



The Spotted Owl in Washington: status, distribution, forest practices rules, and limiting factors

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Presentation outline

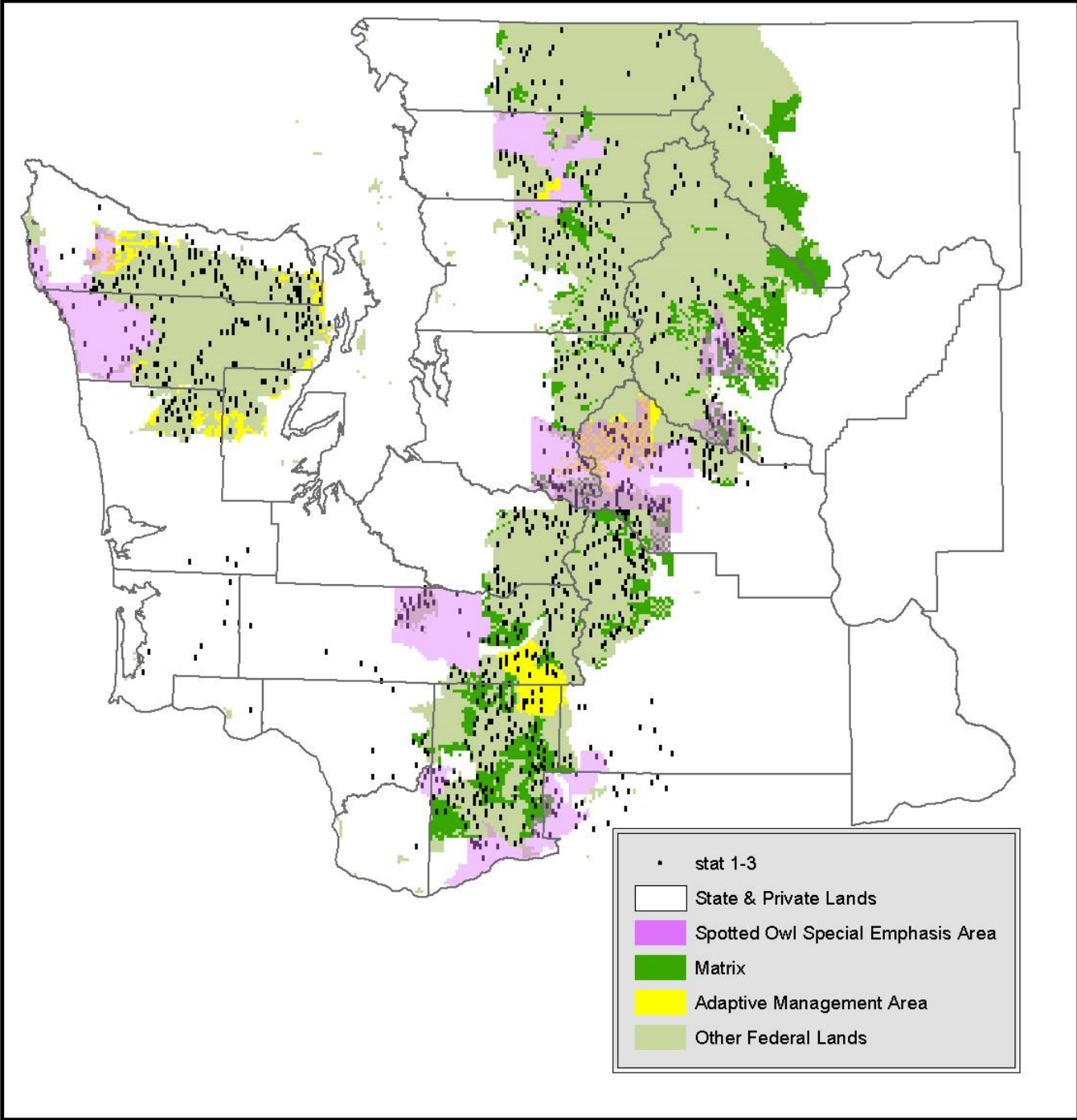
- Status, distribution, abundance, ecology & behavior
- Forest practices rules
- Limiting factors
- Current situation



Status

- 1988: classified as endangered by WFWC
- 1990: ESA listed as threatened
 - Loss & adverse modification of habitat
 - Inadequacy of regulatory mechanisms







Habitat

- Nesting, roosting, foraging & dispersal
- Structurally complex mature and old forest
 - Snags & downed wood of large size, defective trees, multiple canopy layers, moderate to high canopy closure
 - Mistletoe-infected trees in eastern Cascades



Home Range

- Annual use area
- WA home ranges are largest documented
- Olympic Peninsula: median annual home range = 14,232 acres (4,411 - 27,298 acres)
- This is the area of a 2.7-mile radius circle
- 1.8-mile radius circle in Cascade Range



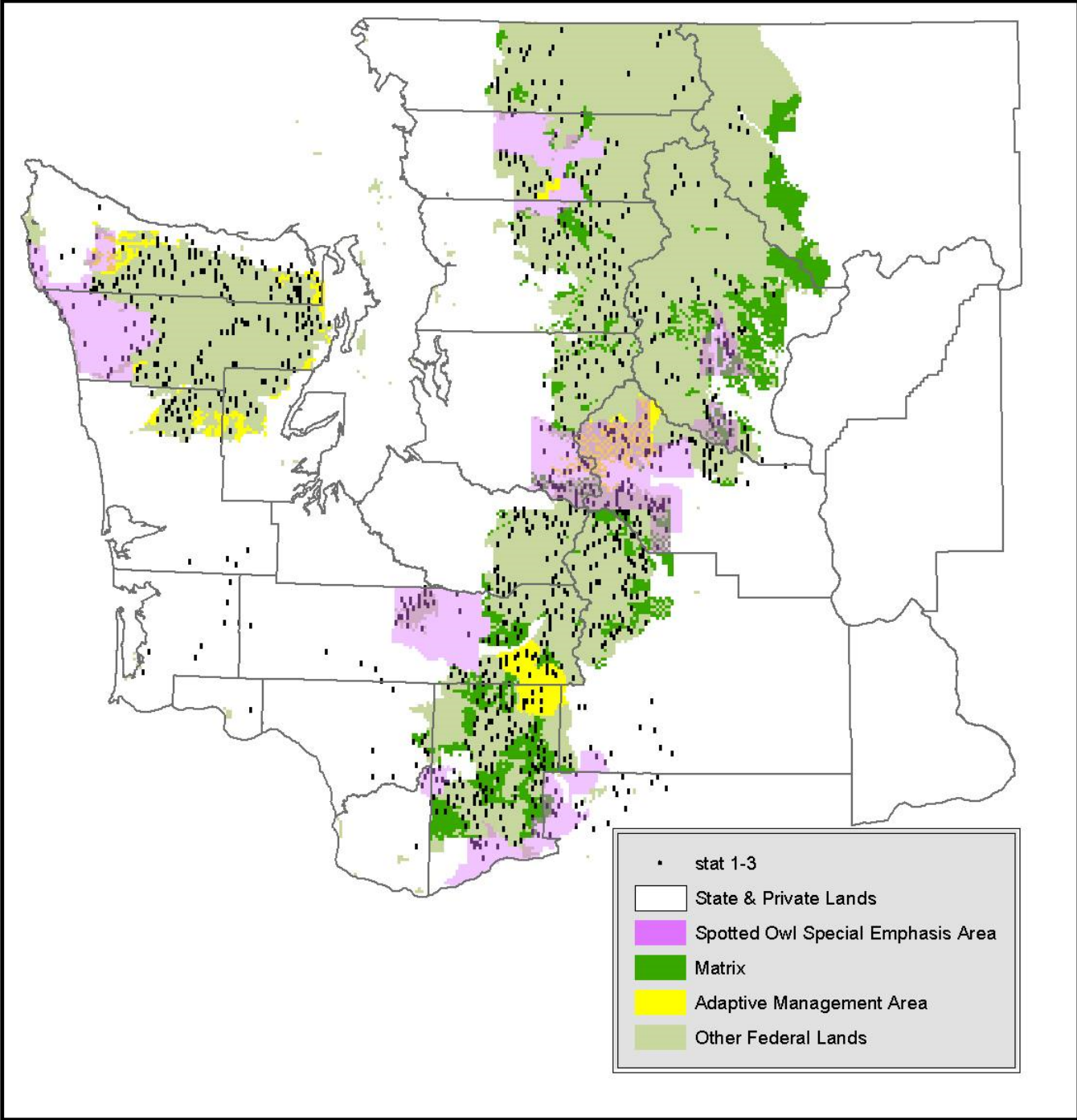


Forest Practices Rules (1)

- ◆ Owl Memo #3; 500-acre rule
- ◆ Approved in 1995, implemented in 1996
 - Rule negotiated by TFW stakeholder group
 - Purpose was to minimize impacts to Spotted Owls by establishing a process for evaluating forest practices applications that involve critical habitat (state) – harvest, road construction, aerial application of chemicals, etc.
- ◆ Not a recovery action (no recovery plan in place at the time)

Forest Practices Rules (2)

- ◆ Geographically specific definitions of habitat; informed by Hanson et al. (1993)
- ◆ Geographic scope (strategic vs all sites); 1993 report (and report of 'Thomas Committee')
- ◆ Landscape functions consistent with NWFP
- ◆ SEPA thresholds largely based on federal take guidelines (size of management circles, habitat amounts, etc.)



Limiting Factors

- Habitat loss
 - Harvest
 - Fire
 - Windthrow
 - Insects/disease
- Other factors:
 - Barred Owls
 - Predation
 - Weather
 - Disease (e.g. West Nile Virus)



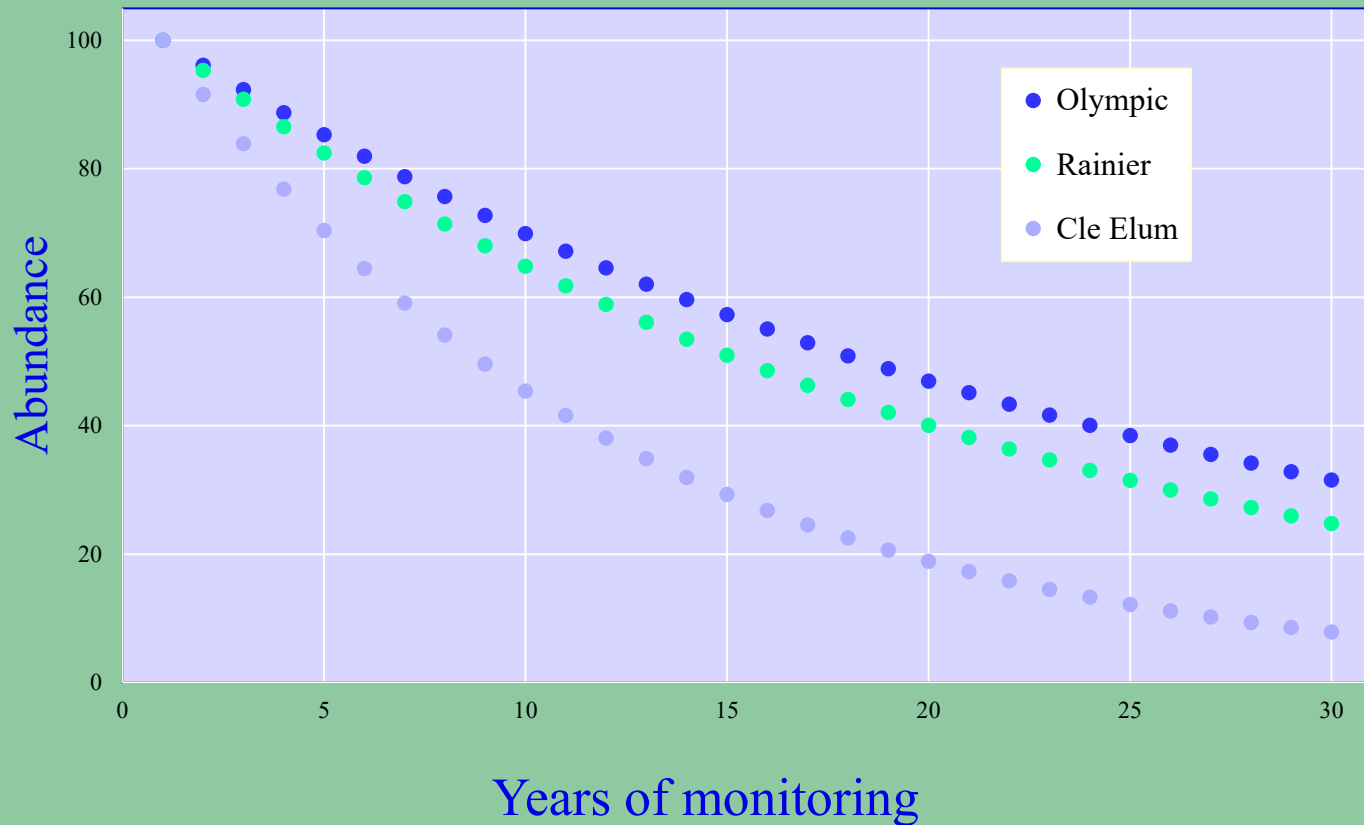


Current
situation

Population performance

- NSO populations declining in most study areas range-wide (Dugger et al. 2016)
- Declines most substantial in WA and OR
- Three demography study areas in WA:
 - Cle Elum rate of change: - 8.4% / year
 - Olympic NP rate of change: - 3.9% / year
 - Rainier: rate of change: - 4.7% / year

Rate of change for 3 study areas





Barred Owls

- Barred Owl arrives in 1960s; occupies entire NSO range
- Evidence indicates a negative effect of NBO on NSO.
- Life history traits favor NBO:
 - Habitat & prey generalist
 - Much smaller home range (5-30%)
 - Much greater dispersal ability
 - Larger & more aggressive



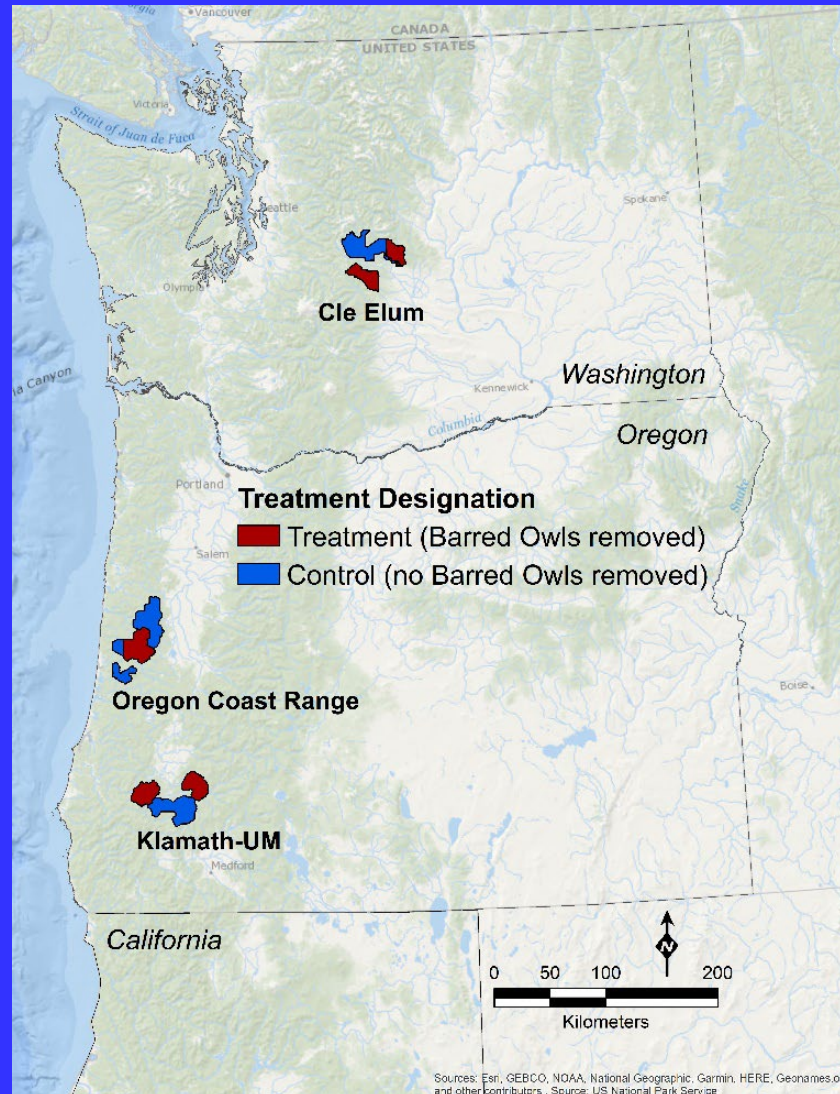
Barred Owl removal experiments (1)

- U.S. Fish and Wildlife Service EIS
- Study goals:
 - Facilitate a better understanding of the impacts of NBO on NSO populations.
 - Assess ability to reduce NBO populations to a level (with maintenance control) that permits NSO population growth.
 - Allow for an estimate of the cost of NBO removal.

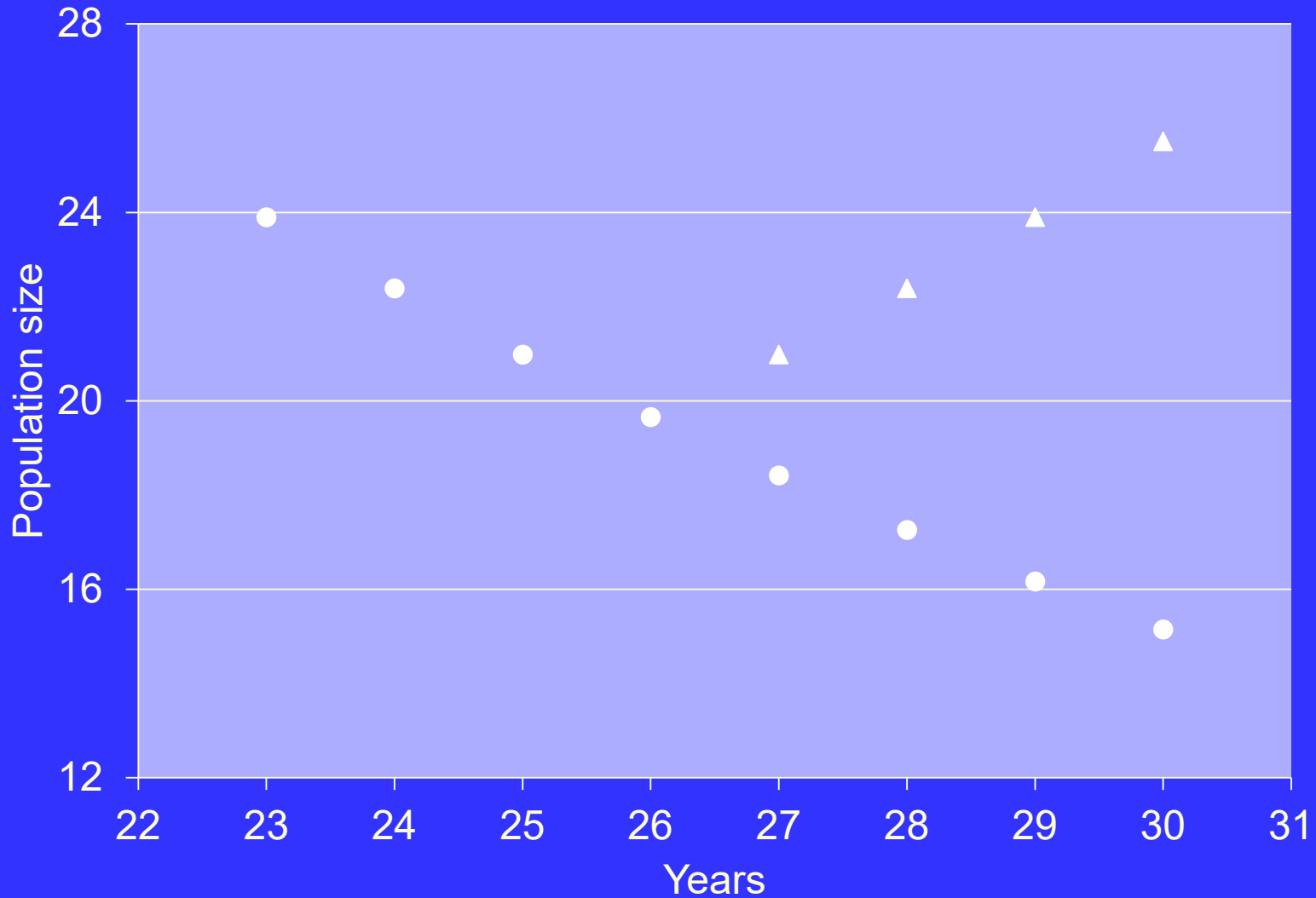
Barred Owl Removal Experiments (2)

- One pilot study area (Green Diamond – in CA)
- 3 primary study areas, including one in WA
- One newer study area (Hoopa Nation)
- Large landscapes
- Experiment design: treatment (**removal**) areas and control (**no removal**) areas
- Minimum 4 year duration
- Evaluate data; assess feasibility of other types of implementation

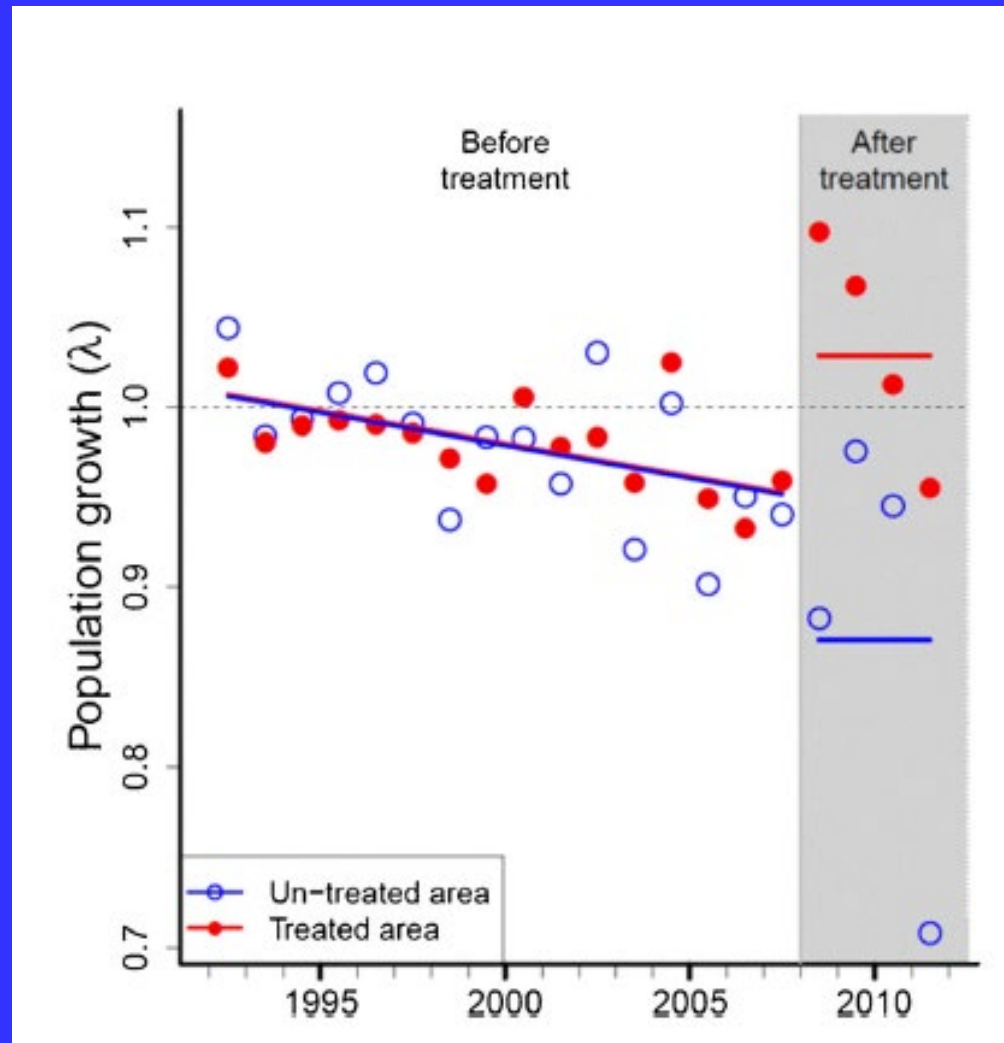
Removal experiments conducted on three demography study areas



Anticipated result of removal experiments



Initial results (Diller et al. 2016):



Number of sites surveyed for Spotted Owls and Barred Owls at Cle Elum study area, Washington, 2015-2018. Number of Spotted Owl territories = historically occupied territories surveyed annually during 1990-2018. Number of Barred Owl sites = hexagonal plots (5 km²) used to survey Barred Owls annually during experiment. (From Wiens et al. 2019)

Treatment level	Total area (km²)	Number of Spotted Owl territories	Number of Barred Owl sites
Control (no removal)	670	31	109
Treatment (removal)	604	45	112

Territory occupancy and reproduction by color-marked pairs of Spotted Owls at Cle Elum, Washington, 2015-2018. Totals are for a combined 76 control and treatment sites.

	2015	2016	2017	2018
No. of occupied territories	7	4	4	6
Pairs with at least 1 young fledged	3	2	3	0



The future: habitat management

- ◆ Fire risk reduction in dry forests
- ◆ Federal lands:
 - Northwest Forest Plan, Critical Habitat, and consulting with U.S. Fish & Wildlife Service
- ◆ Private & state lands:
 - Habitat conservation plans, forest practices rules, safe harbor agreements (incentive-based conservation)

The future: Barred Owls

- Assess outcome of removal experiments and estimate cost of implementing maintenance control
- Develop a strategy for broad implementation
 - Begin in key landscapes and then expand from there?
 - Spotted Owl population and habitat amount/distribution
 - Logistics for implementing Barred Owl management
 - Social acceptance
 - Colonization challenges/translocation/captive breeding
 - Cost



Photographs: Jared Hobbs,
Lauren Burnes