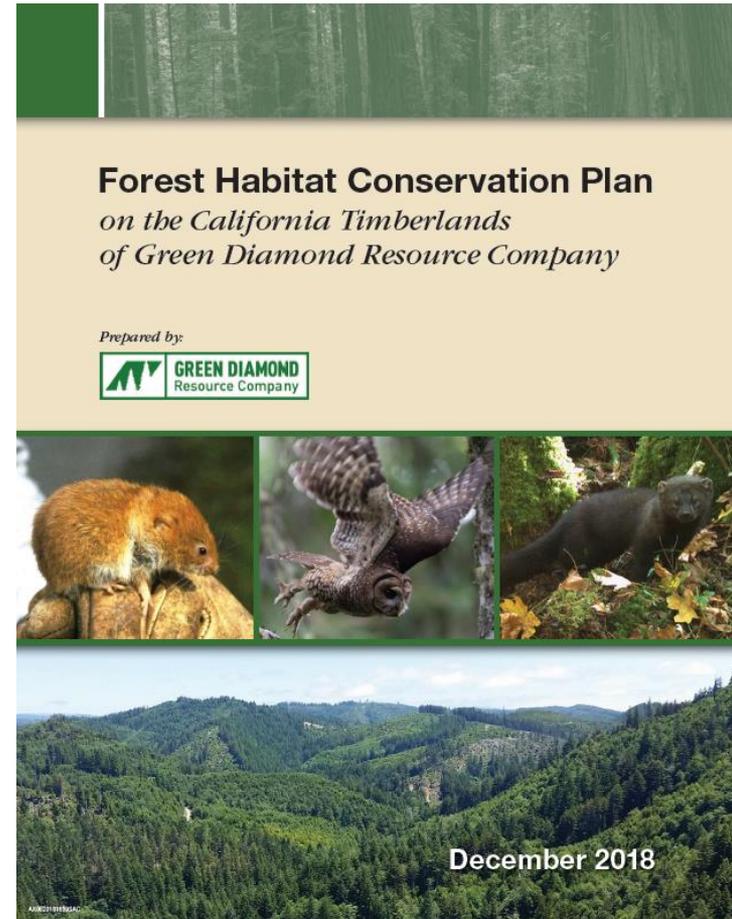


Green Diamond Barred Owl Removal Experiments



Keith Hamm, Desiree Early, Trevor Bentz and David Lamphear

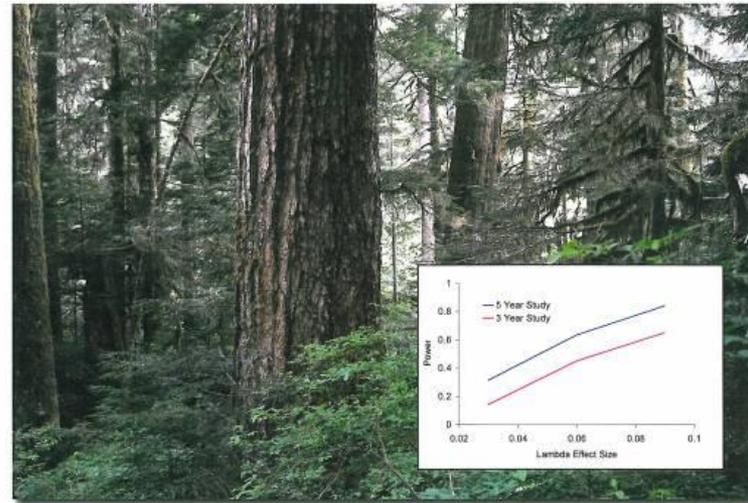
Presentation Outline

- Background - Phase I experiment 1992 NSO Habitat Conservation Plan
- Update - Phase II experiment initiated Forest Habitat Conservation Plan
- Phase III

STATE OF WASHINGTON

SEPTEMBER 2008

STUDY DESIGNS FOR BARRED OWL REMOVAL EXPERIMENTS TO EVALUATE POTENTIAL EFFECTS ON NORTHERN SPOTTED OWLS



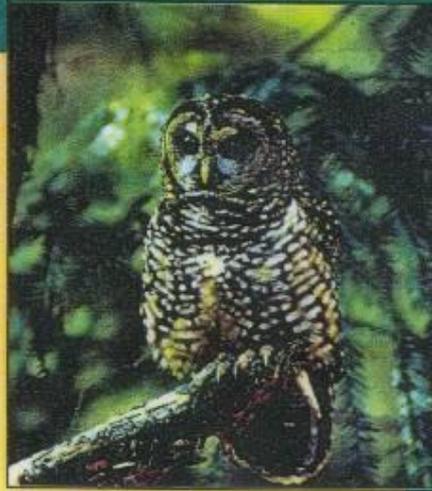
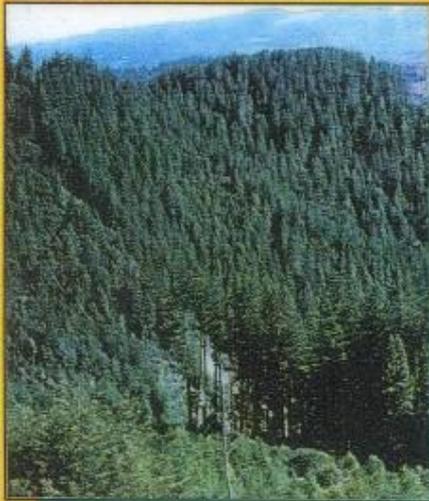
By Douglas H. Johnson, Gary C. White, Alan B. Franklin,
Lowell V. Diller, Ian Blackburn, D. John Pierce, Gail S.
Olson, Joseph B. Buchanan, Jim Thrailkill, Brian
Woodbridge, Mark Ostwald



Washington Department of Fish and Wildlife

see also Gutiérrez et al. 2007 Biological Invasions

HABITAT CONSERVATION PLAN
for the
NORTHERN SPOTTED OWL
on the
CALIFORNIA TIMBERLANDS OF
SIMPSON TIMBER COMPANY



Simpson

Original 30-year HCP
signed September
1992

Conservation
Program included:

- habitat
management
- nest site protection
- set-asides
- research program

Forest HCP based on 20+ years of research and monitoring

On-going surveys since 1989 and demography study since 1990



Continuous monitoring of nest sites: 1990-present

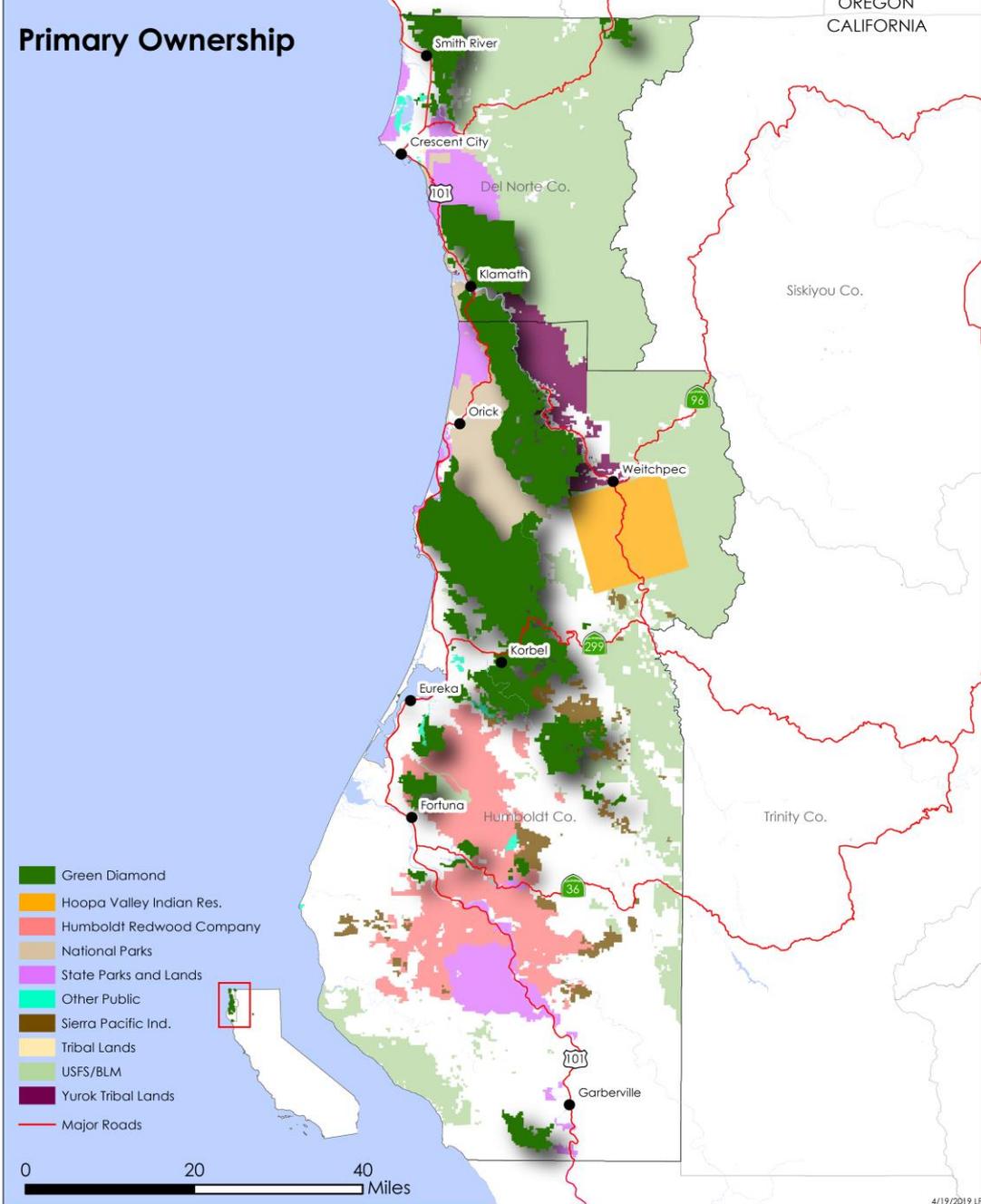


Large NSO dataset: 1,915 captures, >4,000 total captures/recaptures



Primary Ownership

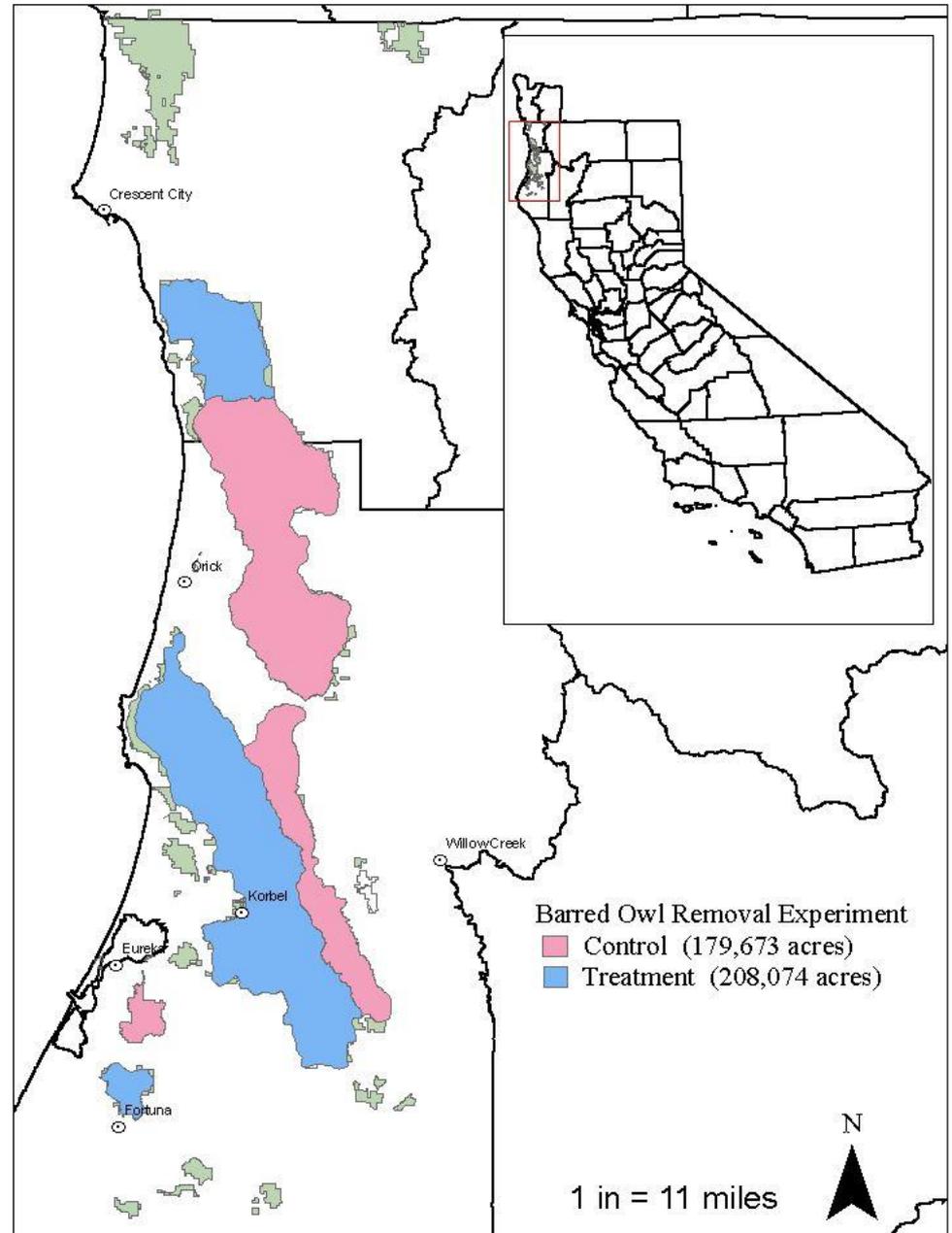
OREGON
CALIFORNIA



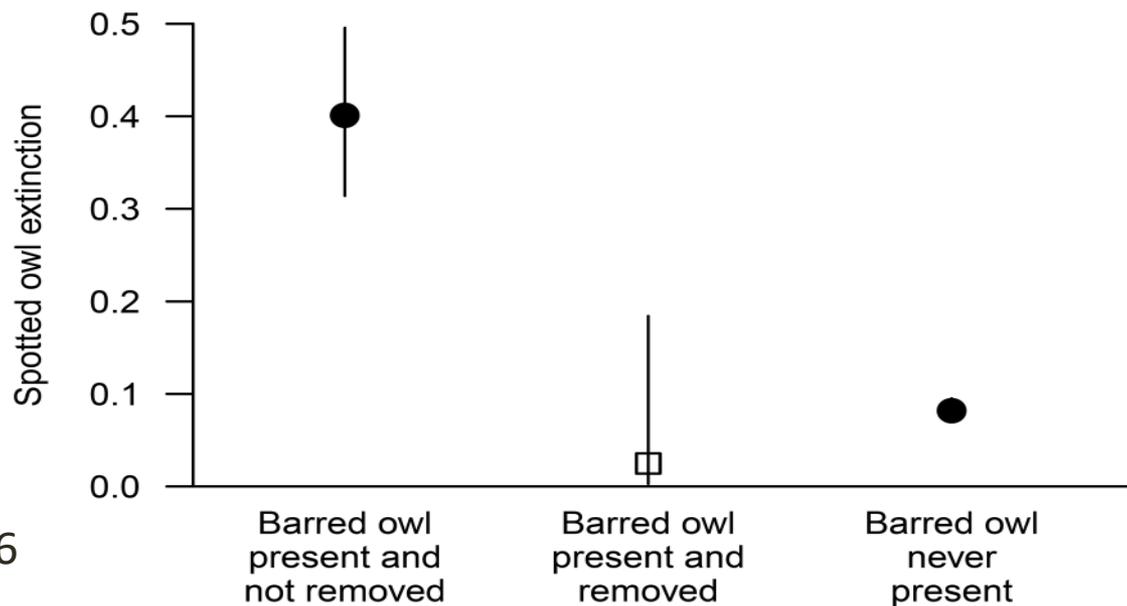
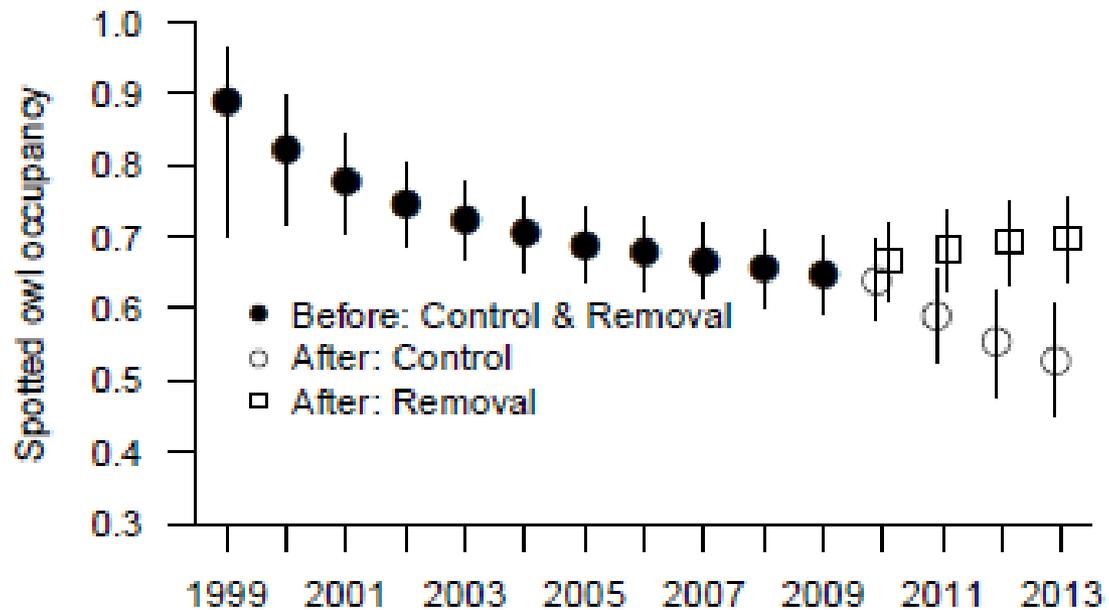
Humboldt and Del Norte County Ownerships

Phase I Pilot Barred Owl Removal Experiment Study Design

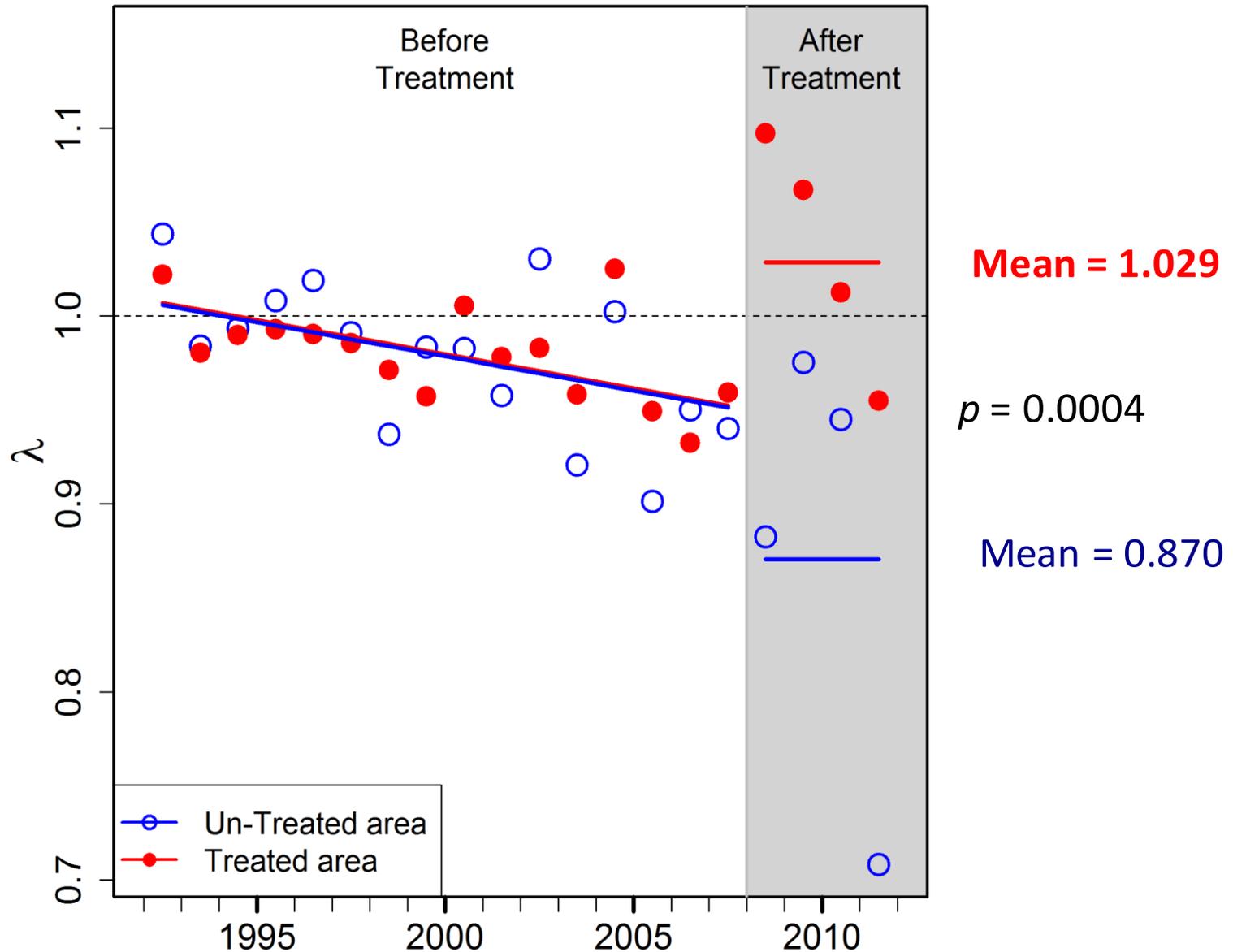
- BACI design with all BDOWs removed from treatment areas while they are undisturbed on control areas
- Pilot removal experiment initiated in 2009 on GD NSO demographic study area
- Response variables: NSO occupancy, survival and fecundity



Results Phase I - Spotted Owl Occupancy and Extinction



Rate of Population Change

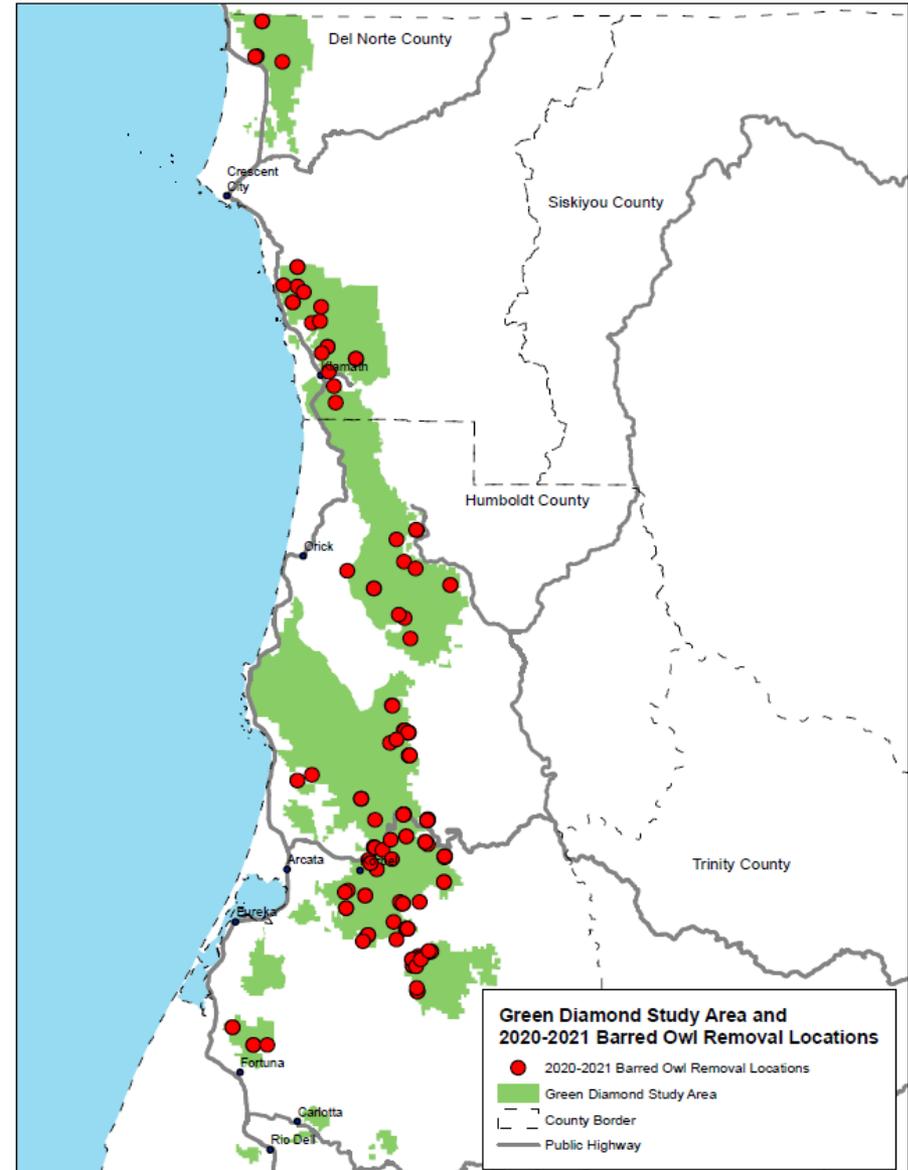
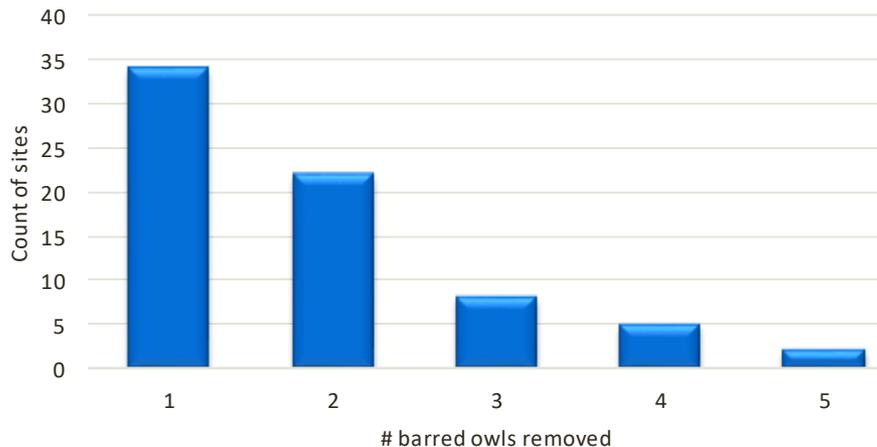


Phase II - Timing and Location of Removals

Phase II initiated March 18, 2020

- **23** barred owls removed March 2020 – 18 sites
- **22** barred owls removed April-August 2020 – 10 sites
- **75** barred owls removed September-October 2020 – 48 sites
- **14** barred owls removed January-February 2021 – 13 sites

Removals at Barred Owl Sites

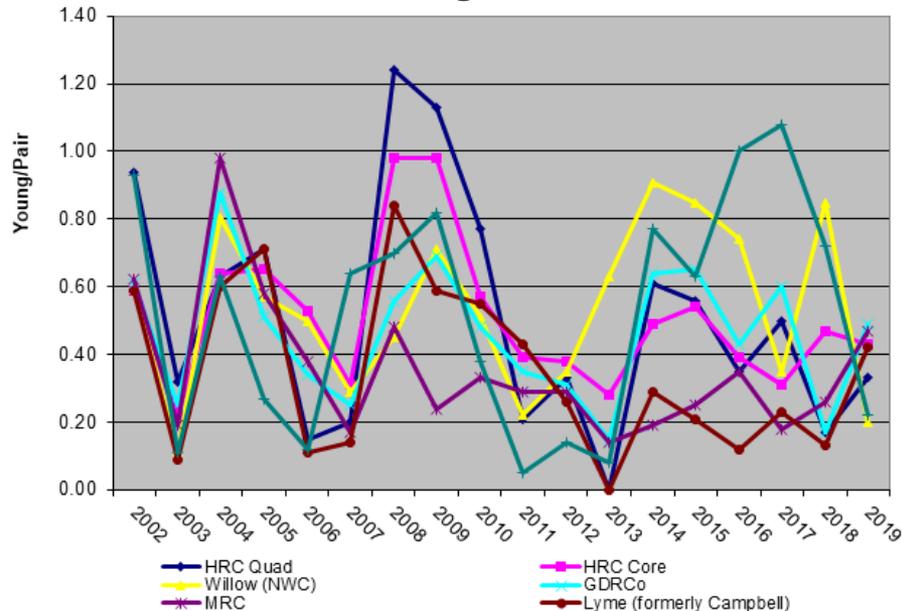


Barred owl removals

	Adults	Subadults	Mean Weight (g)	Mean Removal time (min)
Female	66	14	833	44
Male	37	3	698	48

Reproductive success NSO

Regional



Green Diamond

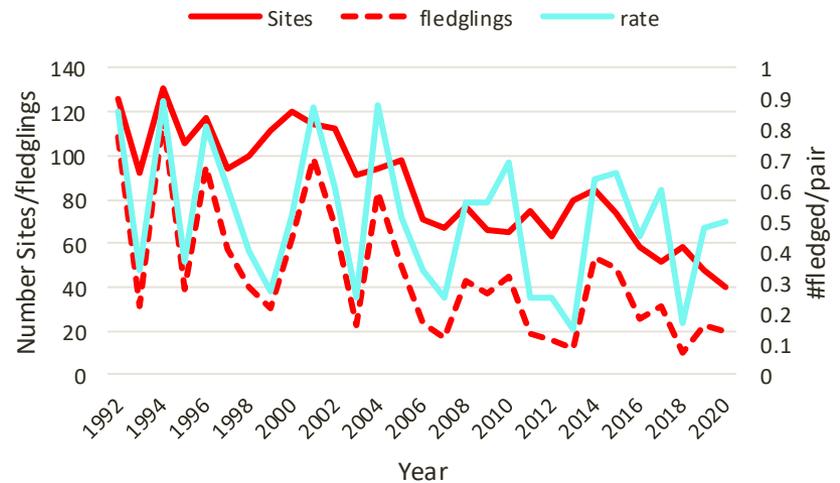
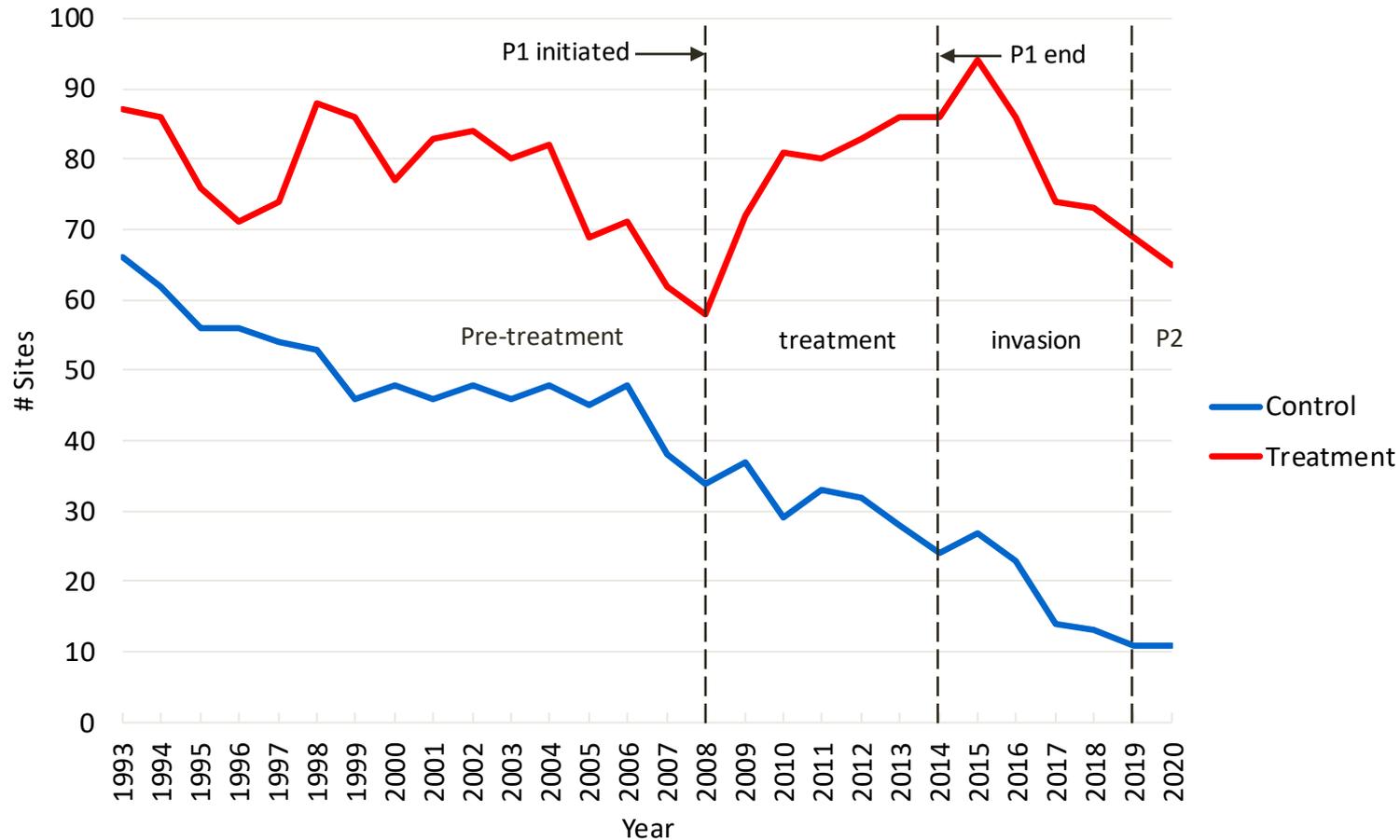


Figure courtesy Brad Mauny, Humboldt Redwood Company

Occupied Northern Spotted Owl Sites on Treatment/Control Areas, 1993-2020



Summary

- 134 barred owls removed to date
- 95 barred owls removed in Phase I 2009-14, 82 removed in Phase II from “treatment area” in less than one year
- Spotted owls reoccupied 3 sites where barred owls were removed in March 2020
- Four additional sites with spotted owl detections where barred owls were removed
- Two hybrids detected 2020-2021, one is now paired with female barred owl at an NSO site – not permitted to remove hybrids
- Working toward trainer certifications and adding trained individuals to permits



Phase III Barred Owl Research

- Invasion and Coexistence Experiments
 - Invasion experiment – barred owls allowed to colonize select areas from which they were previously removed
 - Treatment – barred owls allowed to increase
 - Control – barred owls removed
 - Coexistence experiment
 - Sustain spotted owls while minimizing lethal removal of barred owls

Acknowledgements

- Erika Anderson, Madeleine Cameron, Isley Jones, Jason Labrie, James Lucchesi, Kylie Mack, Max Marquez, Pat McNeil, Ashley Morris, Kira Parker, Alyssa Roddy, Haley Weaver and thanks to many additional members of the wildlife crew over the decades
- Mark Higley
- United States Fish and Wildlife Service, California Department of Fish and Wildlife

Questions?

