



# The Western Section of The Wildlife Society and Wildlife Research Institute

Western Raptor Symposium  
February 8-9, 2011  
Riverside, California



Symposium  
Sponsors



## February 8 – 09:45-10:05 am Session: Overviews - Owls

### Northern Spotted Owl: Status, Population Trends, and Management Challenges

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Despite 2 decades of conservation effort, northern spotted owl (*Strix occidentalis caurina*) populations continue to decline across much of the species' range. Additionally, barred owl (*Strix varia*) populations in the western U.S. have rapidly increased during this time, with negative consequences for spotted owls. This presentation will summarize recent research on northern spotted owl population trends, present an overview of the 2010 Draft Revised Recovery Plan for the Northern Spotted Owl, and discuss current and proposed research regarding the influence of barred owls on northern spotted owl populations in the Pacific Northwest.

The authors and institutions that have provided the following presentations are happy to share their information, data, and opinions. However, these are not, necessarily, peer-reviewed presentations and the potential to take something out of context also exists. In order to avoid that, you are requested to contact the respective lead author(s) before using specific information contained in any of the following papers. Once you have done that, the proper citation is: "[Author(s). Date. Title.] Presented at the Western Raptor Symposium. Jeffrey L. Lincer and David Bittner (Co-Chairs). Hosted by Wildlife Research Institute and The Wildlife Society, Western Section. Riverside Convention center, Riverside, California, USA. February 8-9, 2011

# Northern Spotted Owl



**Current Status, 2011  
Recovery Plan, and Future  
Challenges**



# Northern Spotted Owl Recovery Plan(s)

- **1990** – NSO Listed as Threatened
- **1992** – Final Draft Recovery Plan
- **1994** – Northwest Forest Plan
- **2007** – Draft Final Recovery Plan
- **2008** – 2008 Final Recovery Plan
- **2009** – 2008 Plan Remanded by Court Order
- **2010** – Draft Revised Recovery Plan

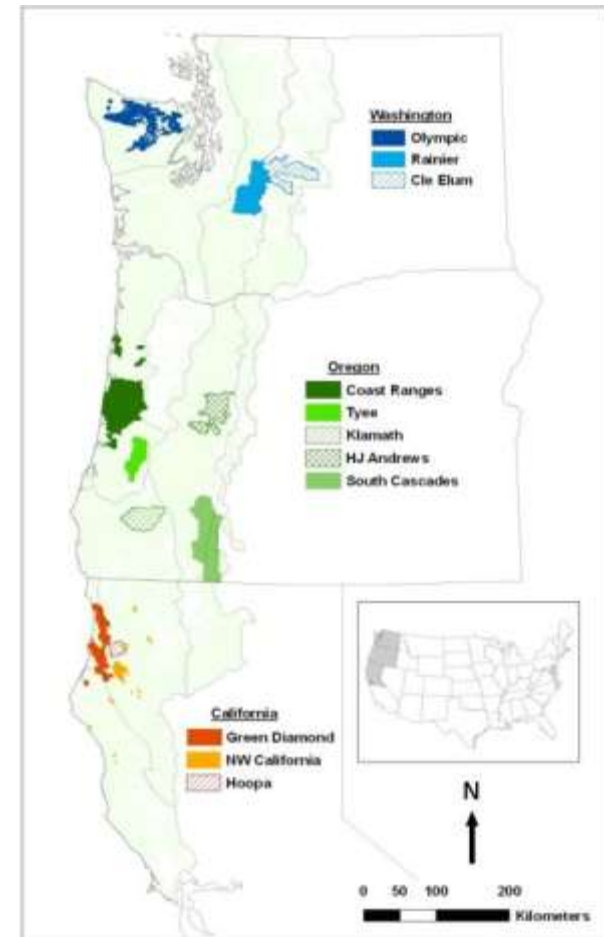


# Northern Spotted Owl – Current Status

## STATUS AND TRENDS IN DEMOGRAPHY OF NORTHERN SPOTTED OWLS: 1985-2008

Forsman et al. (*in press*)

- Effectiveness Monitoring for the Northern Spotted Owl
- Meta-analyses: 1991, 1993, 1998, 2004, 2009
- 11 long-term study areas





# Northern Spotted Owl – Current Status: 1985-2008

Area	Fecundity	Survival	$\lambda_{RJS}$	Population change
CLE	Stable	Declining	0.937	Declining
RAI	Increasing	Declining	0.929	Declining
OLY	Stable	Declining	0.957	Declining
COA	Increasing	Declining since 1988	0.966	Declining
HJA	Increasing	Declining	0.977	Declining
TYE	Stable	Declining since 2000	0.996	Stationary
KLA	Declining	Stable	0.990	Stationary
CAS	Declining	Declining since 2000	0.982	Stationary
NWC	Declining	Declining	0.983	Declining
HUP	Stable	Declining since 2004	0.989	Stationary
GDR	Declining	Declining	0.972	Declining

Forsman et al. (*in press*).



# Northern Spotted Owl Current Status

## Factors Affecting Demographic Rates

### Amount of Habitat:

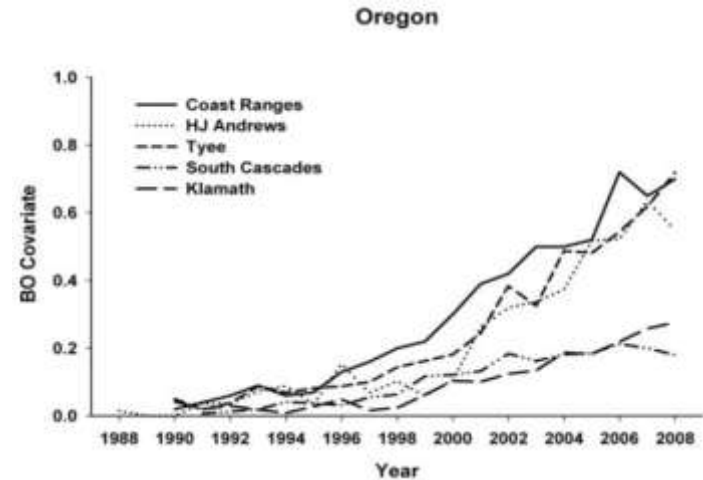
- Positive effect on fecundity (4 areas)
- Positive effect on recruitment in meta-analysis of population growth rate ( $\lambda$ )

### Presence of Barred Owls:

- Negative effect on fecundity on 4 study areas
- Negative effect on survival on 5 study areas
- Negative effect on recruitment in meta-analysis of population growth rate ( $\lambda$ )

### Weather & Climate:

- Negative effect of cold, wet springs (nesting periods) on fecundity



Forsman et al. (*in press*).





# Challenges to 2008 Recovery Plan

- Protect high quality habitat and existing spotted owl sites.
- Nonfederal lands are essential.
- Climate change not adequately addressed.
- Management strategy for fire-prone areas unproven.
- 2008 MOCAs (mapped owl conservation areas) insufficient - don't coincide with NWFP, Critical Habitat, or 1992 Draft Recovery Plan.



# Responding to Challenges

## Three Options

1. Defend
2. Withdraw and do over
3. Targeted scientific revision

## DOI Decision:

- Targeted scientific revision
- Revisit Critical Habitat immediately after revision







# 1. Why Protect High Quality Habitat and Spotted Owl Sites?



## 2008 Peer Reviewers:

- Declining population
- Shrinking distribution
- Barred owl expansion

→ protect more high quality habitat and spotted owl sites



# 1. Why Protect High Quality Habitat and Spotted Owl Sites?

## **FWS Recommendations:**

**1. Retain spotted owl sites across all ownerships (RA10), and maintain old/complex forest across range of owl (RA32).**



**2. Support active forest management only if it benefits owl recovery.**



## **2. Why Revisit Non-Federal Lands?**

### **Peer Reviewers:**

**Non-federal lands should contribute more to recovery due to declining population and shrinking distribution.**

### **FWS Recommendation:**

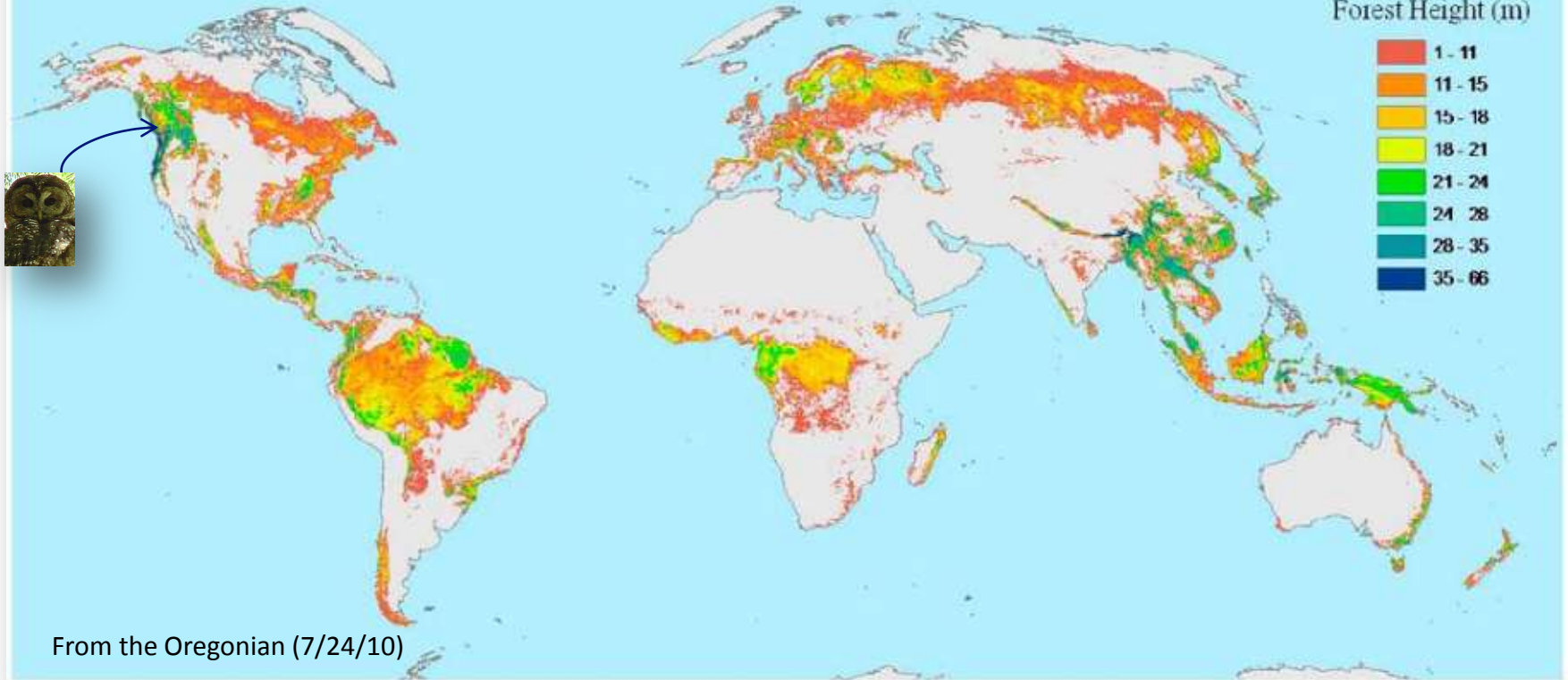
- Re-evaluate the level of recovery contribution needed.**
- RA 10 and RA32 apply to all ownerships.**
- Expand HCPs and Safe Harbor Agreements.**
- Encourage non-federal partners to develop specific recommendations concerning economic and regulatory incentives (e.g., WA Non-Fed Work Group).**





# 3. Climate Change

## Pacific Northwest forests “best” in world at storing carbon



- **Secretarial Order 3289** – Incorporate climate change impacts into DOI plans (Sept. 2009)
- **FWS Recommendation:** Opportunity to reconcile climate change mitigation goals with spotted owl recovery goals



## 4. Dynamic Fire-prone Landscapes

- **Peer reviewers: 2008 strategy** “risky and unproven”
- **FWS Response:** Consulted expert state, federal, and private scientists – Inaction not an option in some areas.



### **FWS Recommendations:**

1. Targeted active management is needed in some areas, but controversy remains.
2. Emphasize “experimental, science-based approach.”
3. Protect owl sites (RA10) and high quality habitat (RA 32).



## 5. Reserves (“lines on a map”)

- **2008 Peer reviewers:**

- MOCAs too small on Westside; No reserves on Eastside.
- MOCAs don't reconcile with previous plans  
(Northwest Forest Plan, 1992 draft Recovery Plan, 1992 Critical Habitat, etc.).
- How can you “reduce” protections while populations declining?
- Recommended conducting a landscape scale, *spatially explicit habitat model* and revisit reserve issue.

- **FWS Response:**

- Initiated rangewide habitat modeling effort.
- Use **Critical Habitat** process, and defer proposing new or revised habitat conservation network until after Recovery Plan is complete.





# Habitat Modeling Goal and Process

**Goal: Evaluate effective habitat conservation networks for recovery**

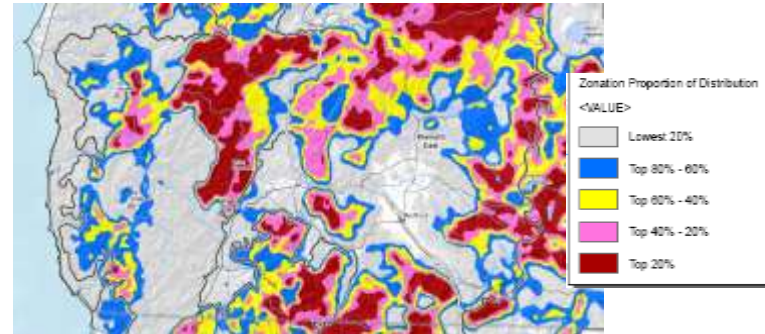
- **Step 1.** Modeled and mapped relative habitat quality.
- **Step 2.** Design potential habitat conservation network scenarios.
- **Step 3.** Evaluate habitat network scenarios to assess relative impact on future persistence.



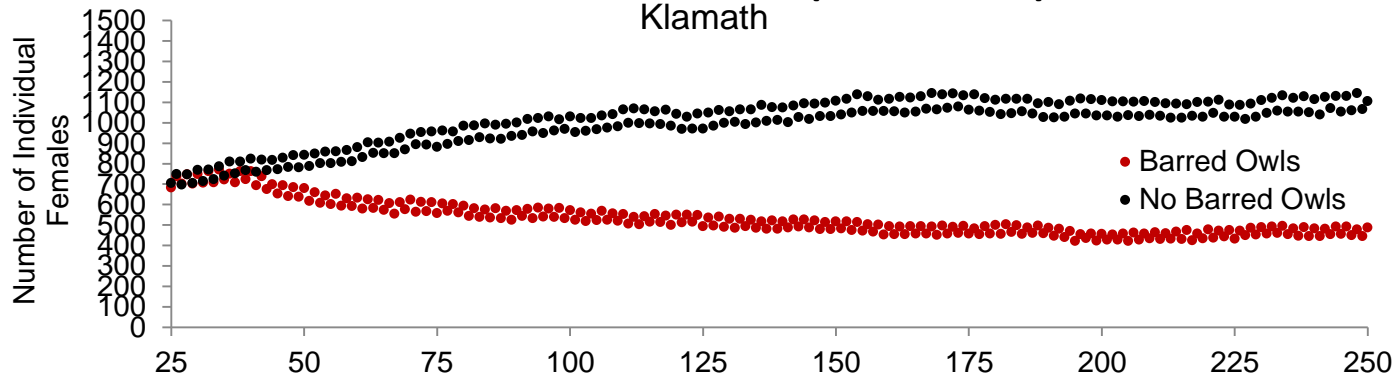
# Habitat Modeling



**Step 1 – Model and map relative habitat quality (MAXENT)**



**Step 2 – Aggregate habitat value into blocks (ZONATION)**  
Klamath



**Step 3 – Test effectiveness of various scenarios (HEXSIM)**



# Summary – 2011 Recovery Plan

- **RA10/RA32 → Protect spotted owl sites/high-quality habitat.**
- **Contribution from non-federal lands is essential.**
- **Need to maintain flexibility in the face of climate change.**
- **Active management may be needed in fire-prone landscapes, but maintain owl sites and habitat.**
- **Spotted owl reserves will be identified in Critical Habitat process.**



# Summary - What's Next?

- **Peer-reviewed and public comments incorporated into Plan.**
  - **3 industry lawsuits, 2 FOIAs**
- **Final Revised Recovery Plan to be completed February 2011.**
- **Per court order, propose revised Critical Habitat by November 2011 and finalize by November 2012.**
- **Barred Owl Removal Experiment**
  - **Environmental Impact Statement – early 2011**



# Questions?

<http://www.fws.gov/oregonfwo/Species/Data/NorthernSpottedOwl/Recovery/>