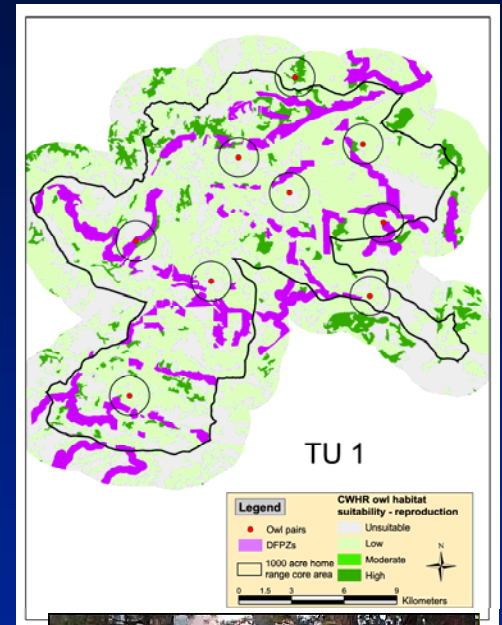


# California Spotted Owl Module: 2006 Overview

- John Keane, Sierra Nevada Research Center, PSW.

Field Project Leaders &: GIS Analysis:

- Claire Gallagher, Sean Parks,  
Paula Shaklee, Dan Shaw, SNRC-  
PSW



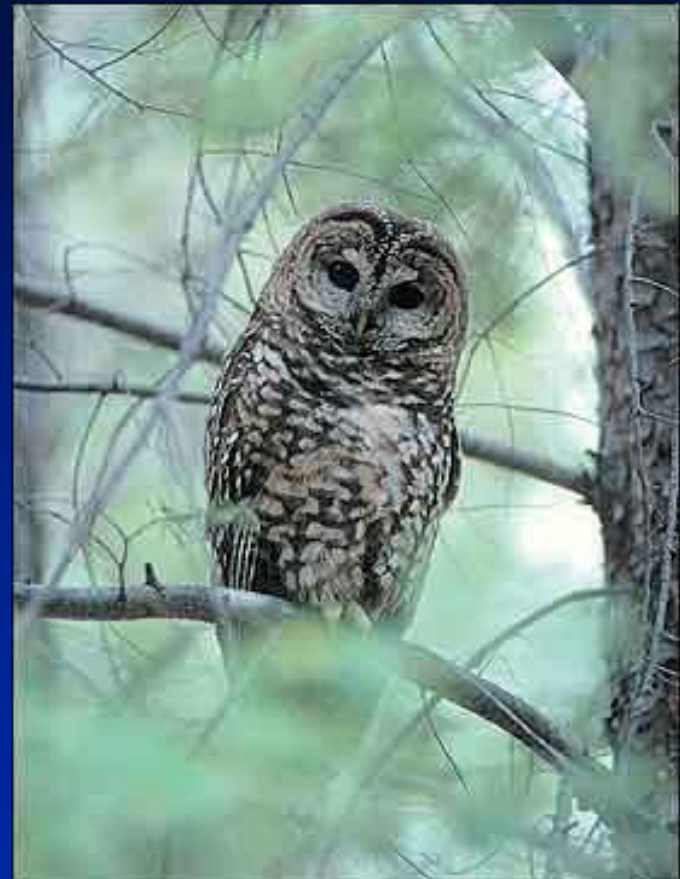
# Plumas-Lassen Study: Acknowledgments.

- 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, Ben Ogren, Dave Smith, Allen Stutz, Mason Werner**



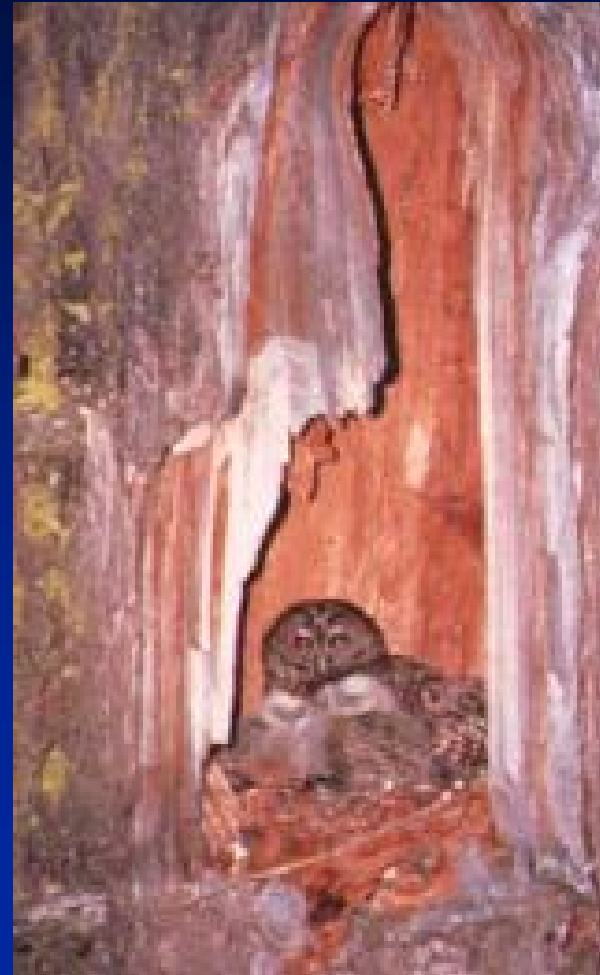
## Personnel Changes: 2007

- Ross Gerrard: new member of the SNRC, Davis, CA.
- Gretchen Jehle: Lassen Demo Project Leader
- Dan Hansen, Dan Shaw & Sean Parks: no longer on project.
- Jennifer Blakesley: accepted new position with RMBO.
- Barry Noon (CSU): continued with project



# 2006 PLS Annual Report

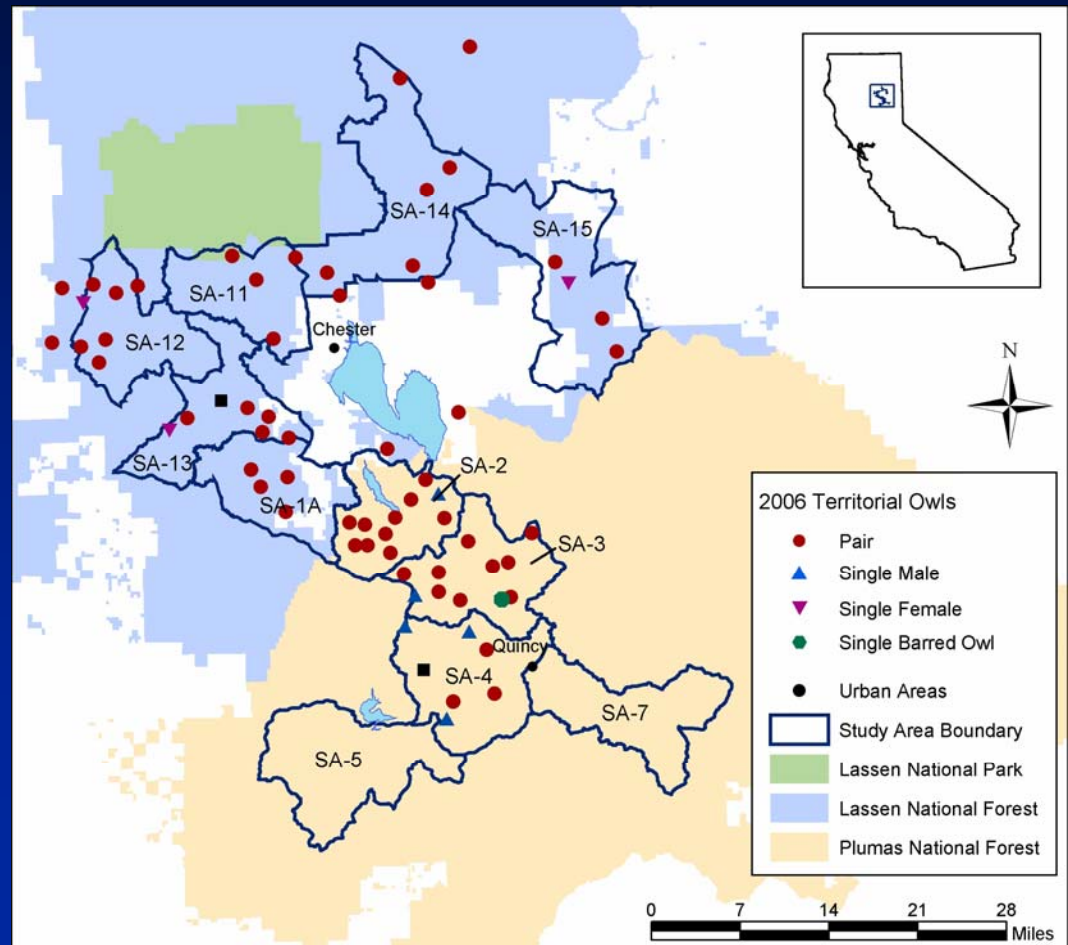
- Continue demographic study.
- Determine CSO territory density, spacing and reproduction.
- Address other potential stress factors (Barred Owls, WNV).
- Assess habitat associations.
- Develop predictive habitat models.
- FY2007 Research Objectives.





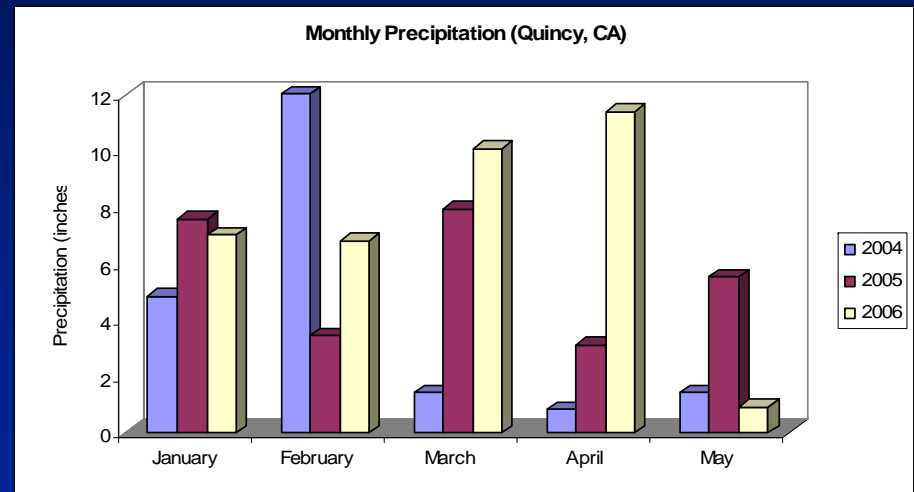
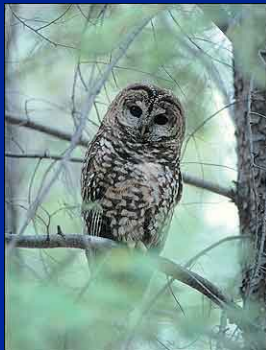
# CSO Density Across the HFQLG Area

- Surveyed 2039 km<sup>2</sup> (503,933 acres)
- Reduced survey area coverage in 2006
- 58 CSO pairs and 8 territorial singles
- 2005 = 64 pair/11ts vs 2006 = 52 pair/9ts



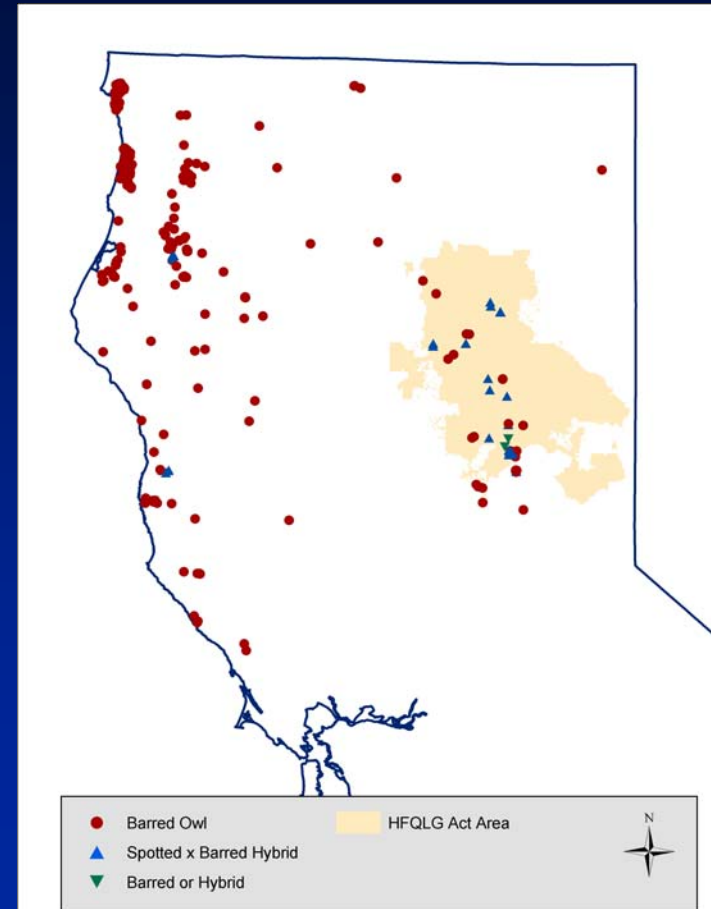
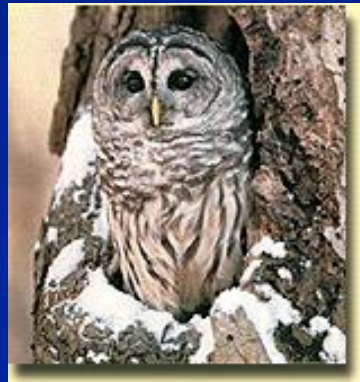
# Nesting Success 2004-2006

Year	Pairs	% Successful Nests	Young Fledged / Nest
2004	83	49.4%	1.61
2005	93	18.3%	1.53
2006	58	13.8%	1.50



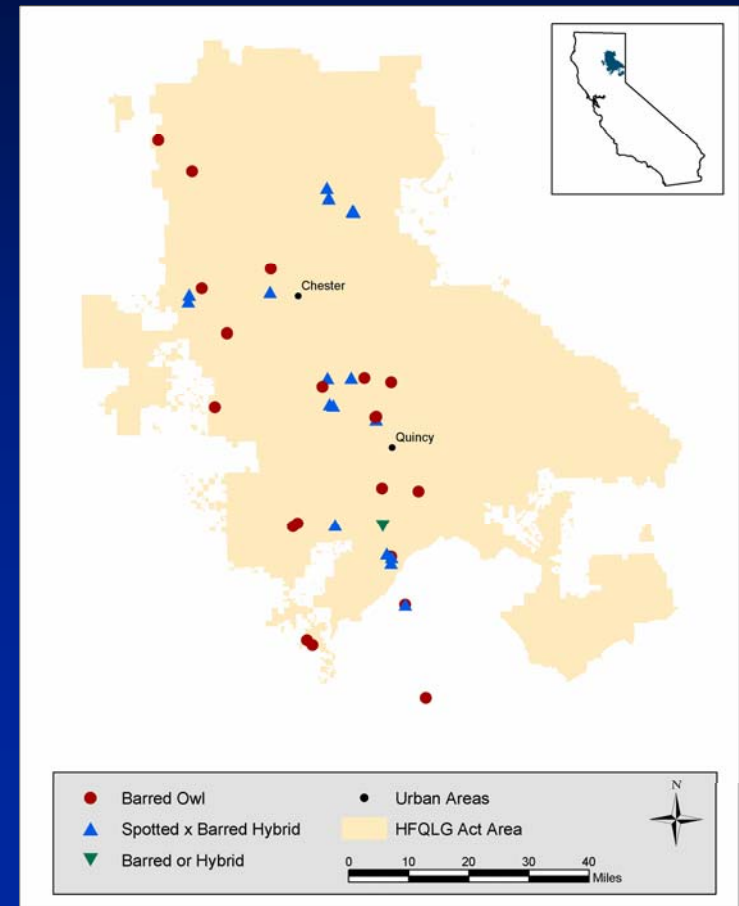
# Barred/Sparred Owl Status in California

- Barred/Sparred Owls distributed across No. CA
- Recent records for Marin County, Eldorado NF, Sequoia NF
- Initial hybridization followed by competitive exclusion



# Barred/Sparred Owl Status in the HFQLG Area

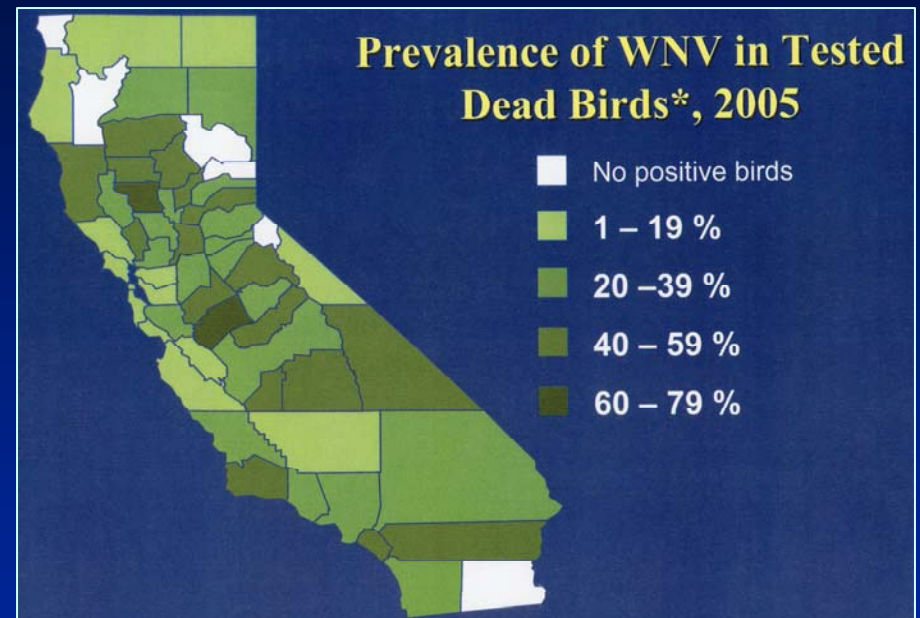
- First record in 1989
- 36 – 44 sites with Barred/Sparred Owl records 1989-2006
- 24 of the records are from 2002-2006
- Study Area 2006: 5 Barreds, 3 Sparreds
- Data suggest Barred Owls increasing in the northern Sierra Nevada





# West Nile Virus in the HFQLG Area

- Plumas & Lassen Co.
- 2004: 75 negative tests for CSOs.
- 2005: 76 negative tests for CSOs.
- 2006: 20 negative tests for CSOs.

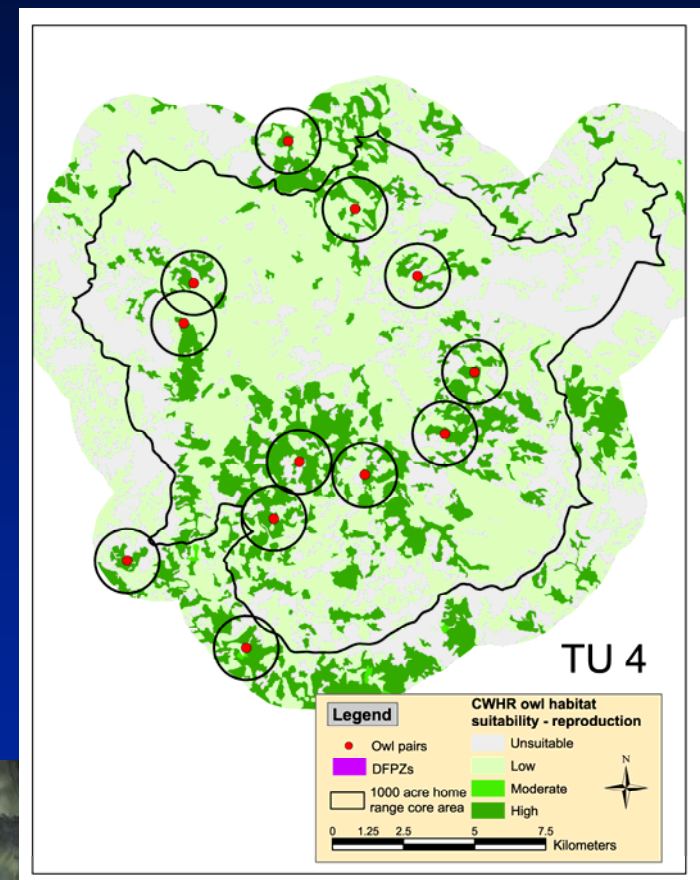


\* Prevalence = (# positive birds/ # tested birds)

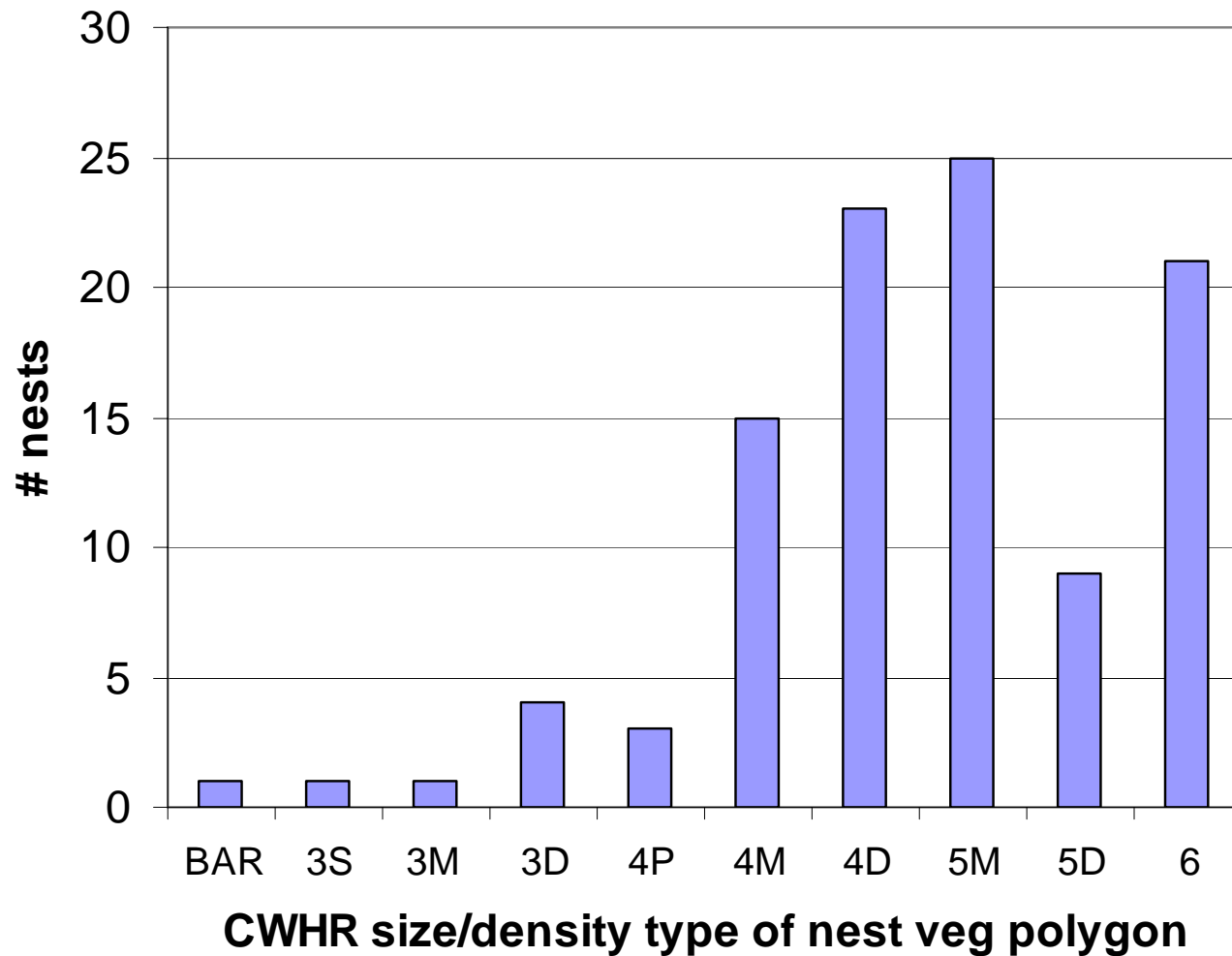
Data: California Dept of Health Services, 2006

# CSO Habitat Associations

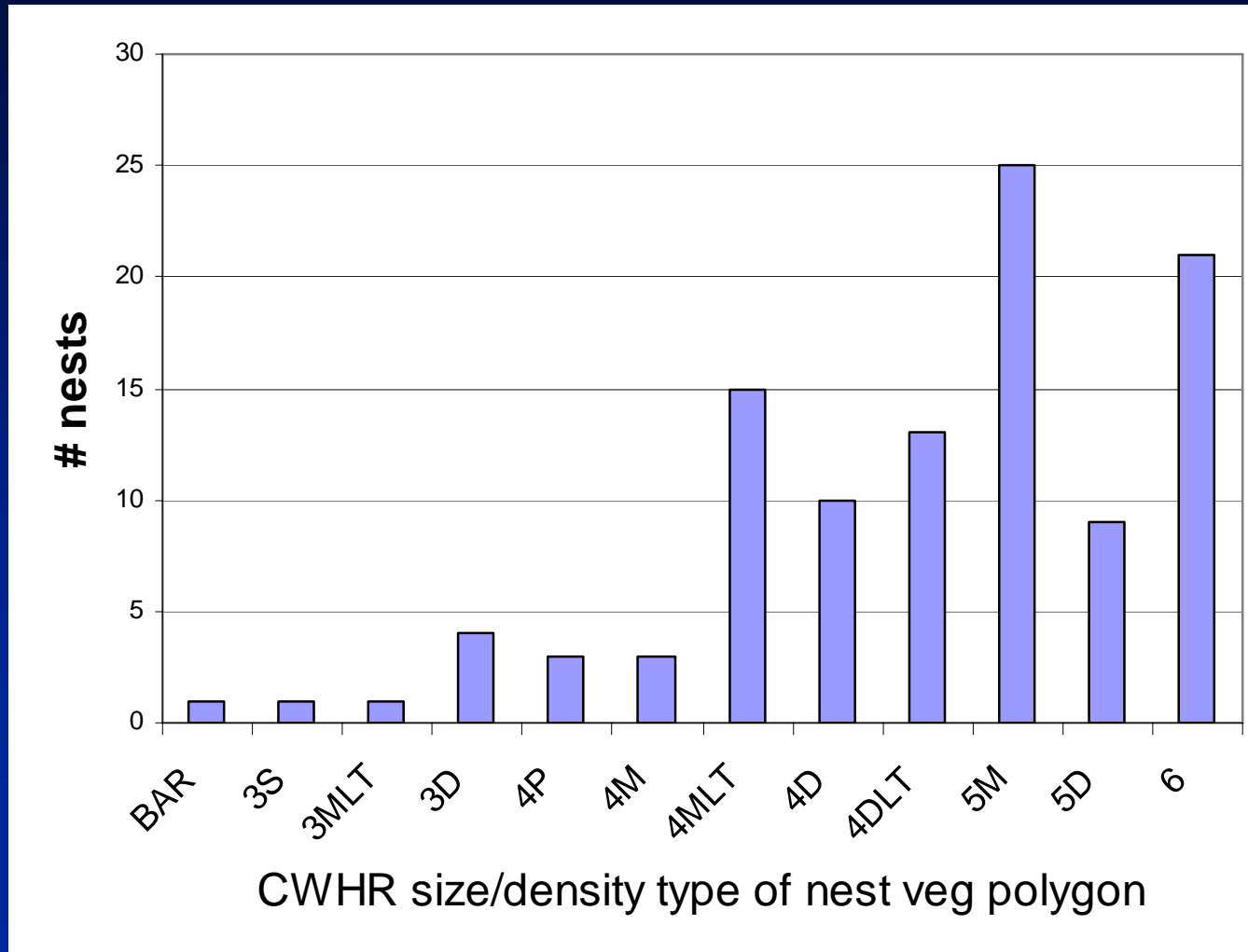
- **Within home range scale:** nest and foraging area polygon & plot analyses.
- **Home range scale:** assess amounts and distribution of habitat classes within CSO home ranges.
- **Landscape-scale:** relate habitat to CSO density, distribution and spacing.
- **Topographical and environmental covariates**
- **Explore various modeling approaches:** Logistic regression models, habitat value scoring models, etc.



Distribution of CSO nest sites (n = 102) by CWHR size and density class within the PLS 2004-2006.

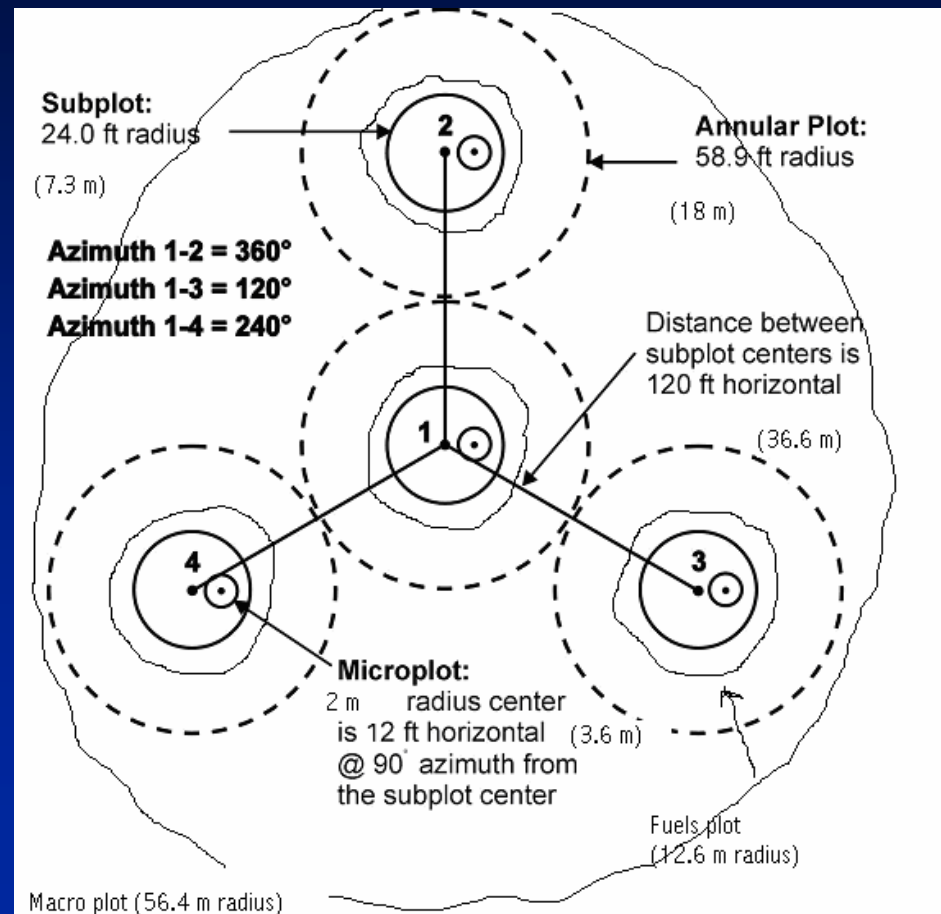


Distribution of CSO nest sites (n = 102) by CWHR size and density class with large tree inclusions within the PLS 2004-2006.



# Habitat Associations: nest-plot scale

- FIA protocol
- Sampled 80 plots in 2005-6.
- Describe CSO nest-site stand characteristics.
- Planning tools for project planning & projecting effects of treatment on habitat suitability.

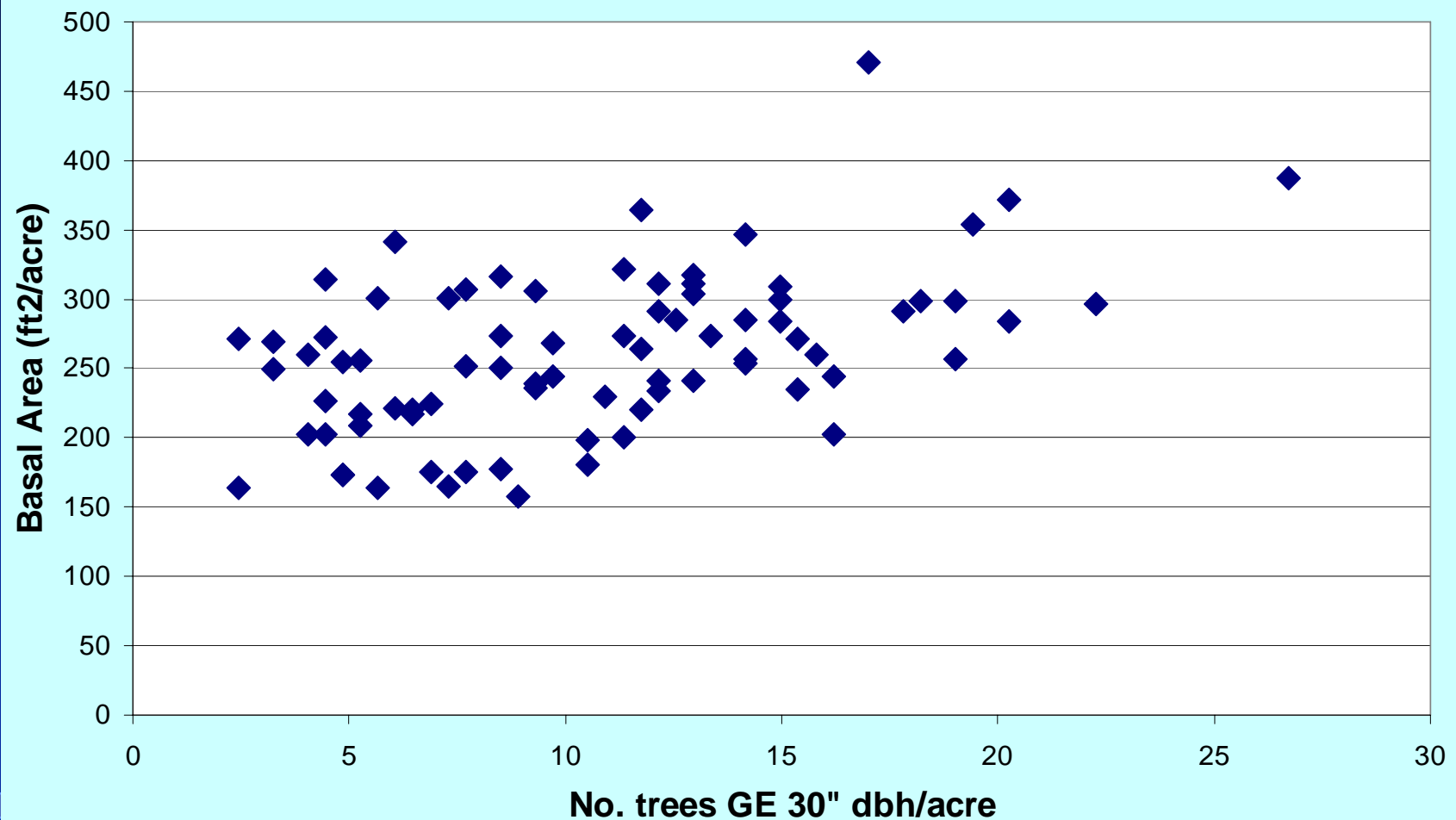




## Example forest structure variables from FIA plots at 80 CSO nest/roost sites.

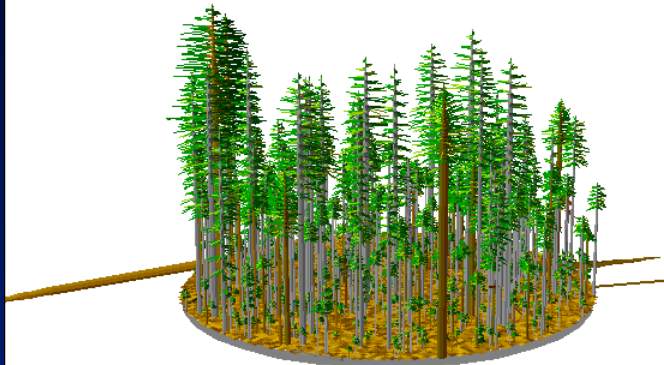
Variable	Mean	sd
Total Basal Area (ft <sup>2</sup> /acre)	260.8	57.9
Trees >30 inches (#/acre)	10.7	5.2
Snags >15 inches (#/acre)	7.4	7.2
Litter (tons/acre)	23.7	16.2

Plot of basal area versus number of trees GE 30" dbh within 1-ha plots at CSO nests (n = 80) in the PLS, 2004-2006.



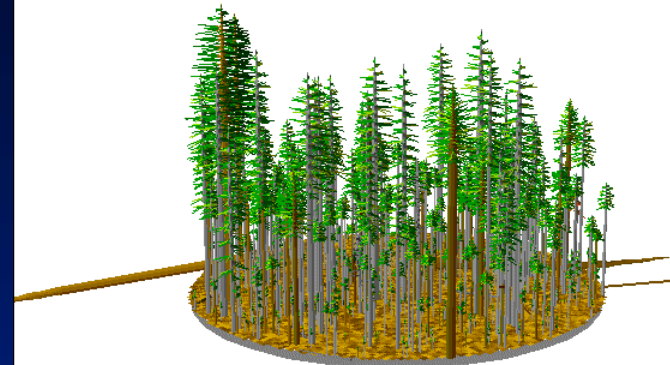
Stand=8934030 Year=2007 Beginning of cycle

Let it grow



Stand=8934030 Year=2007 Beginning of cycle

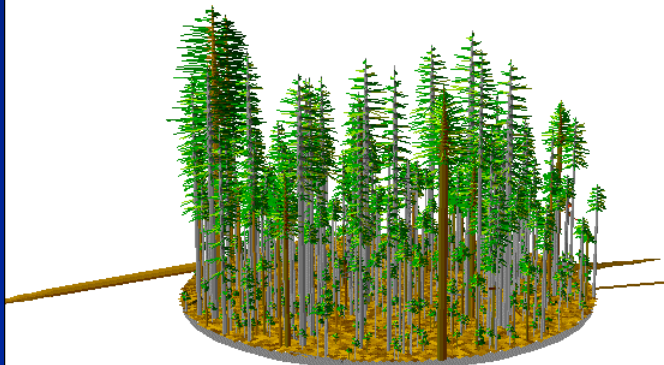
Thin to 40% CC  
All diameters



Thinning simulated in 2012

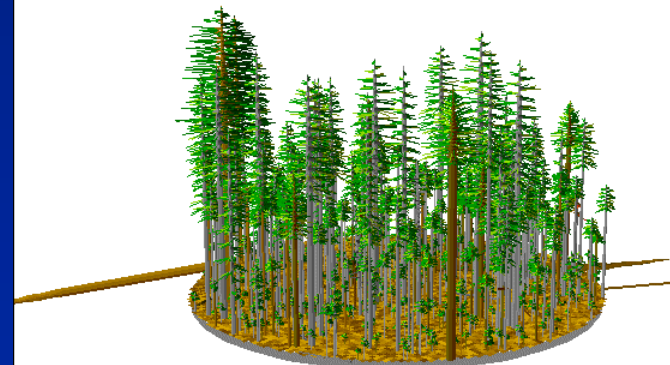
Stand=8934030 Year=2007 Beginning of cycle

Thin from below  
to 180 ft<sup>2</sup>/acre



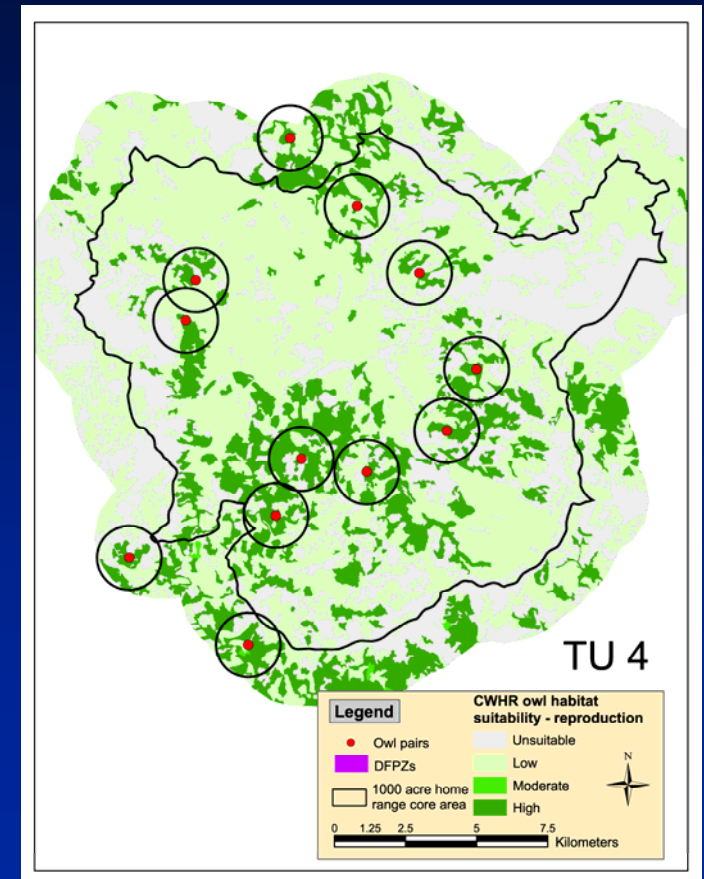
Stand=8934030 Year=2007 Beginning of cycle

Thin 75% of  
trees 0-6" dbh

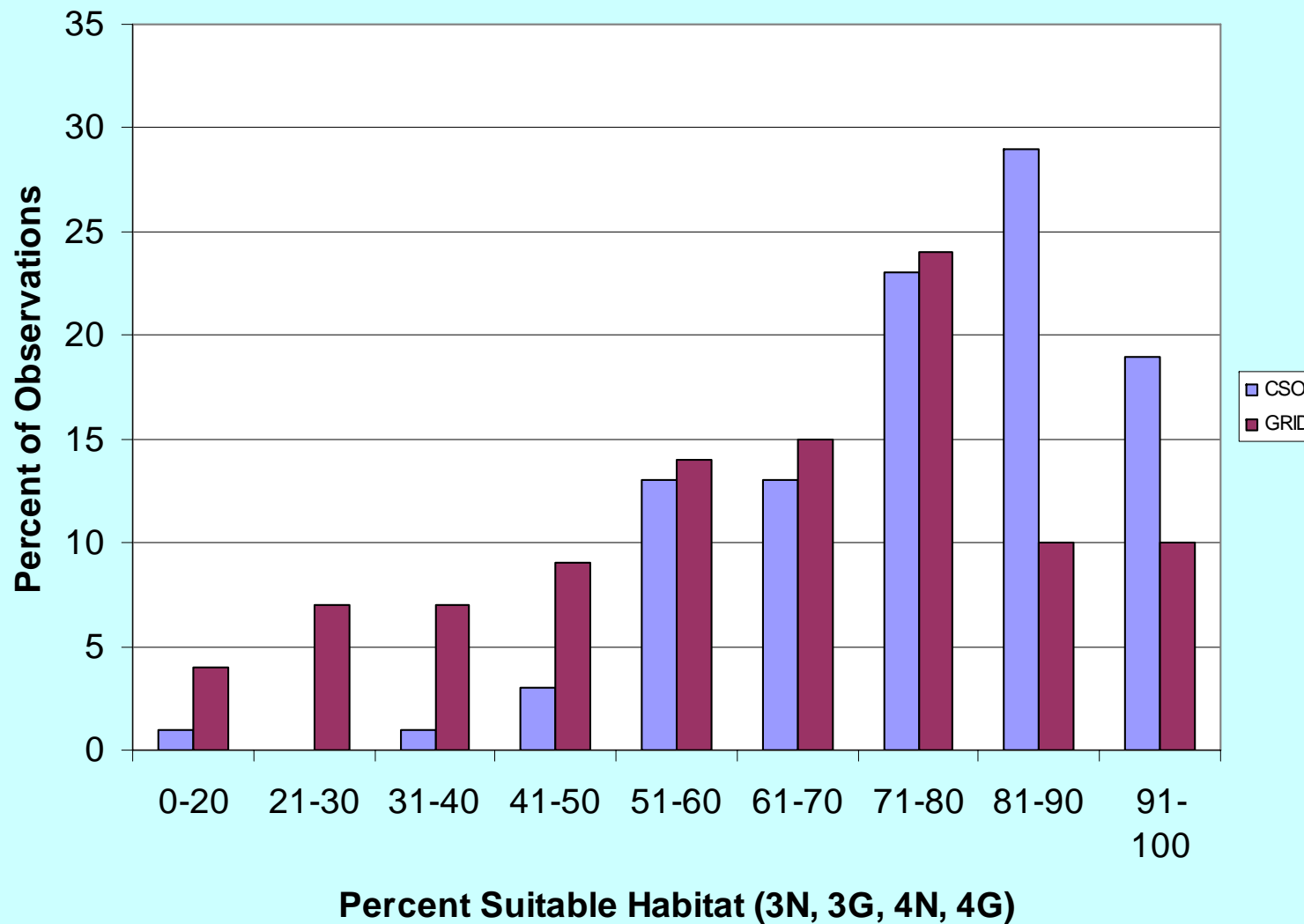


# CSO Home Range & Landscape Habitat Associations

- **Home range scale:** assess amounts and distribution of habitat classes within CSO home ranges (canopy cover classes, tree size classes, large tree inclusions) (e.g., 121 ha, 200 ha, 403ha, 1820ha).
- **Landscape-scale:** relate habitat to CSO density, distribution and spacing.



## Percent suitable habitat in 500 acre circles at CSO nest sites (n=102) and Grid sites (n=130) in the PLS, 2004-2006.



CSO  
•Mean =  
75.7%  
sd= 22.1

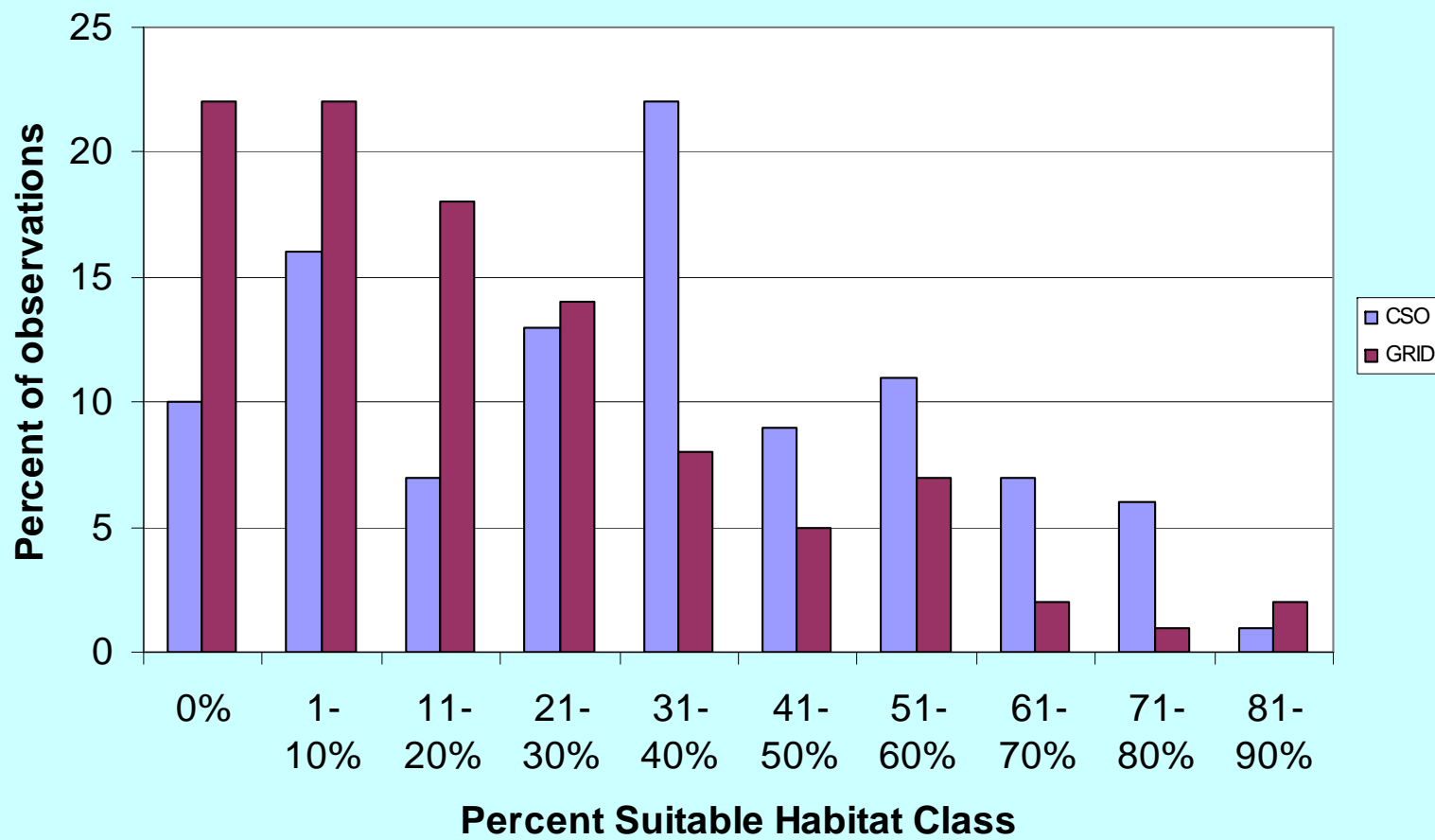
GRID  
•Mean =  
61.9%  
sd = 20.4



Proportion of vegetation classes within 500 acre (200 ha) buffers at CSO (n = 102) and grid (n = 130) sites. Values are mean (sd).

Variable	CSO	Grid	<u>P</u>
Trees >24" dbh, CC >40-70%	0.26 (0.20)	0.17 (0.18)	0.001
Trees >24" dbh, CC >70%	0.07 (0.13)	0.02 (0.09)	0.008

Percent of 4N & 4G habitat in 500 acre (201ha) circles at CSO sites (n=102) and Grid sites (n=130) in the PLS, 2004-2006.



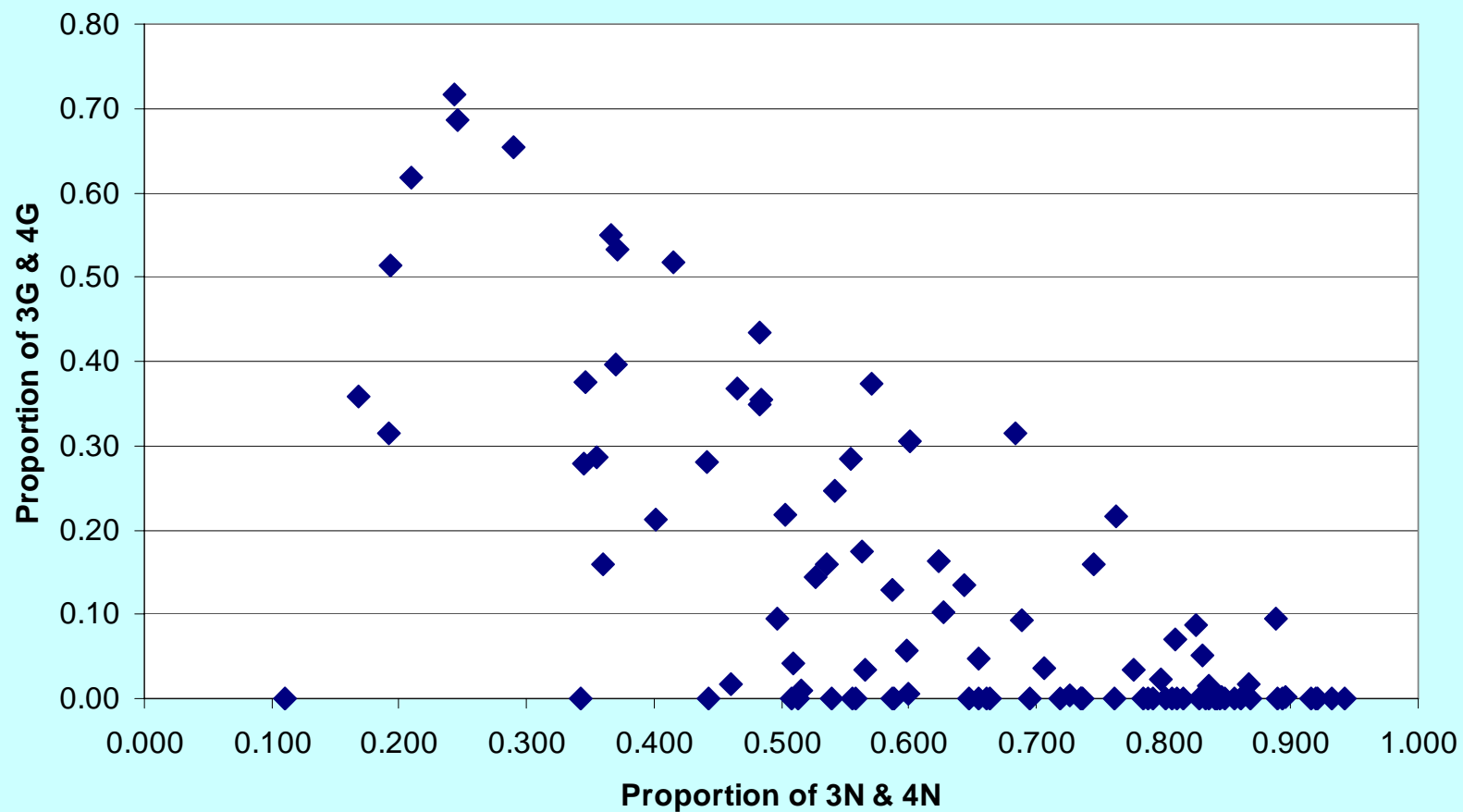
CSO

•Mean =  
32.4%  
sd = 23.0

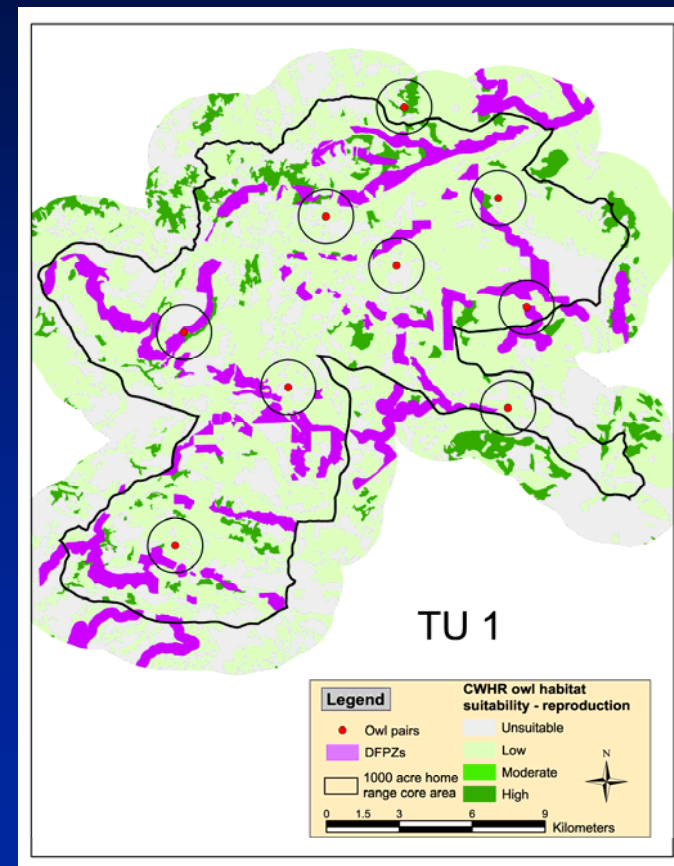
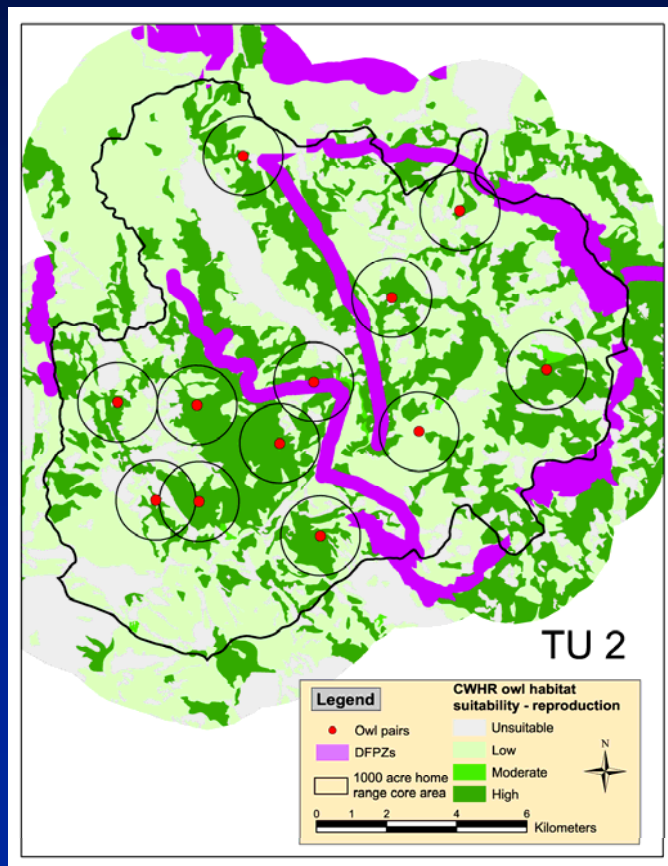
GRID

•Mean =  
19.6%  
sd = 20.4

Distribution of dense canopy (3G & 4G) and medium canopy (3N & 4N) classes within 500 acres (201ha) of owl sites on the PLS (n = 102).

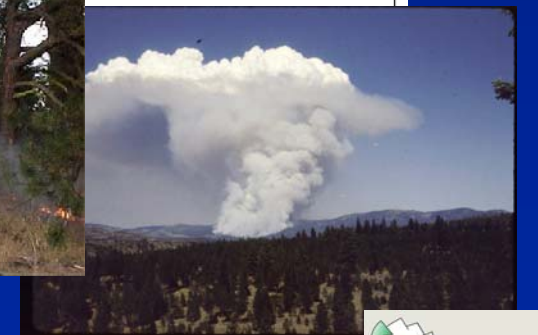
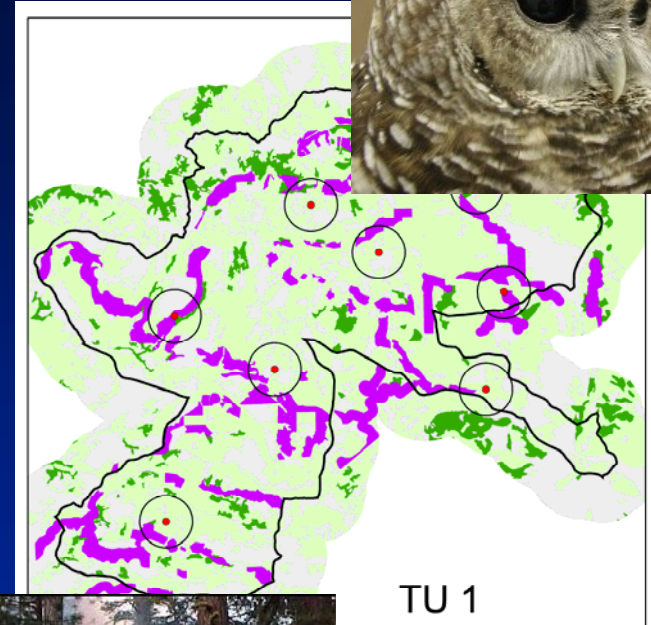


# Development of Adaptive Management Modeling Tools.



# 2007 Plan of Work

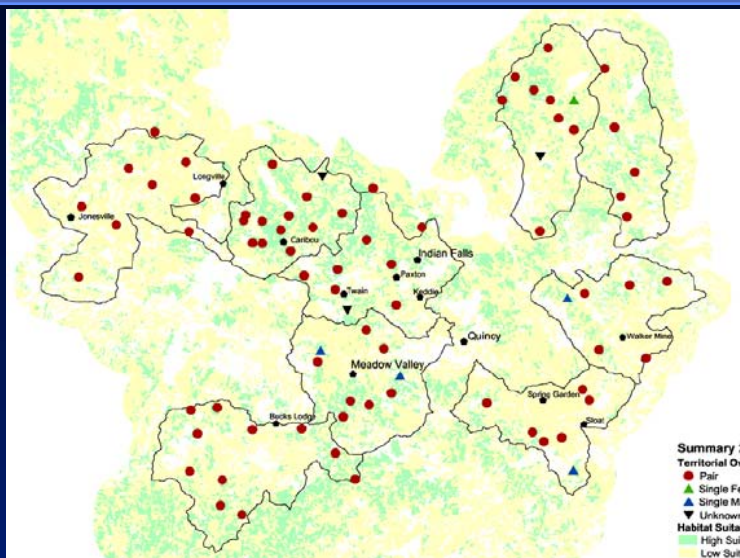
- Continue demographic monitoring for estimating population trends.
- Continue landscape density monitoring (reduced level).
- Continue monitoring of barred owls and WNV.
- Develop habitat models at landscape, home range, & nest-plot scales (occupancy, demographics).
- Initiate radio-telemetry study of habitat use (use at stand-scale, plot-scale).



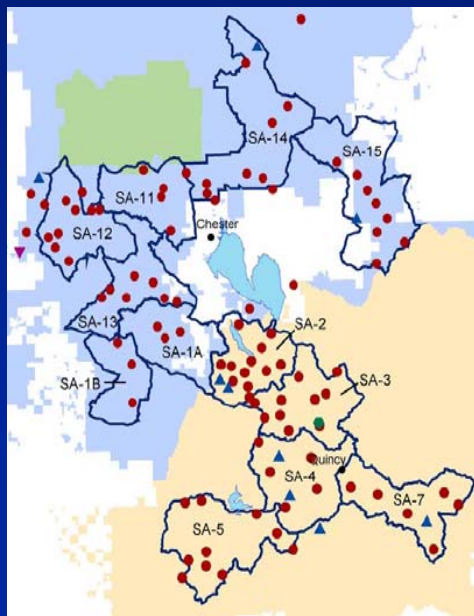




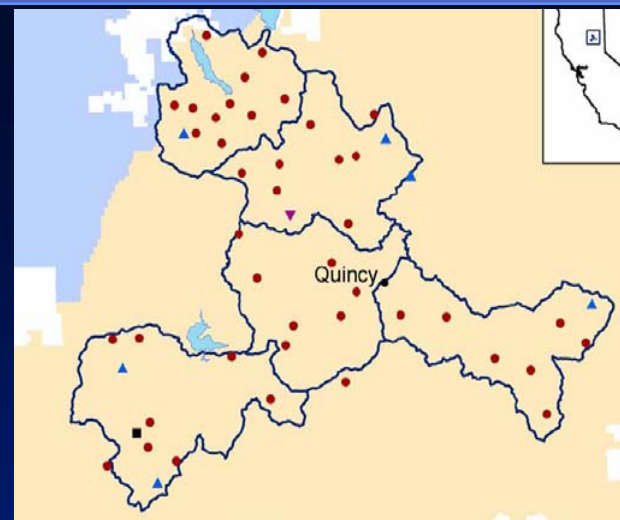
2005



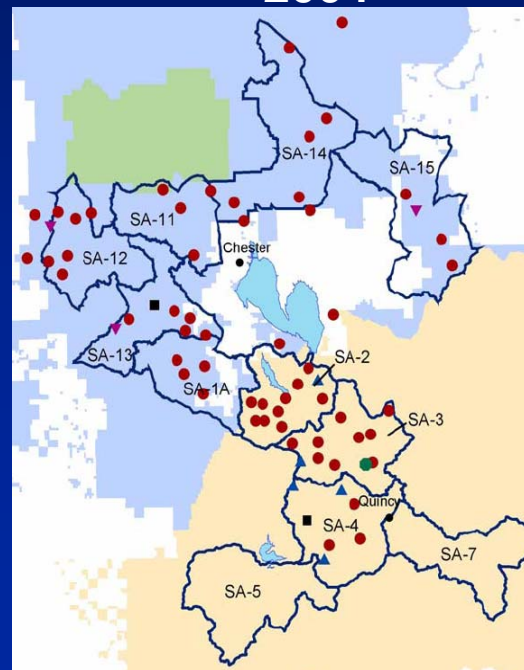
2003-2004



2005



2004



2006

- Pair
- ▲ Single Male
- ▼ Single Female
- Single Barred Owl