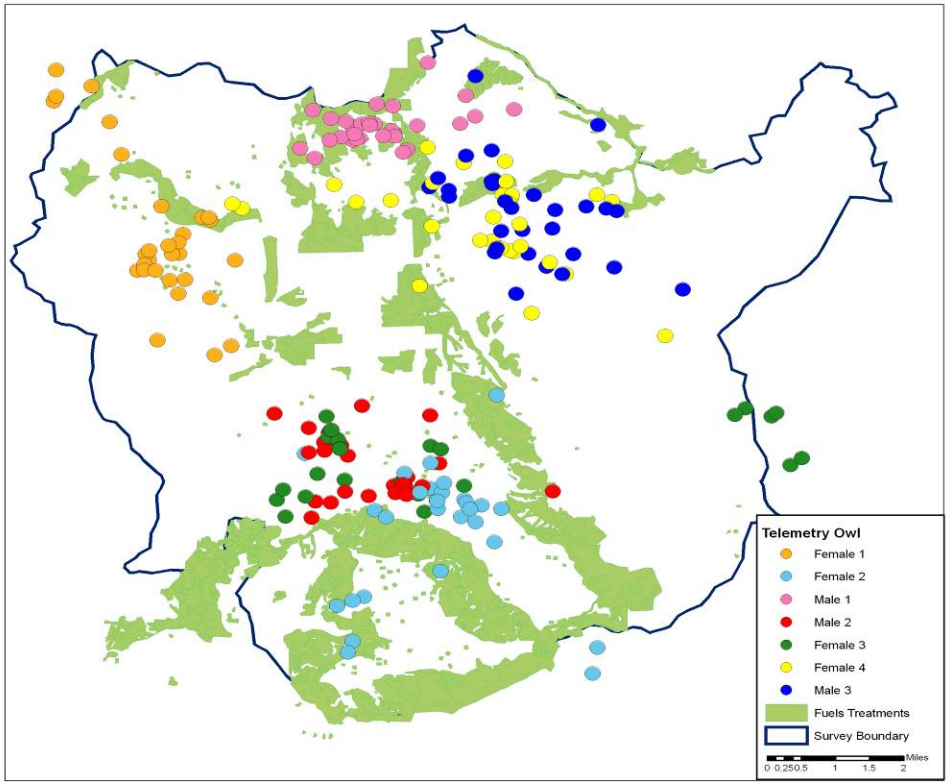
- Plumas & Lassen Co.
- Collaboration with Dr. Josh Hull & Dr. Holly Ernest at UCD.
- 2004-2007: 158 samples from CSOs – all tested negative.
- 2008: 21 CSO samples – not screened to date.

* WNV detected in all counties in 2004.

Data: California Dept of Health Services, 2006

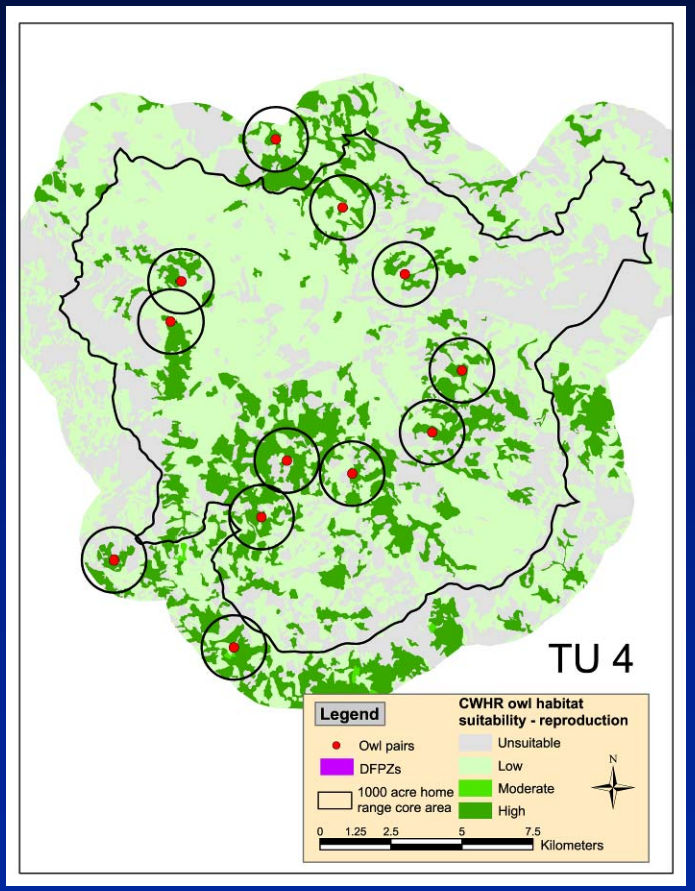
Radio-Telemetry 2008

- 8 Birds fitted with radio-transmitters in 2008 (5 females, 3 males)
- 7 Birds resident in SA-4; one bird flew to Seneca/ Lake Almanor area
- 210 nocturnal use locations recorded during the breeding season
- 87 Forest Inventory & Analysis plots conducted at a subsample of the 2007 breeding season use locations
- Fire & fuels treatment data recently received from Forest; habitat use analysis will be conducted this summer & fall, and will include 10 birds and 446 owl locations.



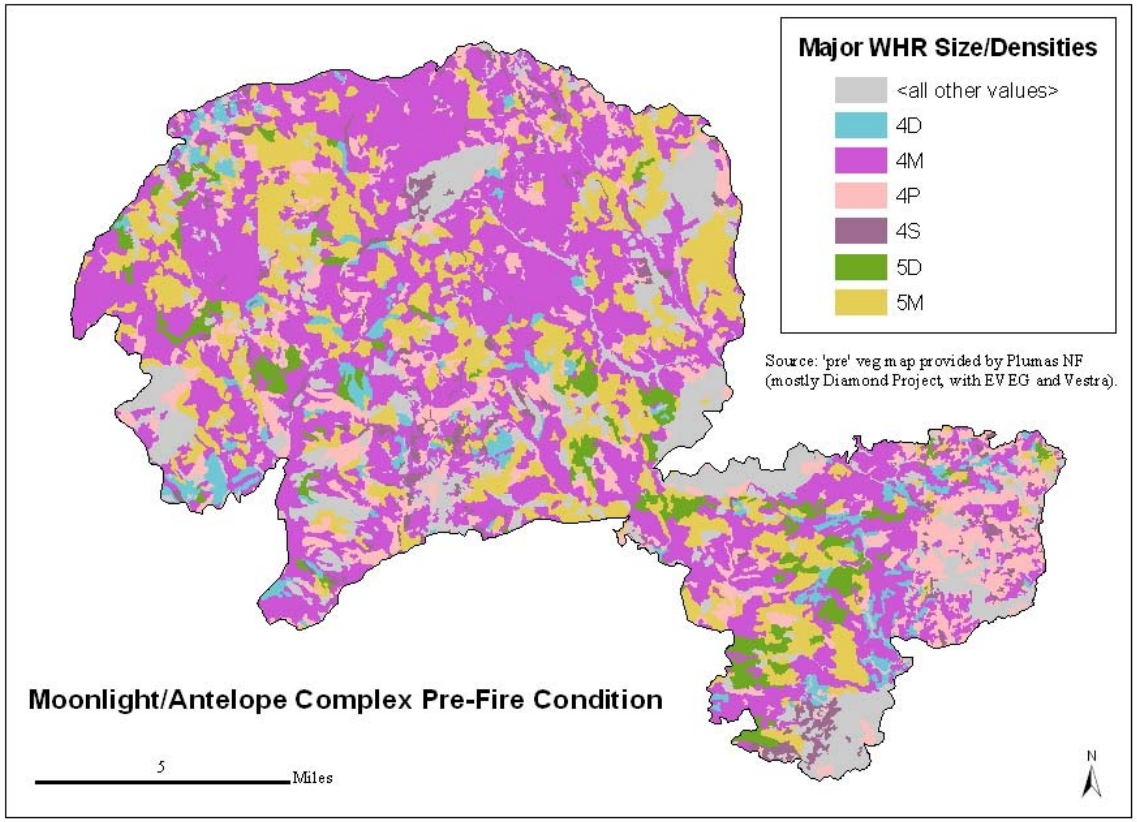
CSO Habitat Associations

- **Passive Adaptive Management Approach: assess effects of treatments and fire at landscape, home range and within-home range spatial scales.**
- **Model habitat and assess how observations relate to predictions of effects.**
- **Document CSO response to habitat altering events such as treatments and fire.**
- **Baseline monitoring for past 5 years in anticipation of treatment implementation**
- **2008 – first opportunity to assess CSO response to treatments**
- **Case Studies: Meadow Valley Project Area & Moonlight-Antelope Complex Fire areas.**
- **Move towards goal of assessing CSO response across untreated, treated, and wildfire areas.**

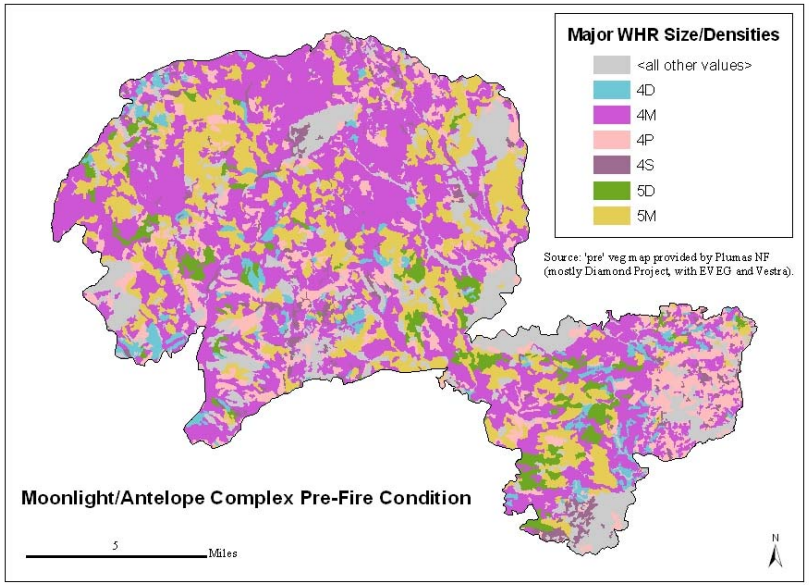


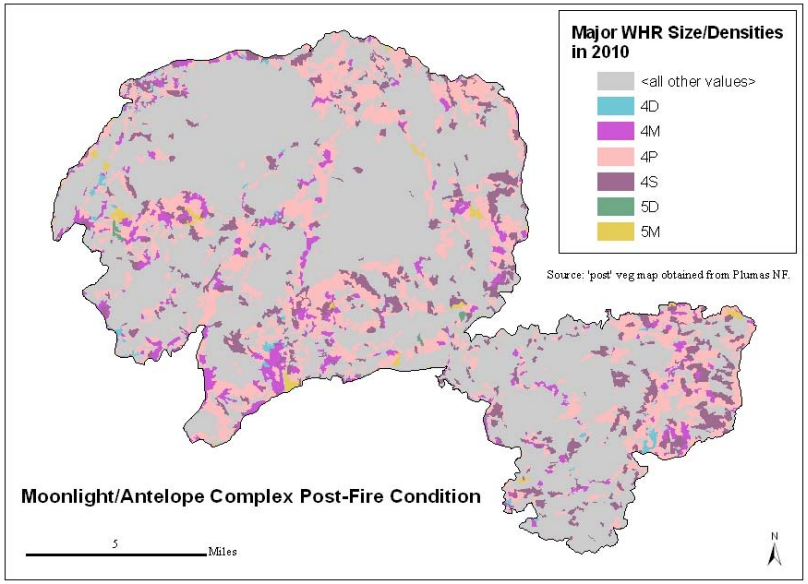
Case Study: Moonlight-Antelope Complex Fire Area

- ~88,000 acres
- 70% Suitable CSO habitat
- 23 PACs
- CSO Occupancy status unknown prior to fire



Case Study: Moonlight-Antelope Complex Fire Area



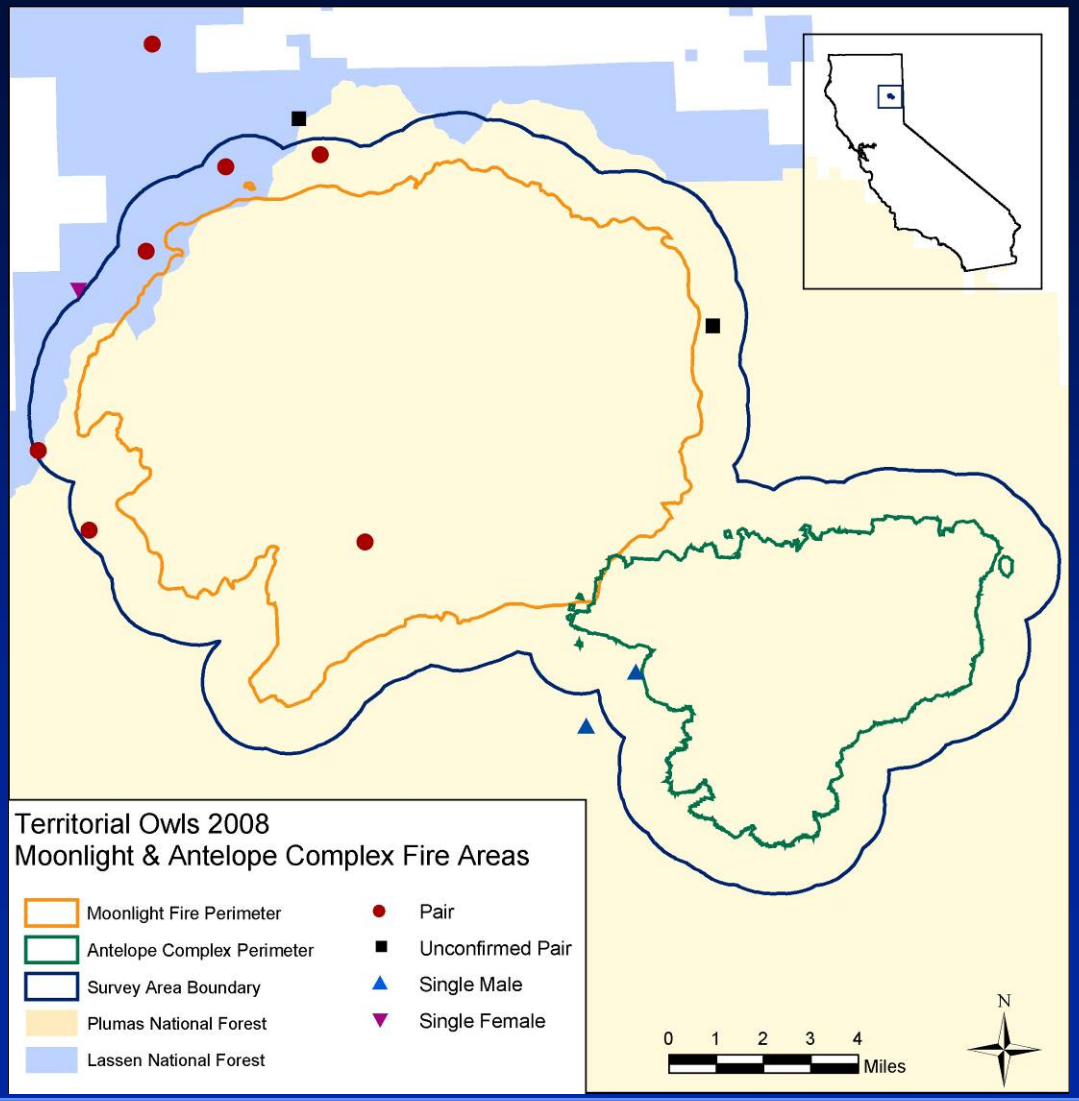


Post-Fire:

- Primarily High-Severity Burn
- 6% Suitable CSO Habitat

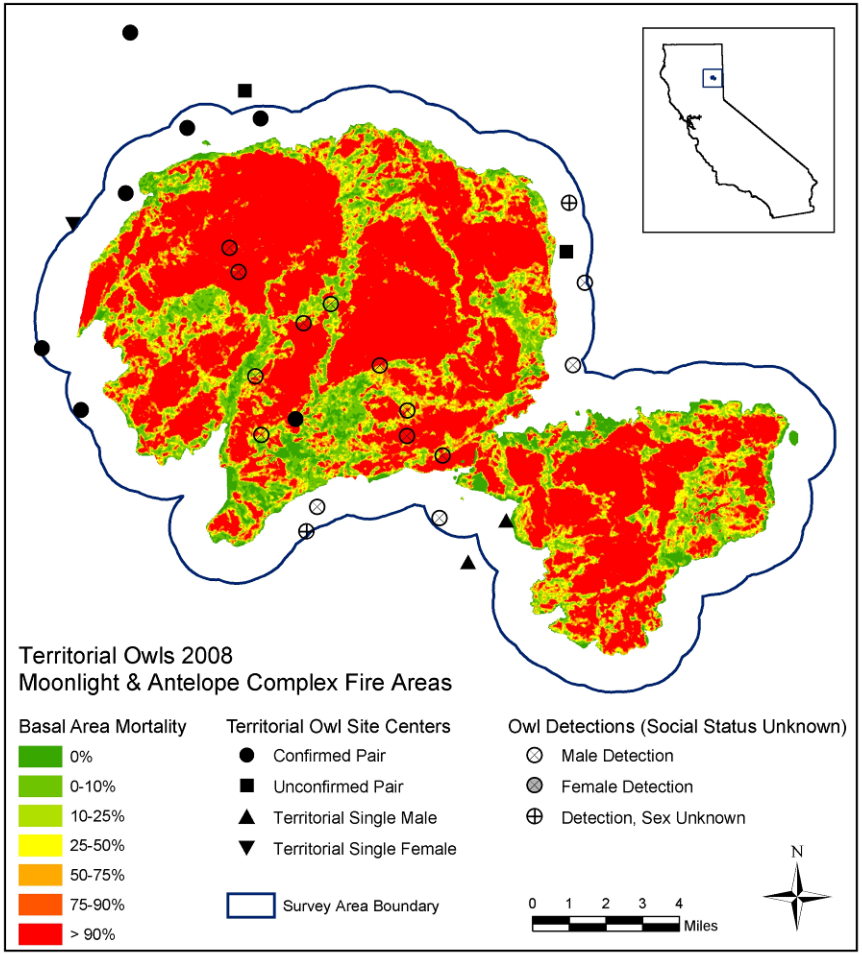
Case Study: Moonlight-Antelope Complex Fire Area

- CSO Surveys
- Standard Protocol
- Complete fire area coverage + 1 mile buffer
- 1 pair of CSOs within fire perimeter
- 6 pairs plus one territorial single within buffer.



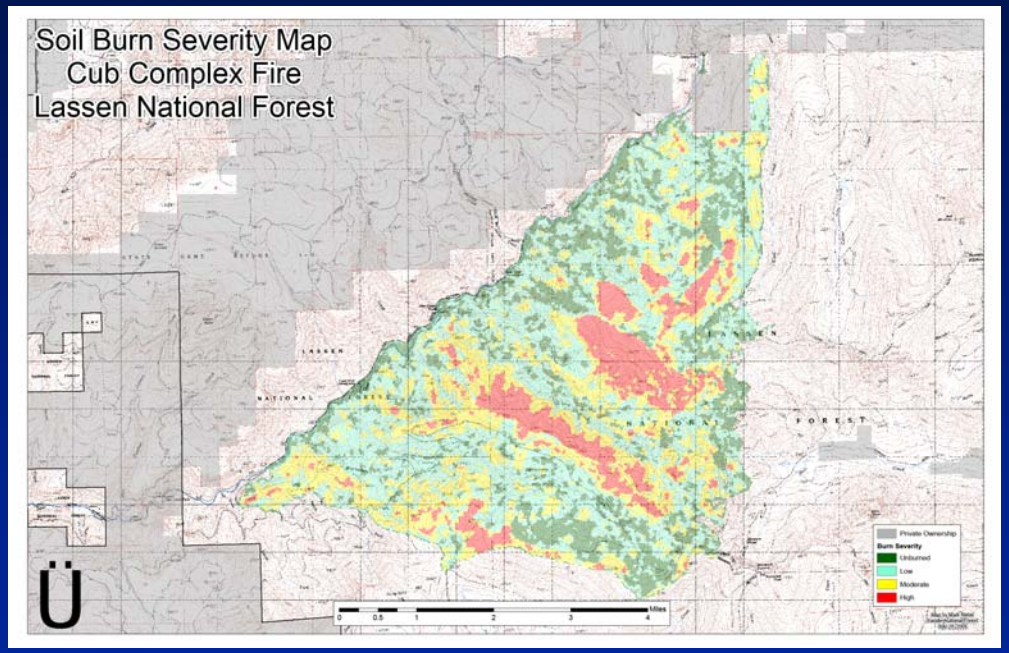
Case Study: Moonlight-Antelope Complex Fire Area

- CSO Survey Results
- 1 pair of CSOs within fire perimeter
- 10 detections of single males – all nocturnal detections with no follow-up detections.



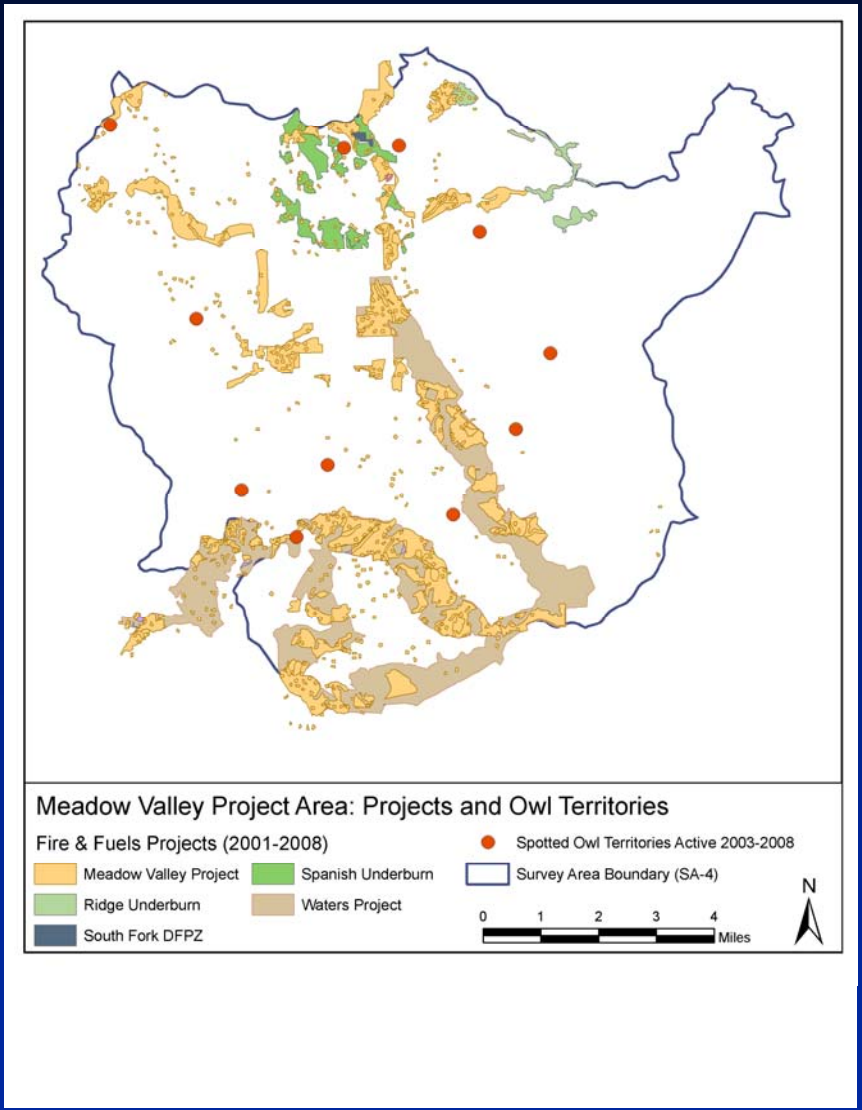
Case Study: Moonlight-Antelope Complex Fire Area – Summary Points

- Significant reduction in CSO habitat
- Single CSO territory
- High severity fire case study
- Second year surveys
- Fire effects on CSOs likely depends on the severity and resulting habitat patterns.
- Investigate habitat and CSO distribution and abundance in a fire with a mixed-severity pattern (e.g., Cub-Onion Fires).



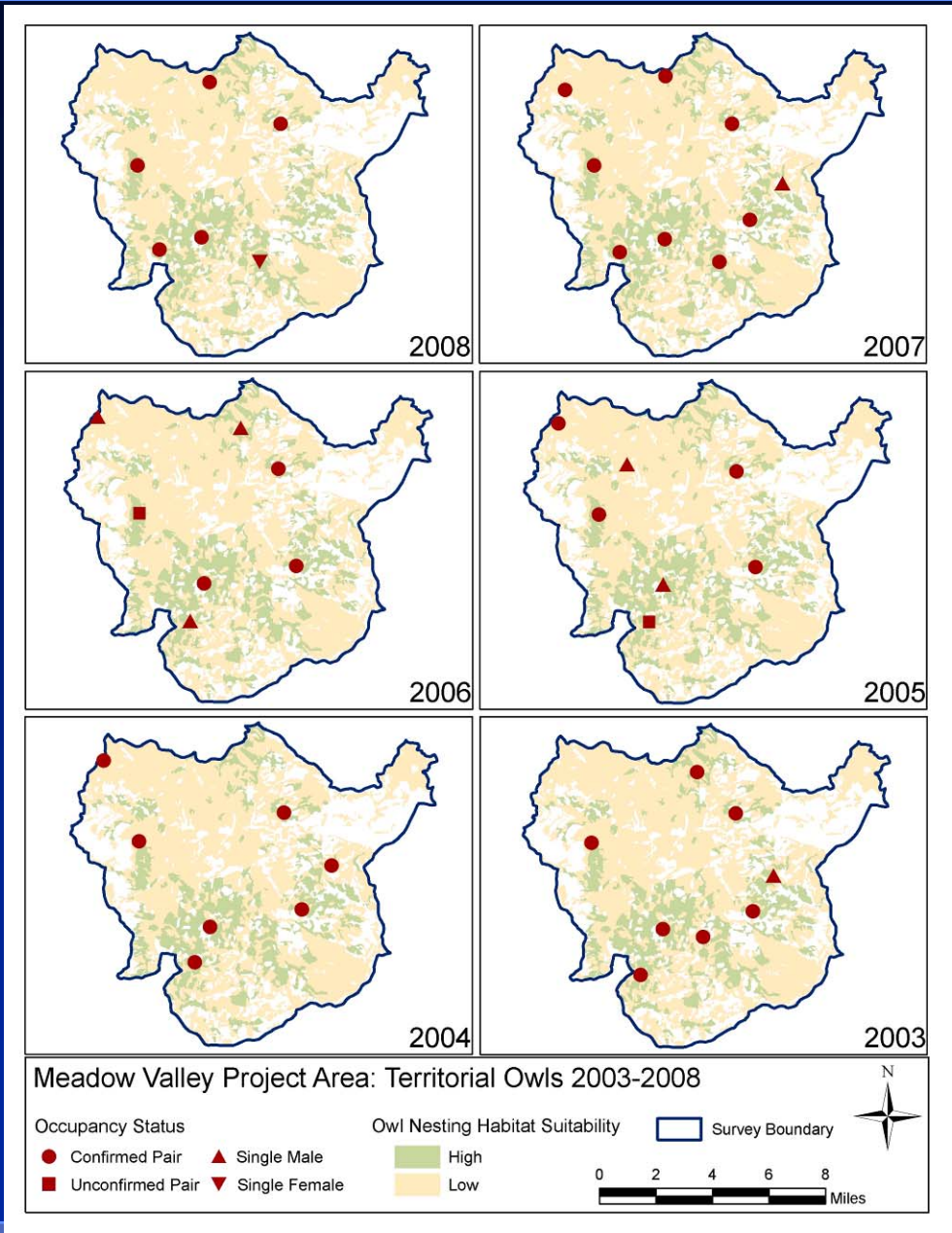
Case Study: Meadow Valley Project Area

- ~58,900 acres (238.5) km^2
- Monitor CSOs across project area since 2003
- First project area with full implementation of treatments completed
- Projects completed in late 2007.



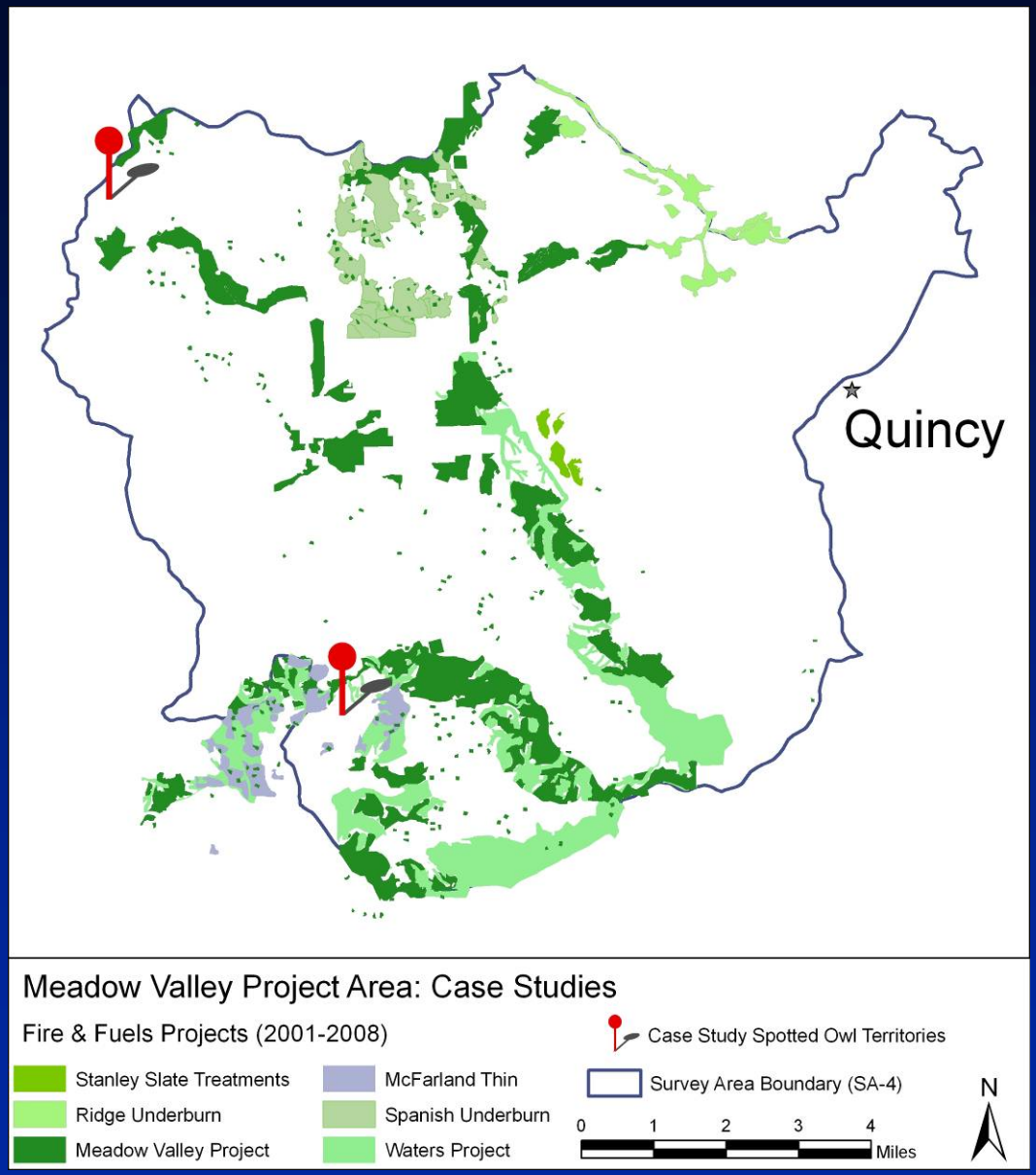
Case Study: Meadow Valley Project Area

- Number of CSO territories ranged from 6-9 across years.
- Core of 7 territories consistently across years, except for 6 in 2008.
- In 2003 (8) & 2009 (9) additional 1-2 territories.
- Some movement of individual territories across years.
- Evidence for possible negative associations with treatments at 2 territories.
- Evidence of possible colonization of a treated site in 2008.



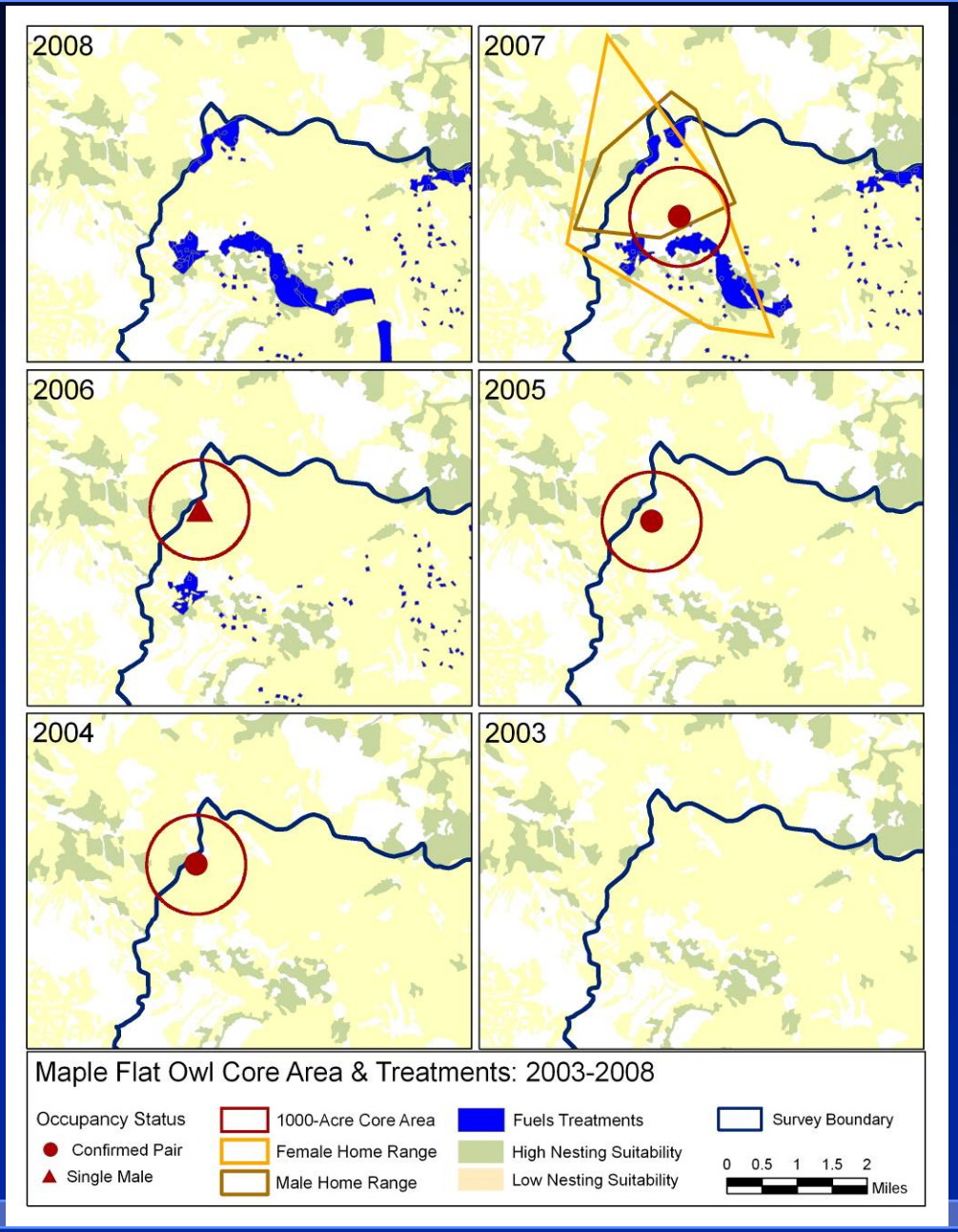
Case Study: Meadow Valley Project Area

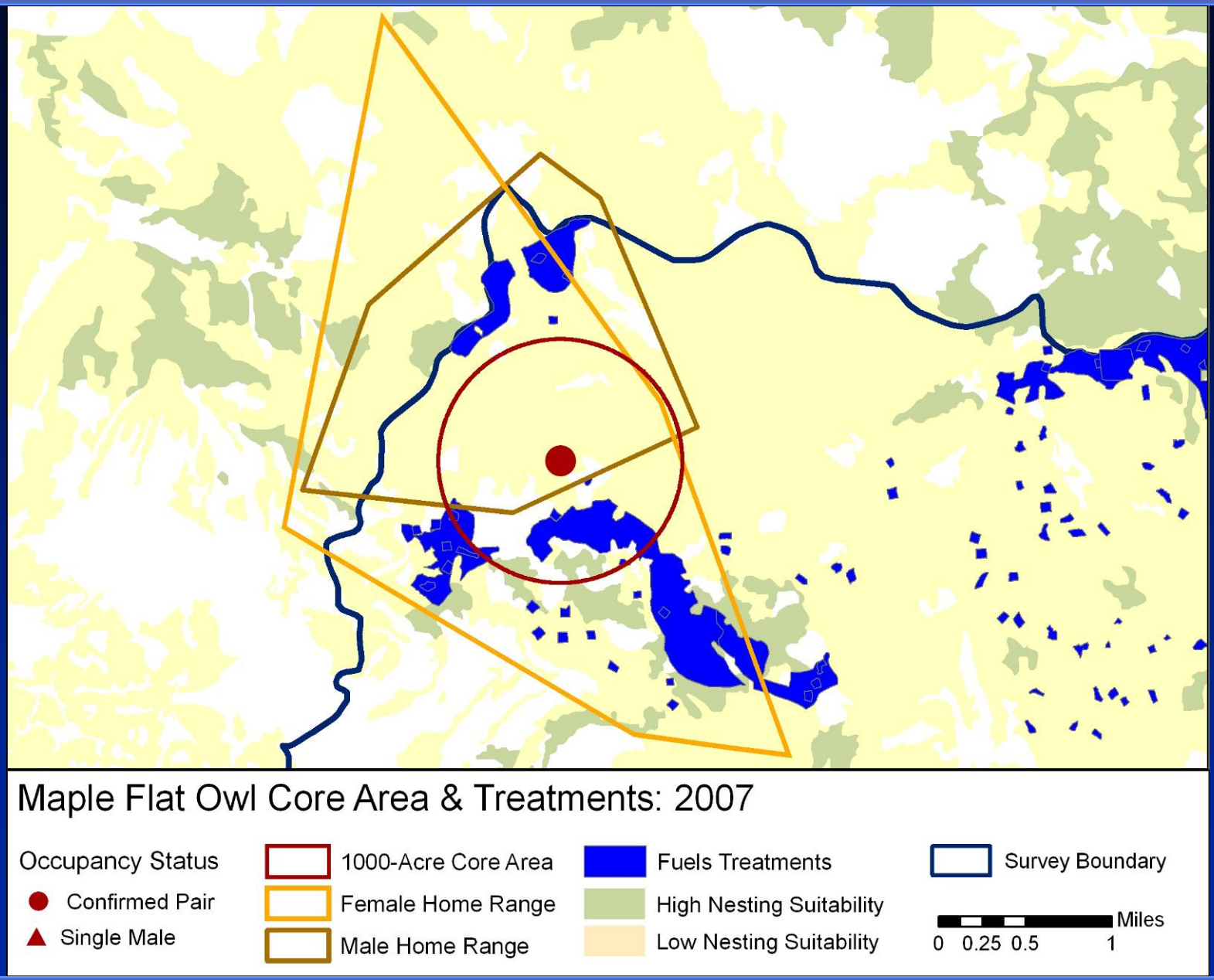
- Maple Flat territory
- Miller Fork territory



Case Study: Meadow Valley Project Area

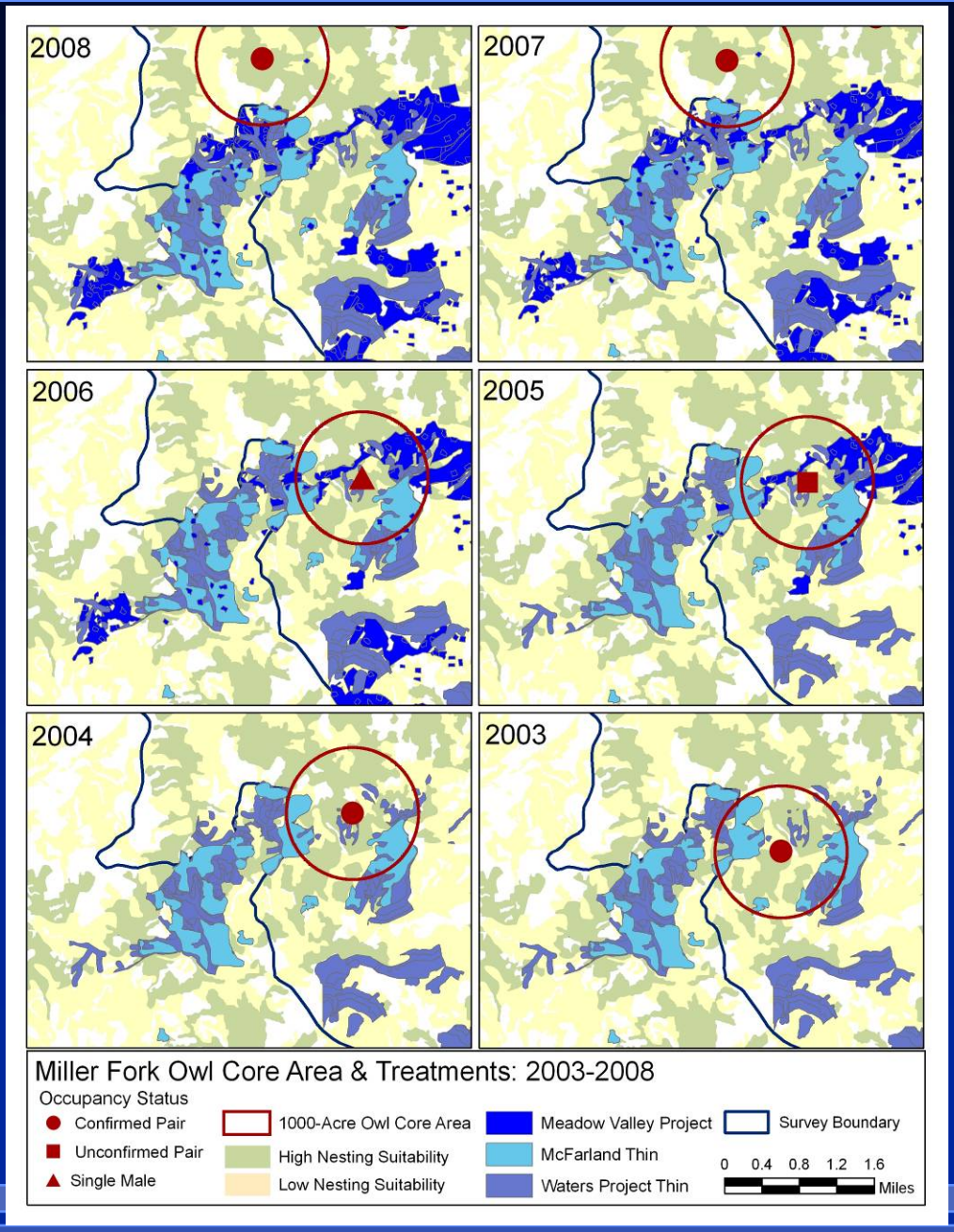
- Maple Flat territory
- Higher elevation site
- Projects implemented during 2007 breeding season
- Apparent shift in females home range use coincided with treatment locations
- Male migrated elevationally in winter and was found dead in February 2008.
- Female migrated to near Lake Oroville during winter 2007-2008.
- Female detected within 4 miles of core area in March 2009, then wandered north, eventually settling about 15 km away for the 2008 breeding period.
- Maple Flat unoccupied in 2008.
- Occupancy status confounded with possible change in pair status.

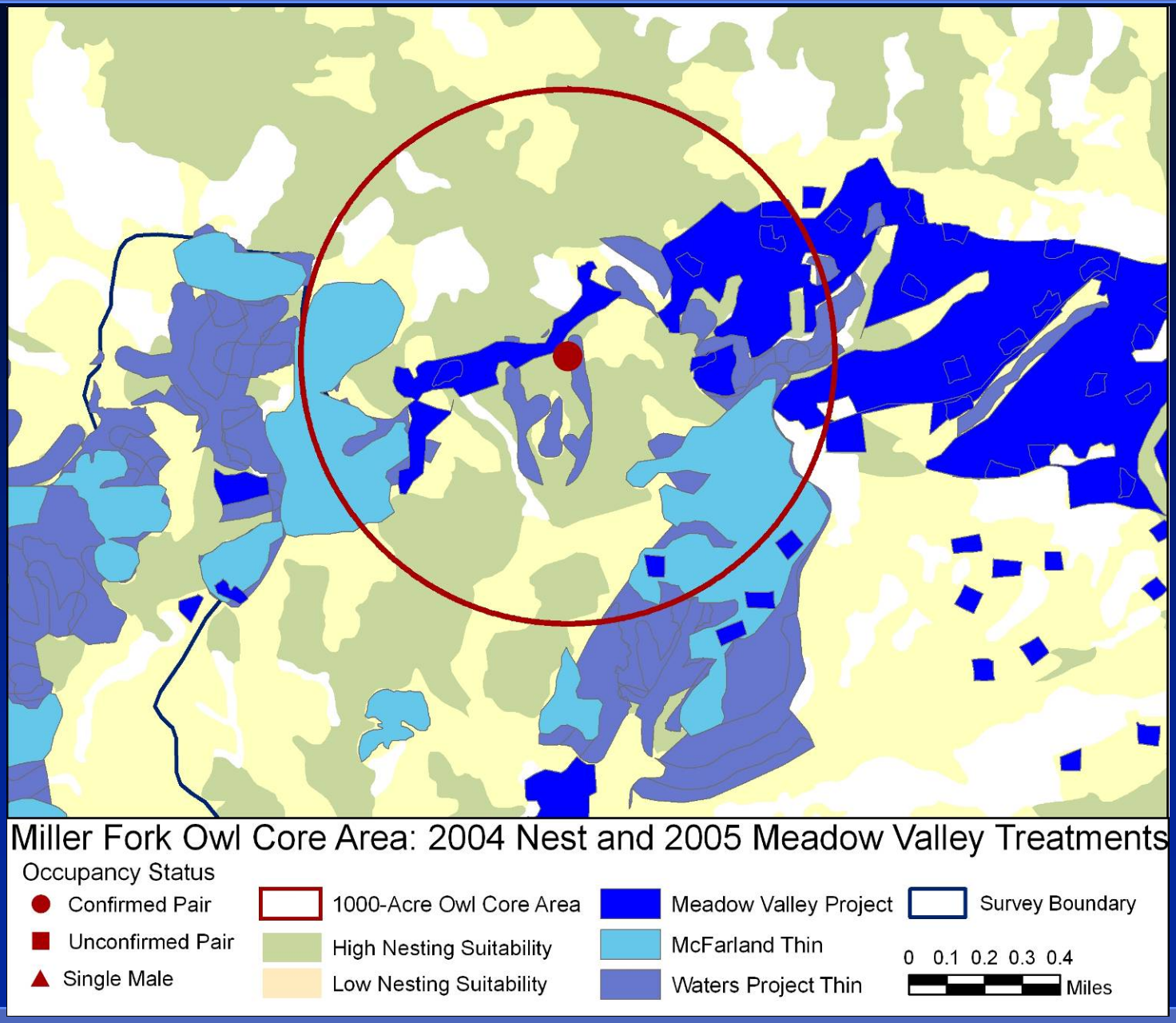



Maple Flat Owl Core Area & Treatments: 2007
Occupancy Status
Confirmed Pair
Single Male
1000-Acre Core Area
Female Home Range
Male Home Range
Fuels Treatments
High Nesting Suitability
Low Nesting Suitability
Survey Boundary
Miles
0 0.25 0.5 1

Case Study: Meadow Valley Project Area

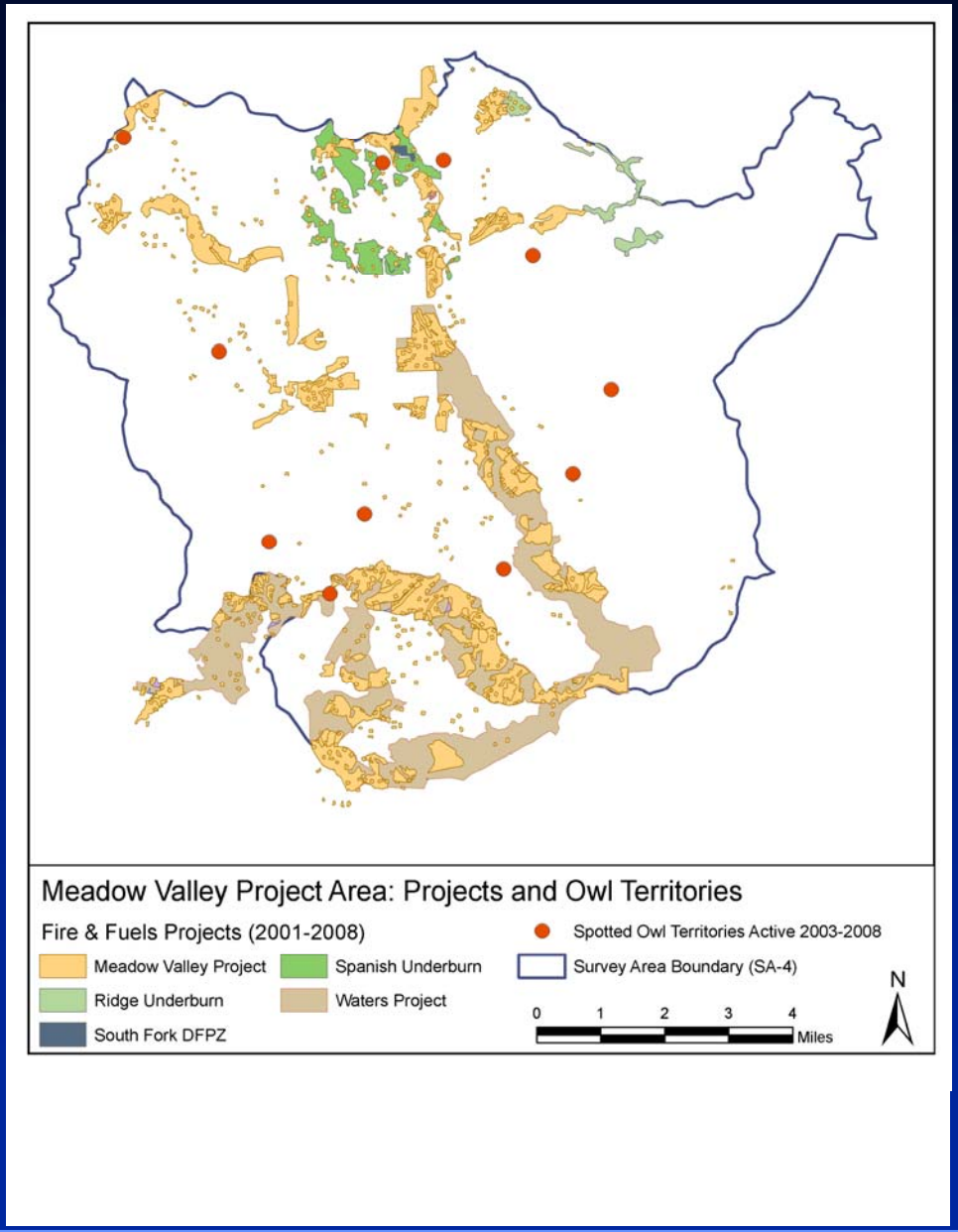
- Miller Fork territory
- Two commercial thins in area prior to 2003.
- Meadow Valley Project thin conducted during the 2005 breeding period.
- Thin occurred within 100m of 2004 nest tree.
- Single CSOs detected in 2005 & 2006.
- New territory established about 2 miles to the NW in 2007 & 2008.




Miller Fork Owl Core Area: 2004 Nest and 2005 Meadow Valley Treatments
Occupancy Status
Confirmed Pair
Unconfirmed Pair
Single Male
1000-Acre Owl Core Area
High Nesting Suitability
Low Nesting Suitability
Meadow Valley Project
McFarland Thin
Waters Project Thin
Survey Boundary
0 0.1 0.2 0.3 0.4
Miles

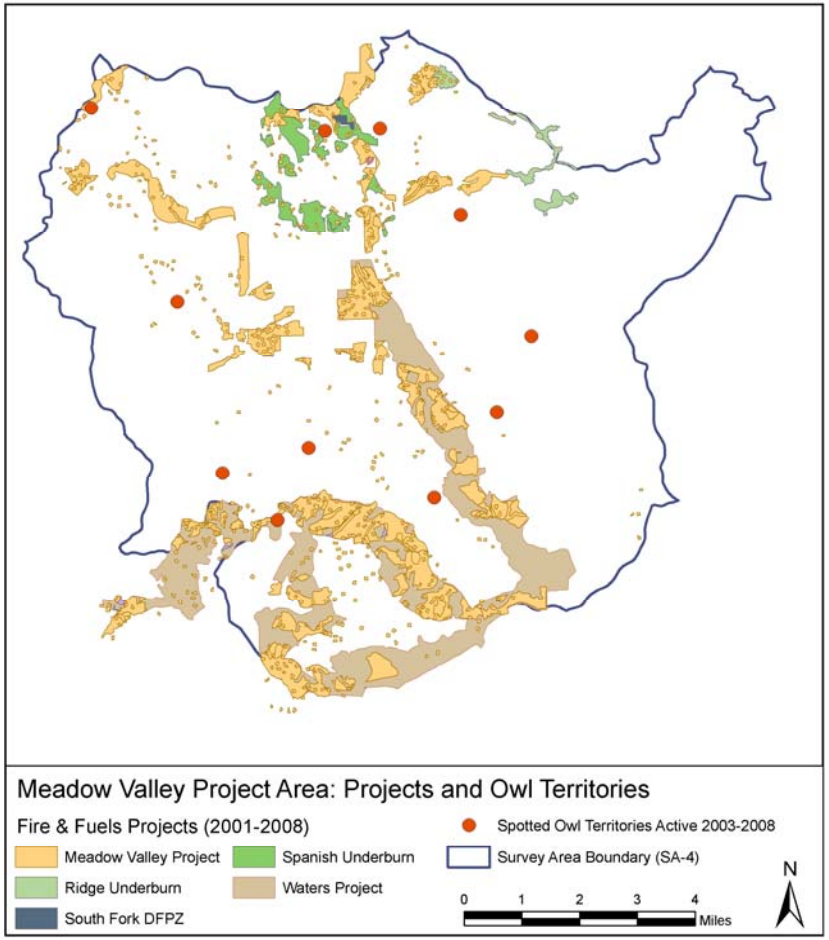
Case Study: Meadow Valley Project Area

- Pine Leaf territory
- Adult male CSO in site during 2008.
- Radio-tracked in 2008.
- Pair present in 2008.
- Nest – 8 April 2009.



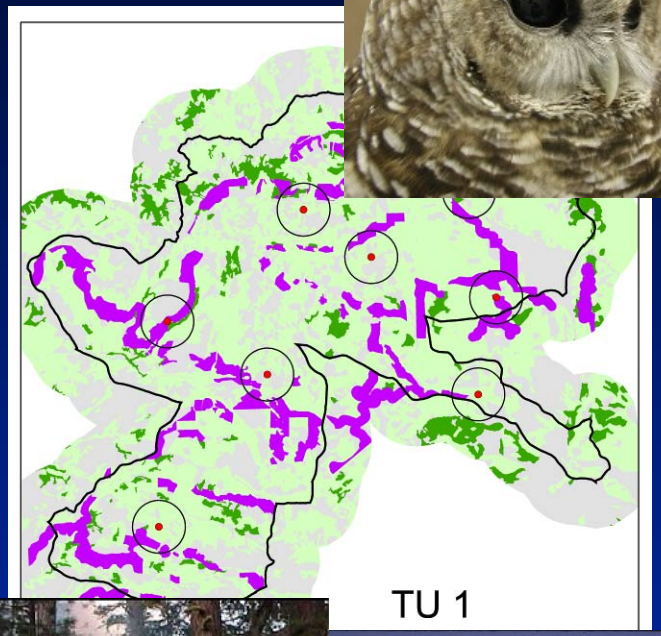
Case Study: Meadow Valley Project Area - Summary

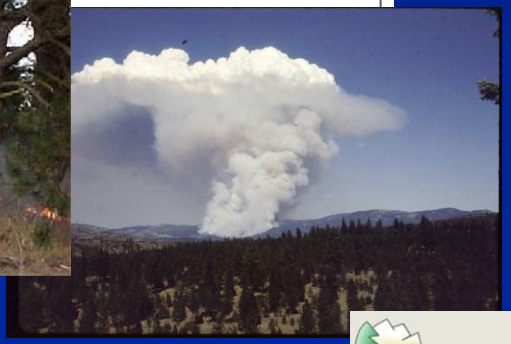
- 2008 results suggest similar number of CSO sites across the study period.
- Evidence for treatment effects at 3 territories.
- Interpret cautiously as there may be effects that are only expressed over longer time periods.
- Illustrate the strengths and limitations of the case study approach – associations with treatments.
- Requires accurate information on treatments and effects on vegetation.
- Creeks, Scott's John Creek, Empire projects



2009 Plan of Work

- **Continue density and demographic monitoring for estimating population trends.**
- **Continue monitoring of barred owls and WNV.**
- **Conduct second year of surveys in Moonlight and Antelope Complex fire areas.**
- **Initiate surveys in the Cub/Onion fire area.**
- **Conduct surveys in the Creeks, Scott's John Creek, & Empire project areas.**
- **Complete the radio-telemetry project, diet, and habitat modeling components.**





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