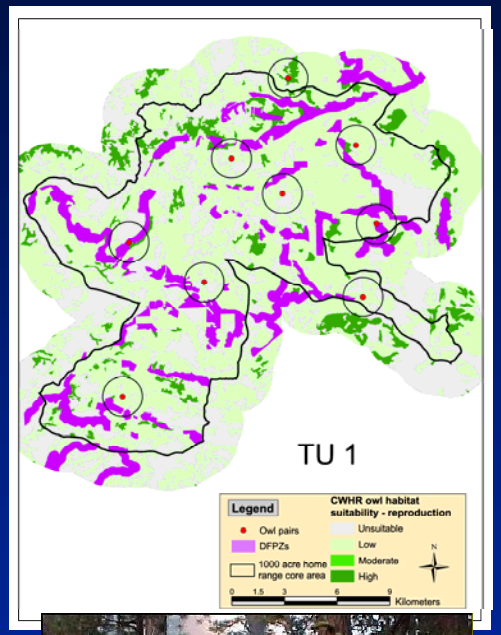
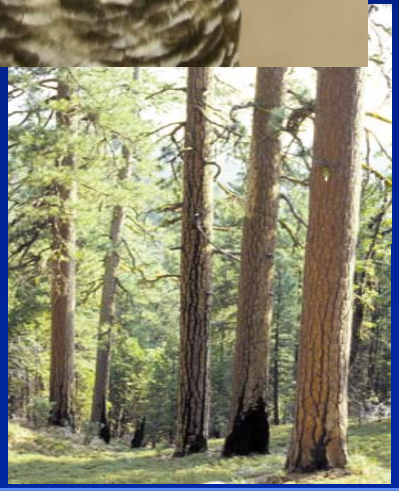
California Spotted Owl Module: 2006 Overview

- **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**

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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.**

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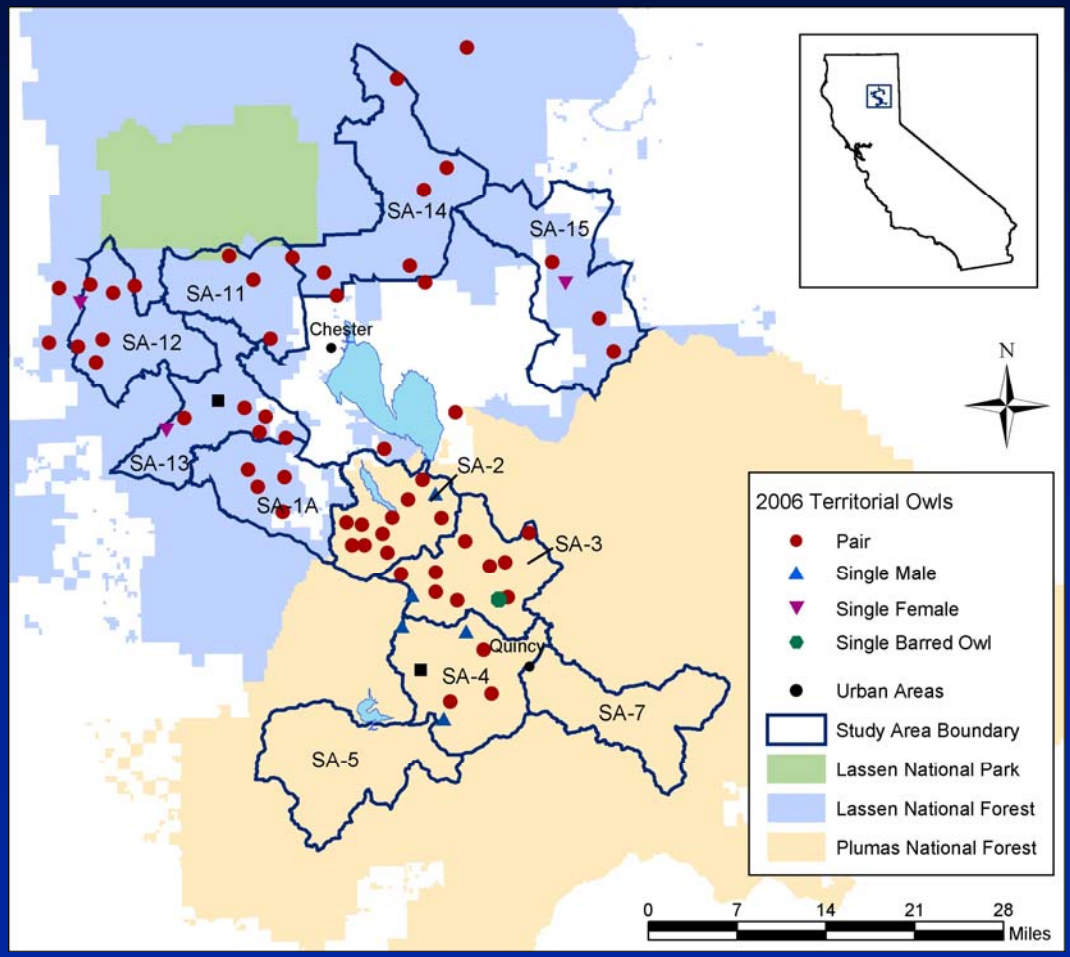
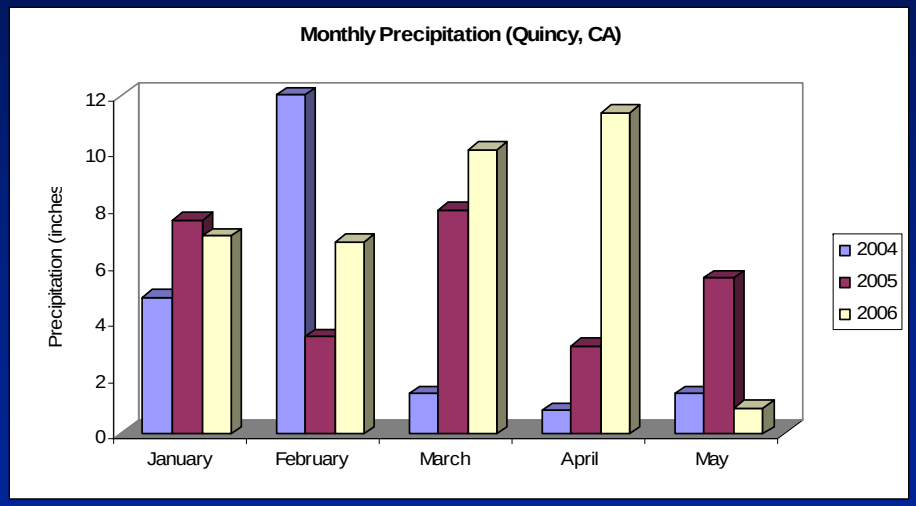
CSO Density Across the HFQLG Area

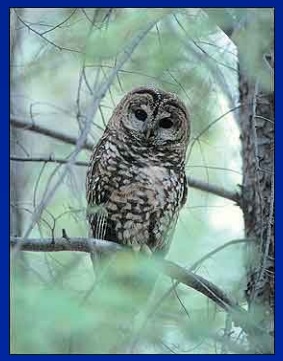
- **Surveyed 2039 km^2 (503,933 acres)**
- **Reduced survey area coverage in 2006**
- **58 CSO pairs and 8 territorial singles**
- **2005 = 64 pair/11ts vs 2006 = 52 pair/9ts**



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





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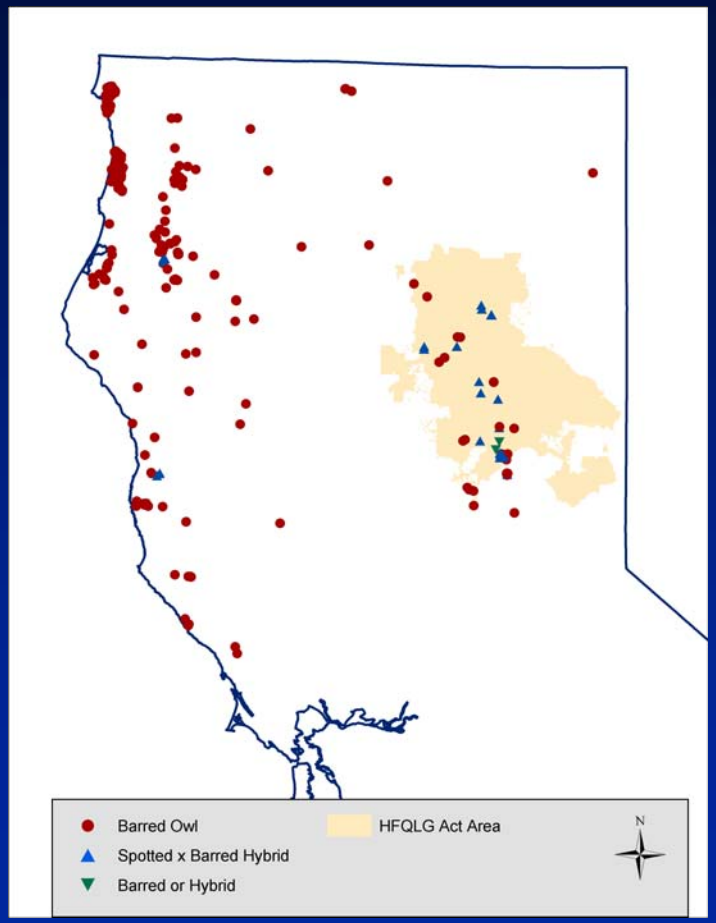
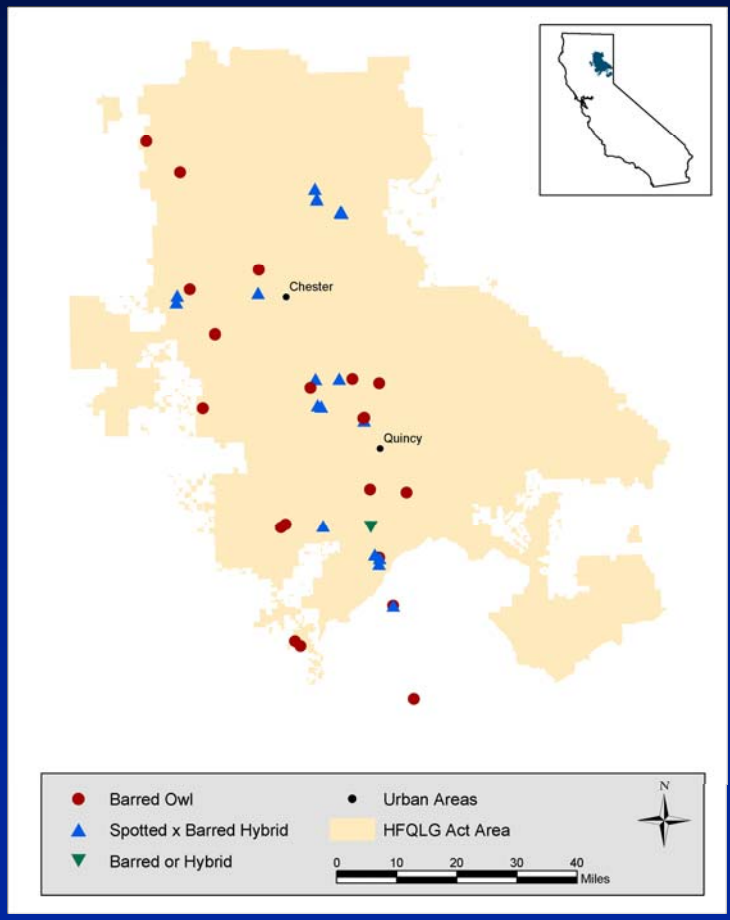
Barred/Sparred Owl Status in California

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



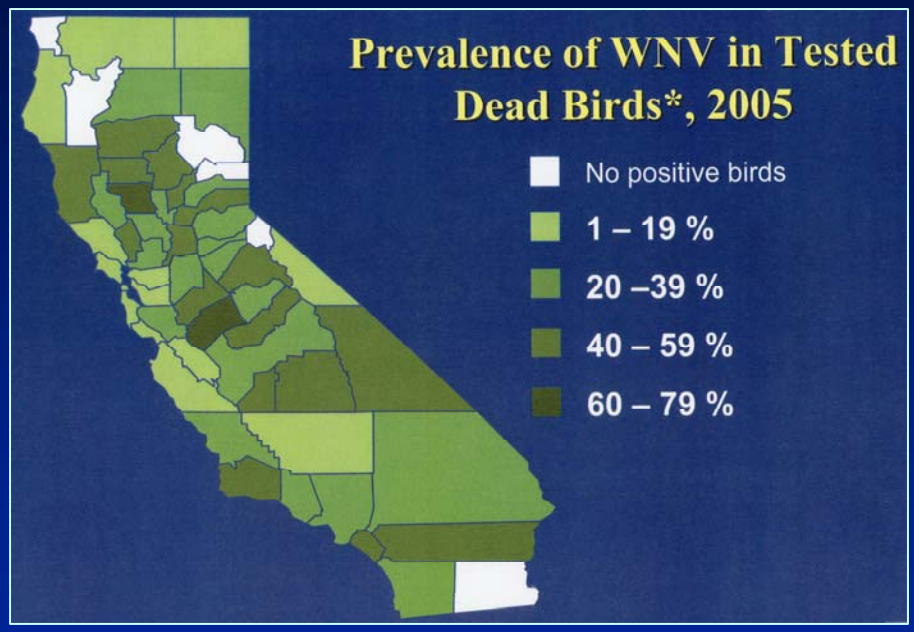
Barred/Sparred Owl Status in the HFQLG Area

- 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.

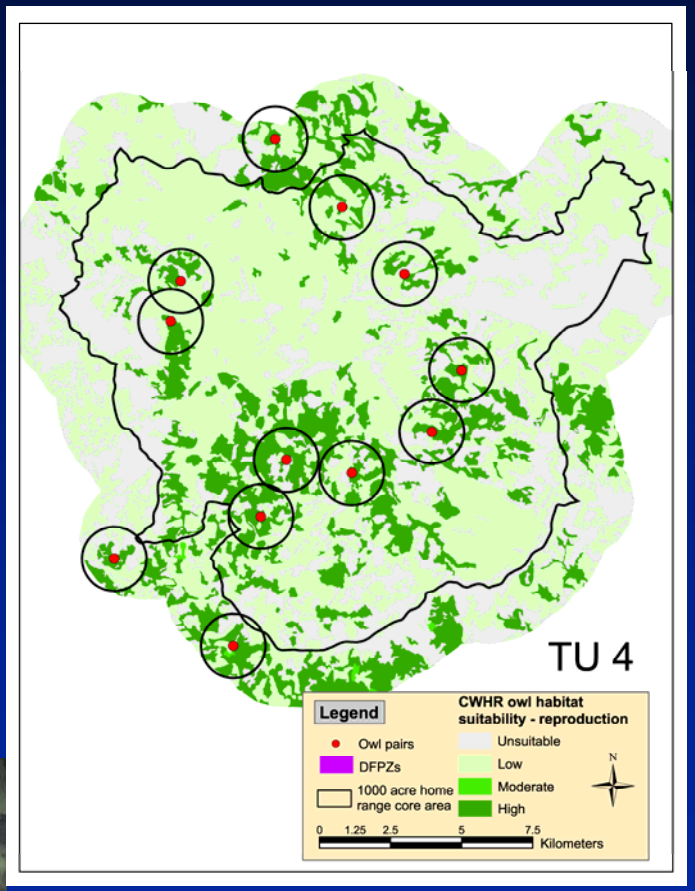


* Prevalence = (# positive birds/ # tested birds)

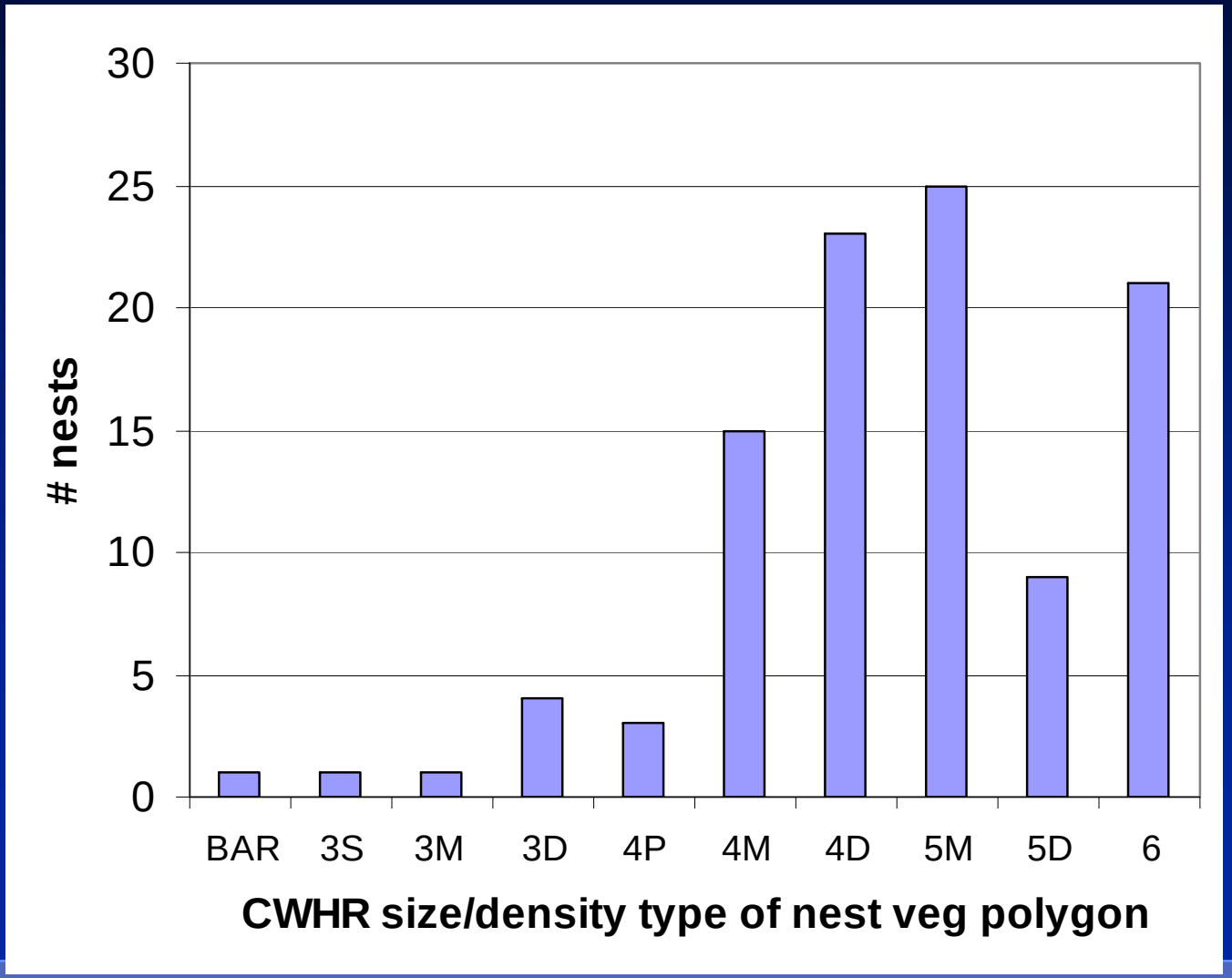
Data: California Dept of Health Services, 2006

CSO Habitat Associations

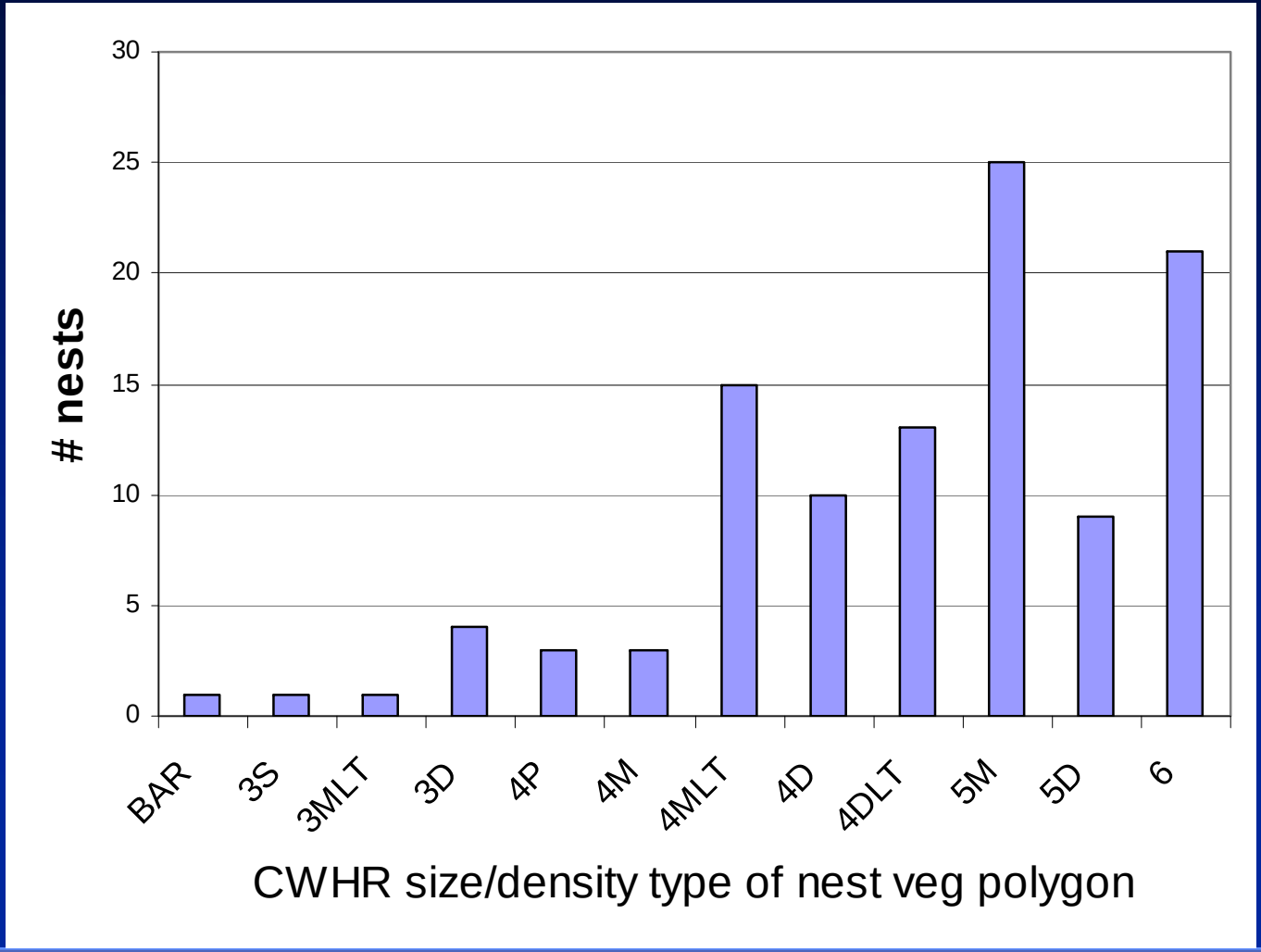
- **Within home range scale: nest and foraging area polygon & plot analyses.**
- **Home range scale: assess amounts and distribution of habitat classes within CSO home ranges.**
- **Landscape-scale: relate habitat to CSO density, distribution and spacing.**
- **Topographical and environmental covariates**
- **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.

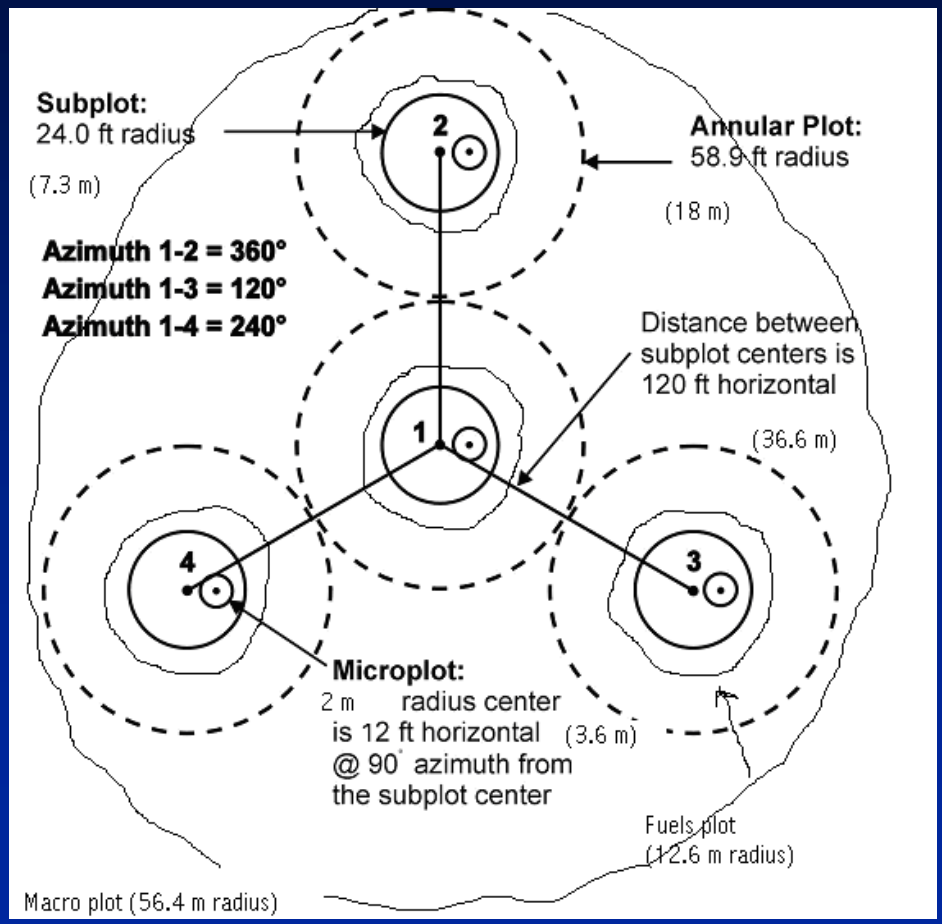


Distribution of CSO nest sites (n = 102) by CWHR size and density class with large tree inclusions within the PLS 2004-2006.



Habitat Associations: nest-plot scale

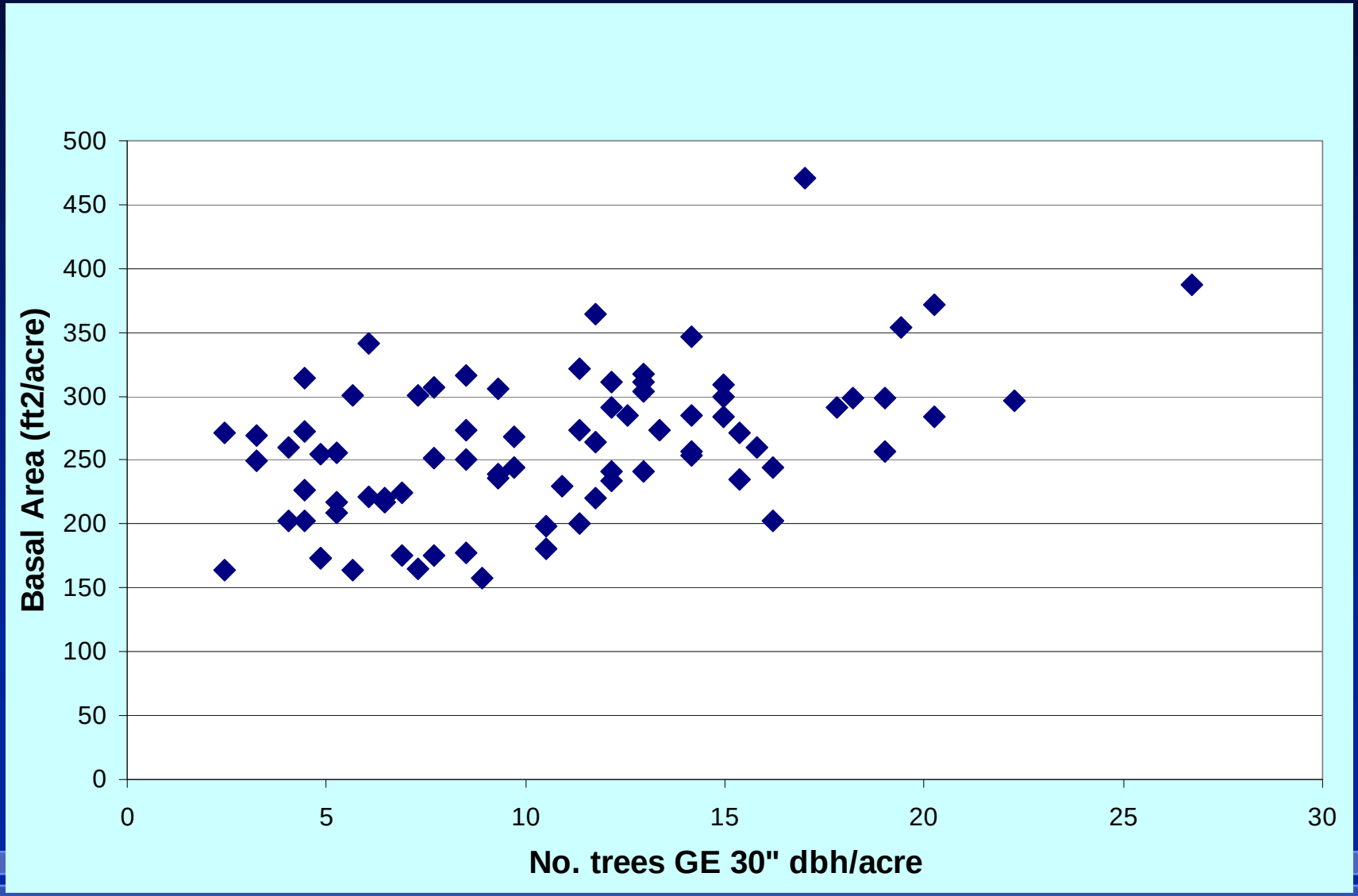
- FIA protocol
- Sampled 80 plots in 2005-6.
- Describe CSO nest-site stand characteristics.
- Planning tools for project planning & projecting effects of treatment on habitat suitability.



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

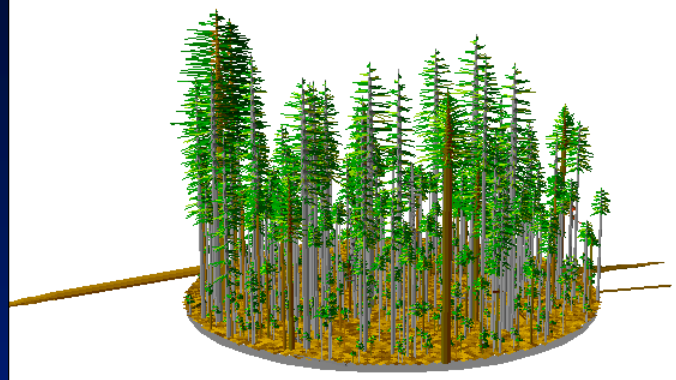
Variable	Mean	sd
Total Basal Area (ft^2/acre)	260.8	57.9
Trees >30 inches (#/acre)	10.7	5.2
Snags >15 inches (#/acre)	7.4	7.2
Litter (tons/acre)	23.7	16.2

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.



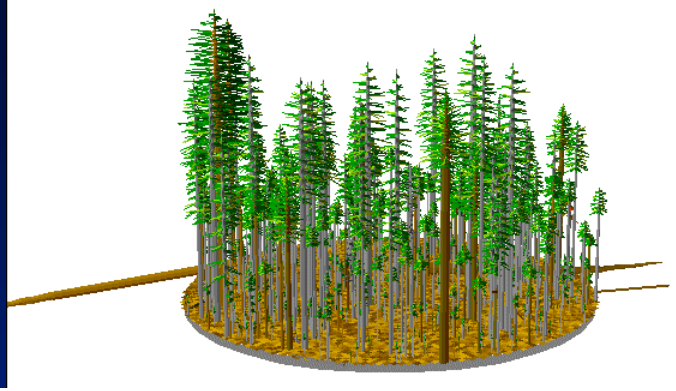
Stand=8934030 Year=2007 Beginning of cycle

Let it grow



Stand=8934030 Year=2007 Beginning of cycle

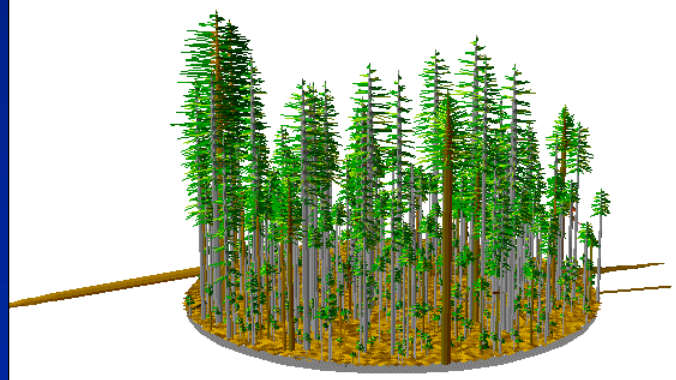
Thin to 40% CC
All diameters



Thinning simulated in 2012

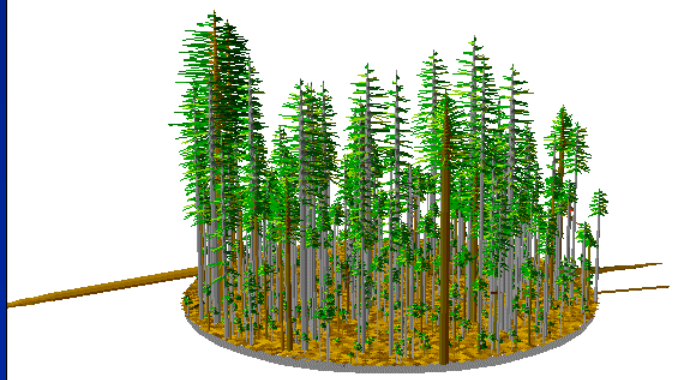
Stand=8934030 Year=2007 Beginning of cycle

Thin from below
to 180 ft^2/acre



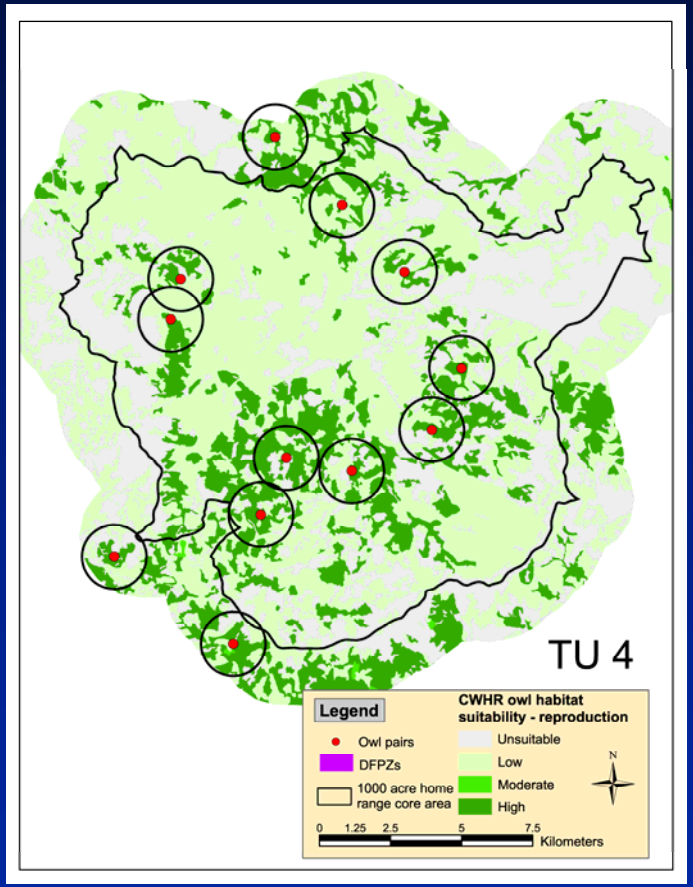
Stand=8934030 Year=2007 Beginning of cycle

Thin 75% of
trees 0-6” dbh

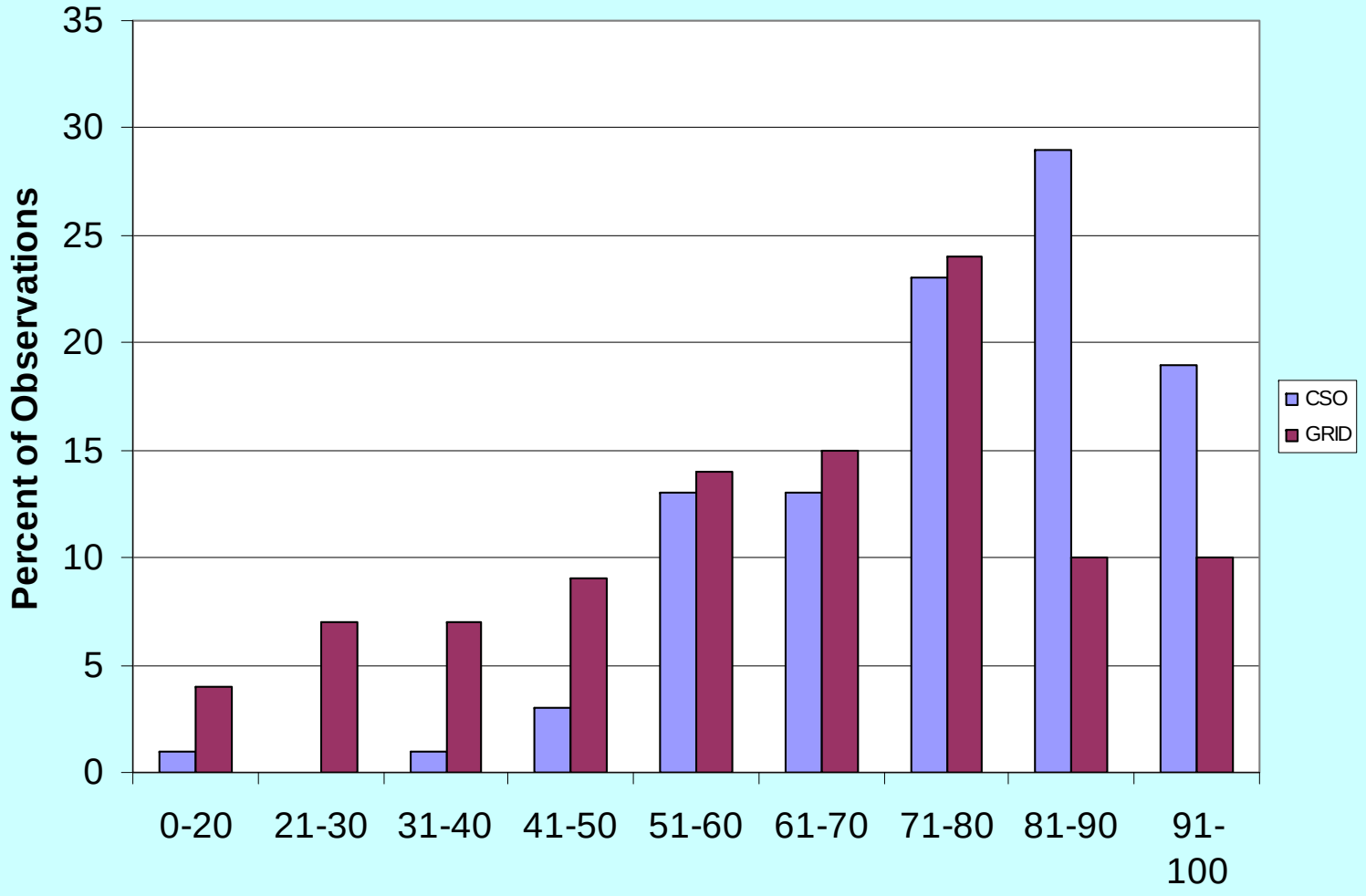


CSO Home Range & Landscape Habitat Associations

- **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

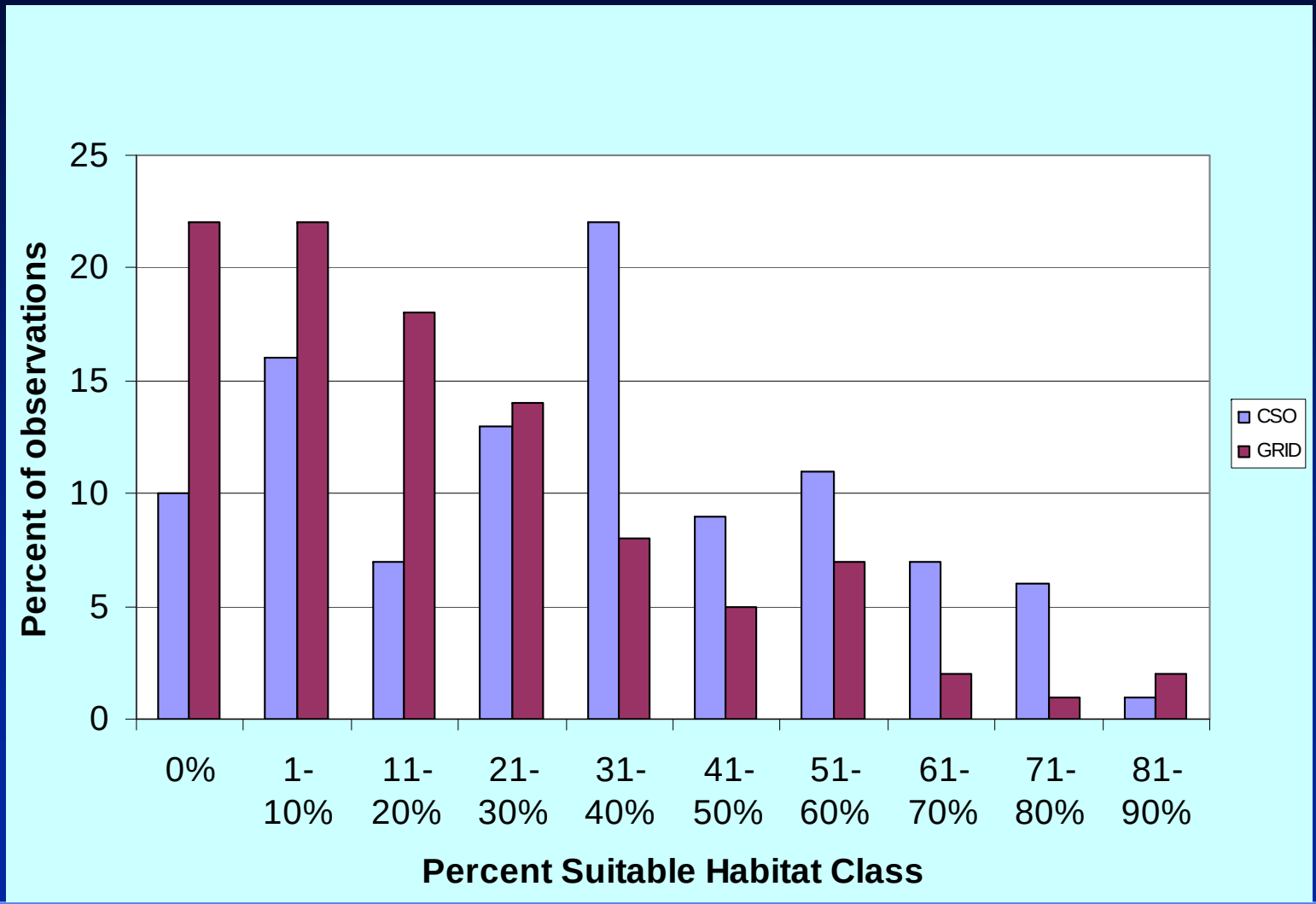
GRID

- 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	P
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.



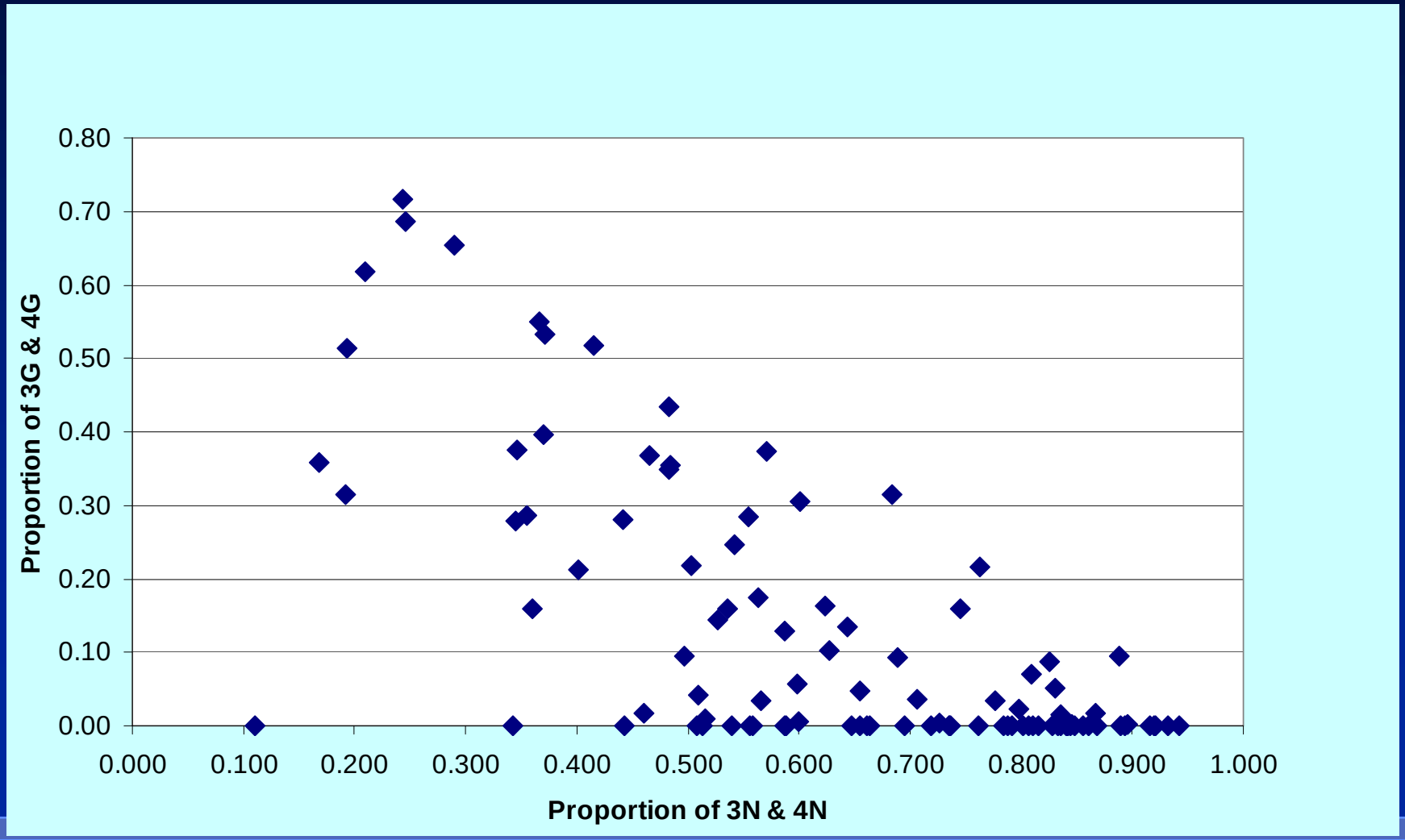
CSO

- Mean = 32.4%
  sd = 23.0

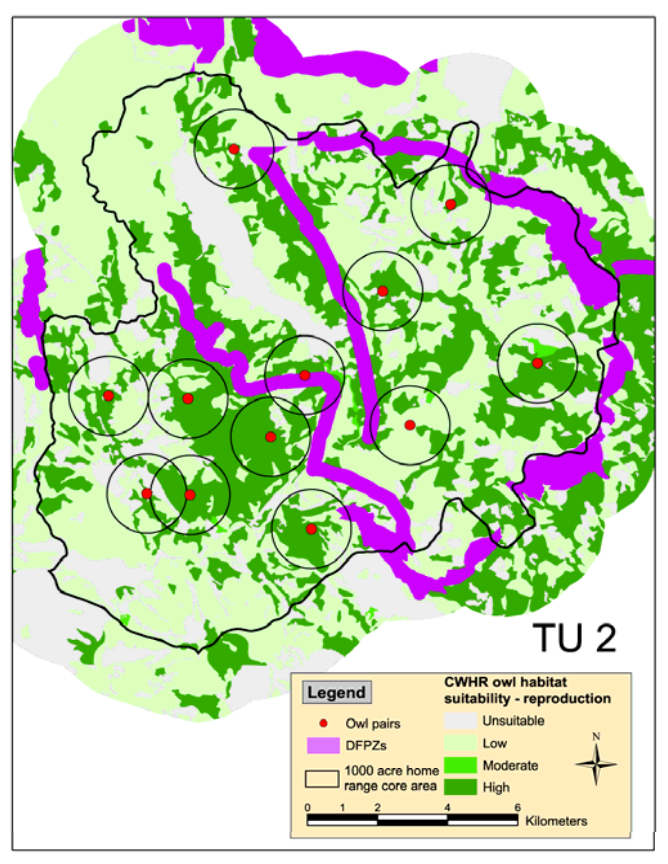
GRID

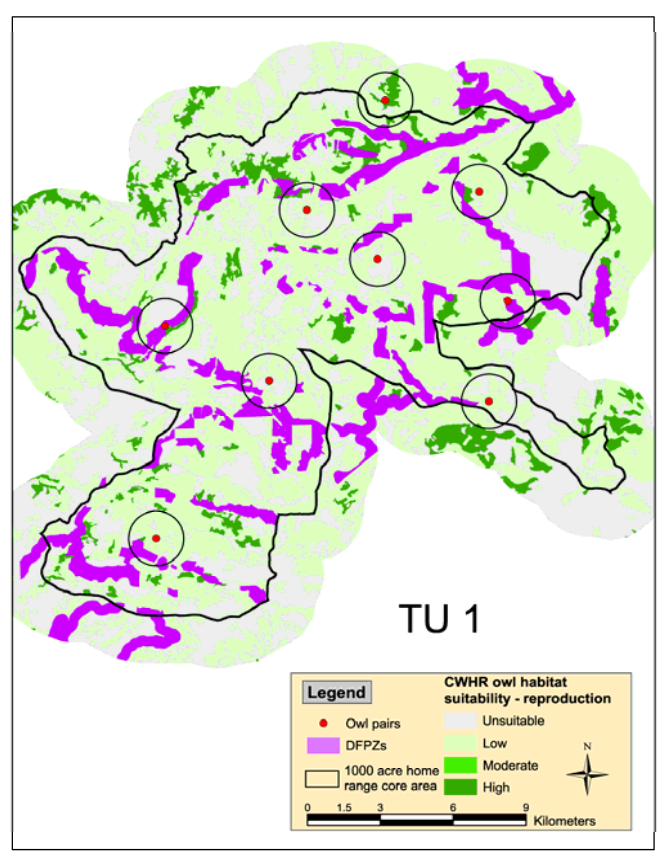
- Mean = 19.6%
  sd = 20.4

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



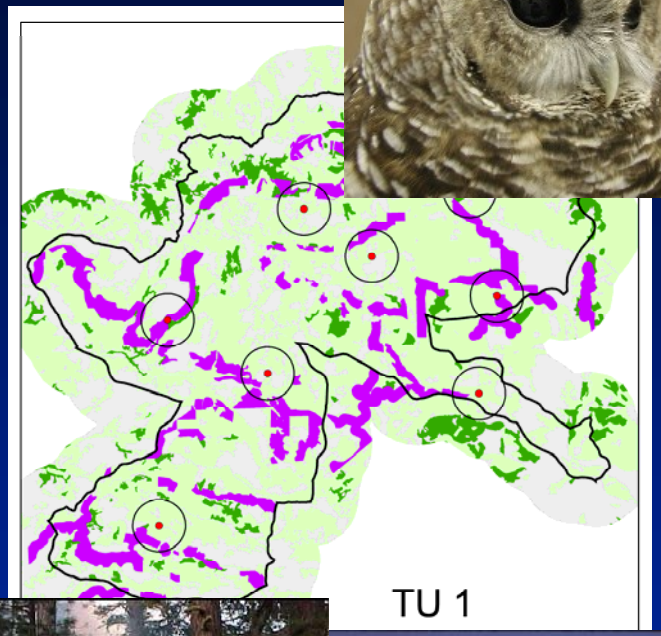
Development of Adaptive Management Modeling Tools.





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).**



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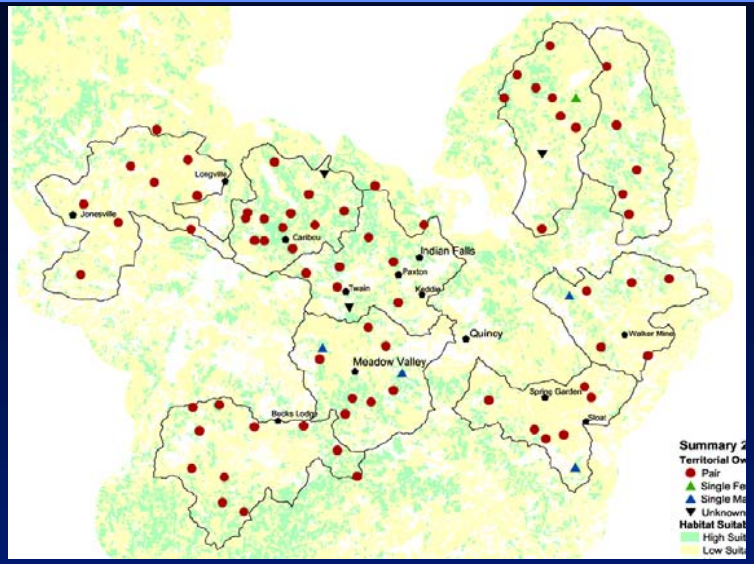
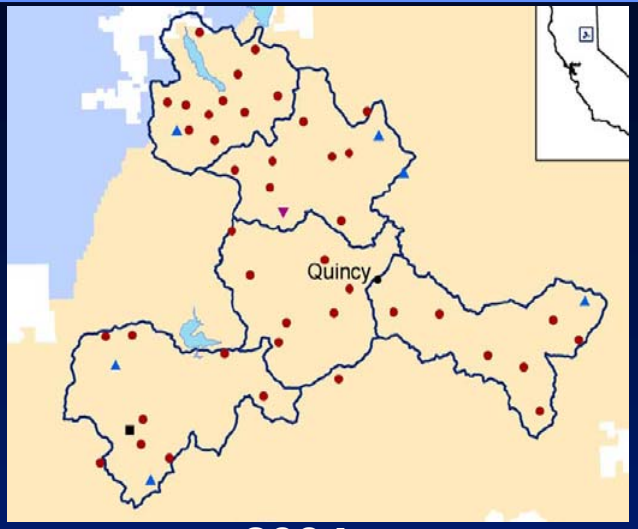
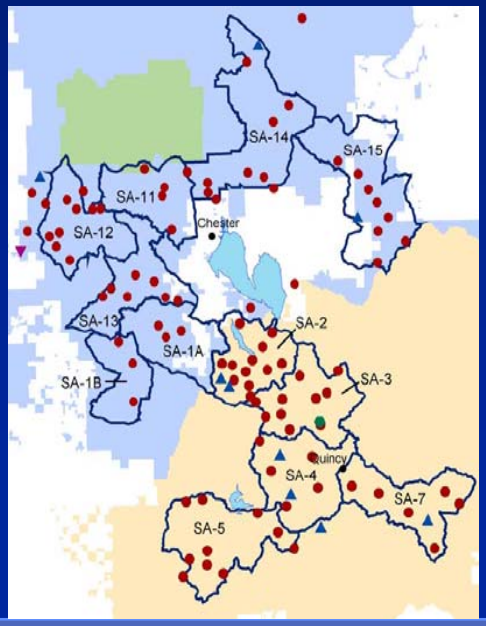
2005



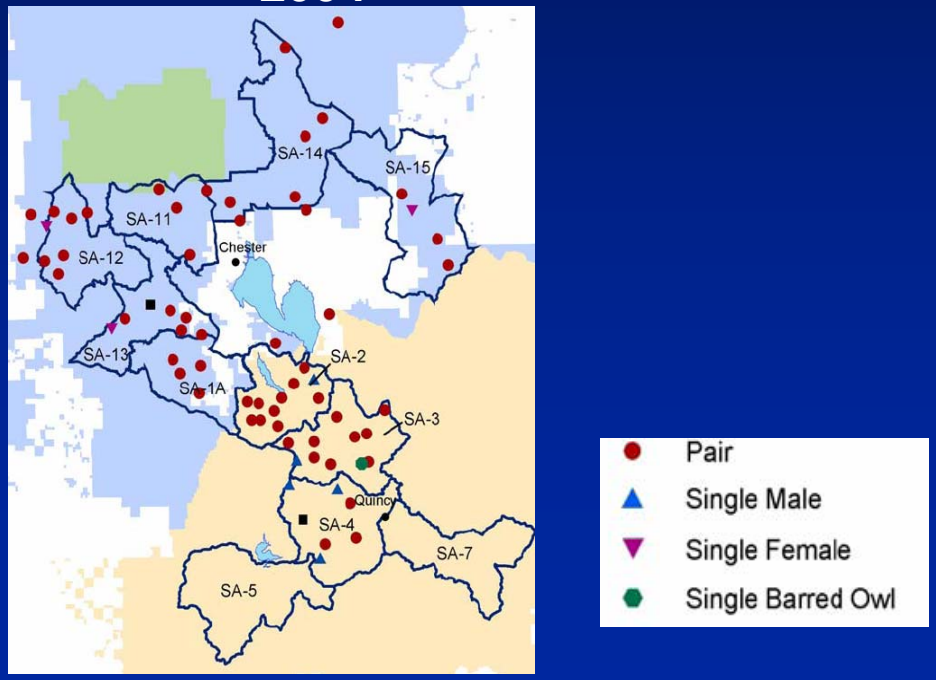
2003-2004



2004



2005



2006