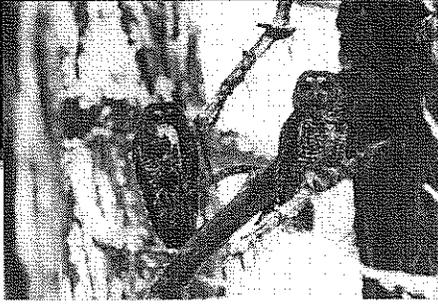


Barred Owl Removal Experiment



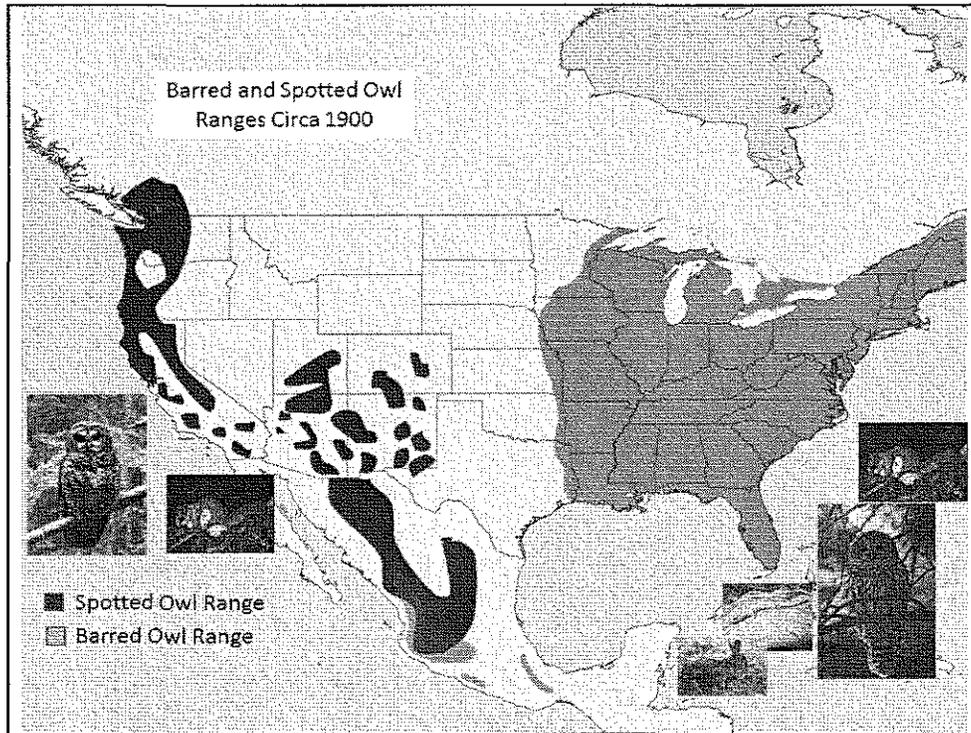
Robin Bown – US Fish and Wildlife Service
Betsy Glenn – US Fish and Wildlife Service
David Wiens – US Geologic Survey
Mark Higley – Hoopa Tribal Forestry

Barred Owl Removal Experiment

S1. Title

Over the next few minutes, I will describe

the historic and current condition of the spotted and barred owls,
our recognition of the barred owl threat to spotted owls,
the process we used to develop the experiment
and our progress to date



The situation - answers the question - Why we are doing this?

The setting and the invasion

Historic condition

S2.1. Spotted owls are a medium-sized western forest owl

There are 3 subspecies, the northern, California, and Mexican

The northern and Mexican subspecies are listed as threatened

Spotted owls are a specialist predator focused on medium-sized arboreal rodents

S2.2. Barred owls are a similar, medium-sized forest owl historically found east of the Mississippi River and mostly south of Canada

More aggressive than spotted owls, at least in the west

They are a generalist predator, consuming a wide variety of prey, though they make significant use of same arboreal rodents as spotted owls

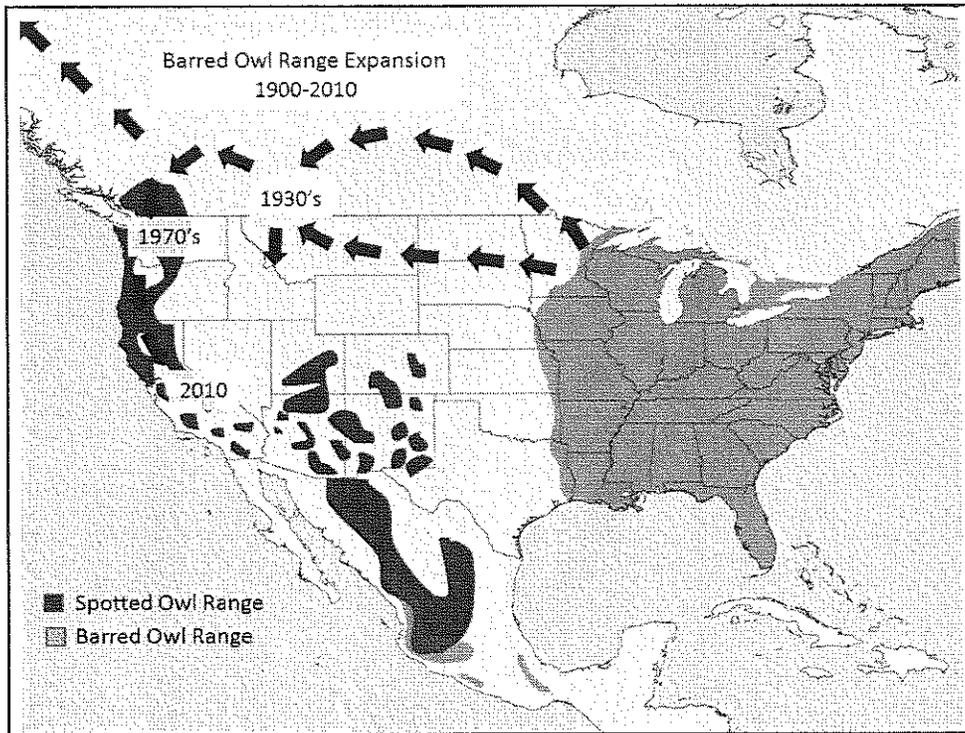
They are not threatened, and are still doing well in their historic range wherever habitat remains.

Both species are non-migratory

The 2 species have been separated for over 1 million years, probably longer

Separated by the relatively-treeless Great Plains, a barrier for a forest owl

And conditions in northern boreal forest that would not support their survival year round.



S3. *BO invasion – (animated)*

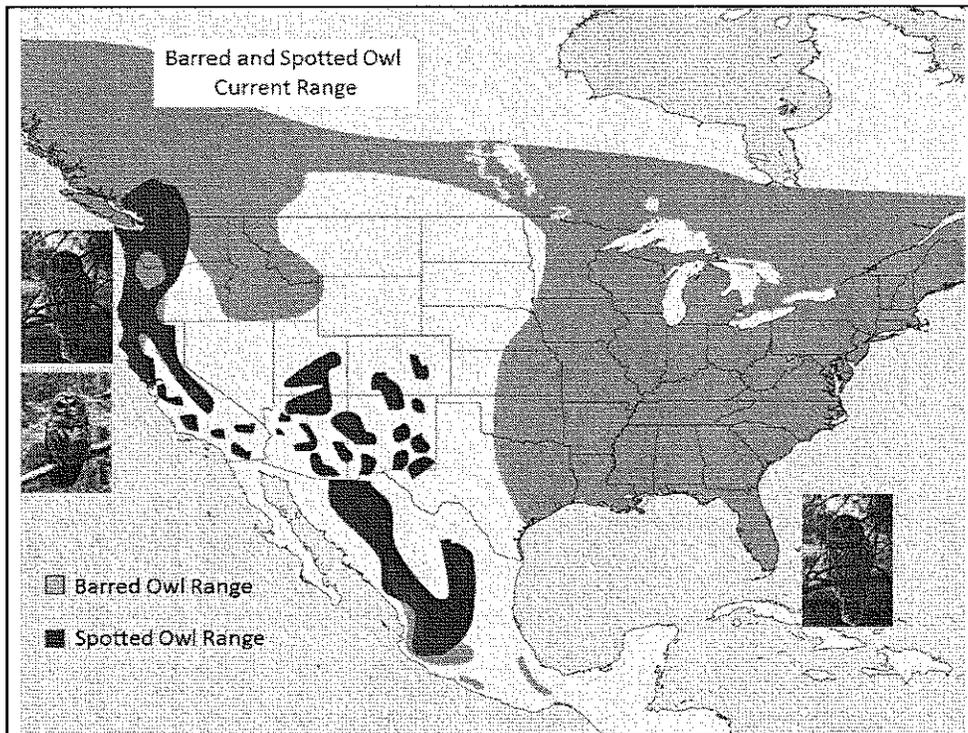
Starting around 1900, barred owls began to spread westward

Reaching the

Rocky Mountains around the 1930s,

British Columbia by 1950s – expanded north to Alaska and south along
Cascades and Coast Ranges

Individuals were detected in western Washington by 1973, Oregon in
1974, and California in 1976.



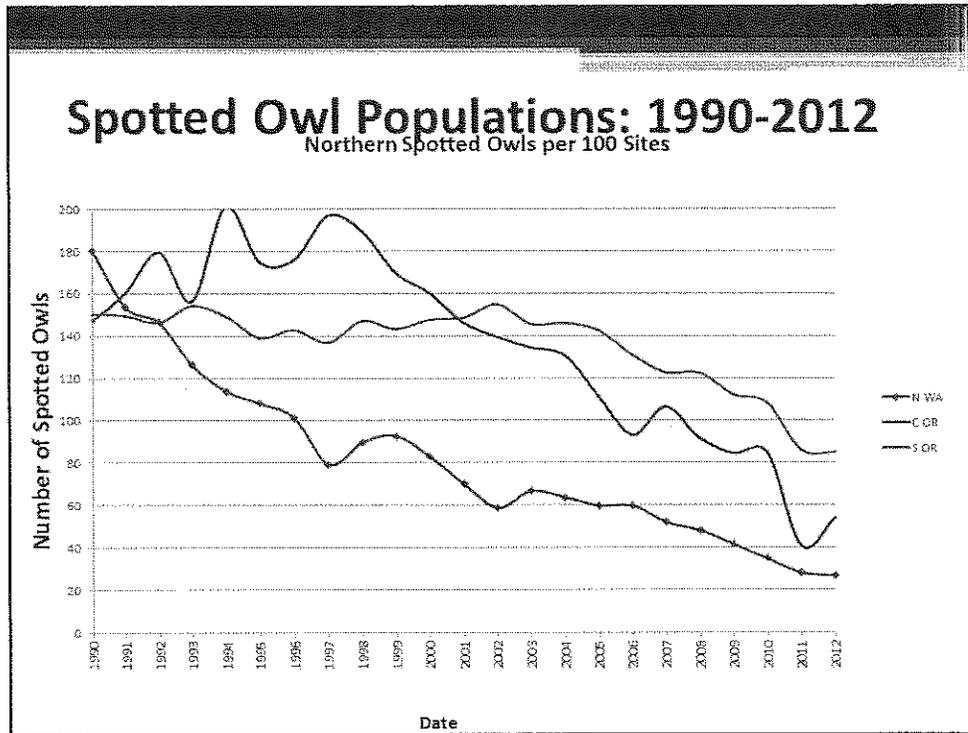
S4. Populations have continued to grow behind these prospecting individuals, starting in the North.

And barred owls have continued to move south, with individuals now found as far south as Kings Canyon in the central Sierra's

The impact

Now, not all species that invade an area create ecological problems.

Unfortunately, this non-native invader appears to have a significant impact on the closely related spotted owl, and probably other species as well



S5. As barred owl populations began to increase noticeably in the PNW in the 1990s, we noted significant declines in spotted owl populations, starting in the north, and spreading south – concurrent with increasing barred owl populations. These declines are beyond what was expected when the Northwest Forest Plan was signed in 1994.

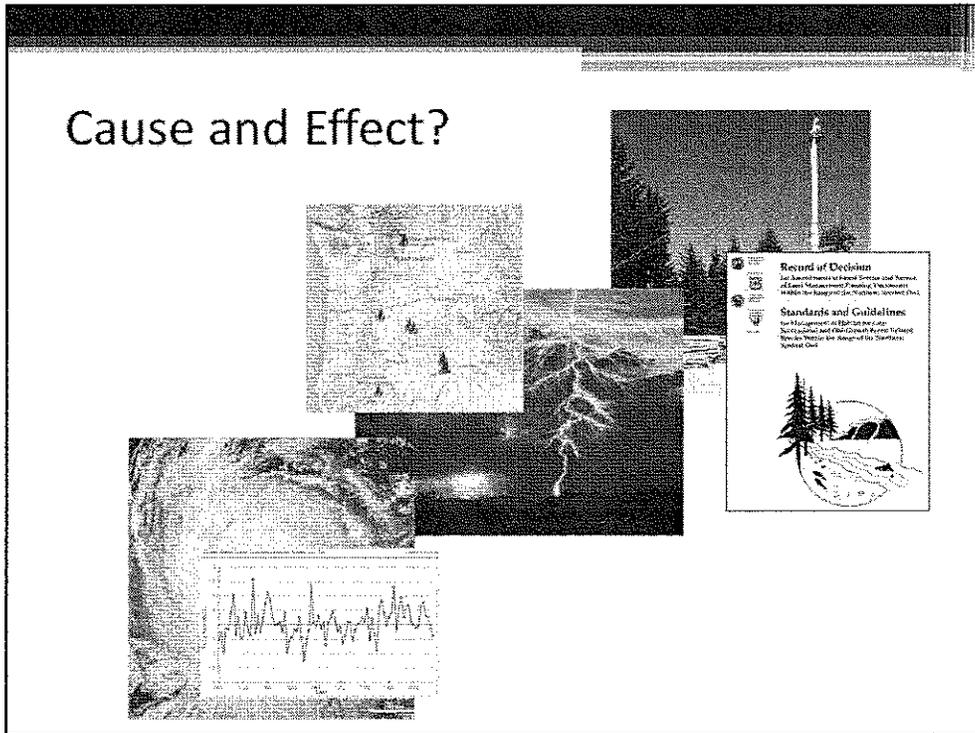
For example,

S5.1 On the Cle Elum Study area in northern Washington, the SO population went from 180 SOs per 100 sites surveyed in 1990 to 27 in 2012 – an 85% decline in a little over 2 decades

S5.2 We soon saw a similar though delayed pattern in Central Oregon
From almost 200 in 1997 to 54 in 2012 – about 73% decline in 15 years

S5.3 In S OR, where BO populations are in an earlier stage of expansion and at lower densities, the trend stated even later.

155 in 2002 to 85 in 2012 – 45% drop in 1 decade



S6 So, we have spotted owl population declines that seem to be occurring as barred owl populations in the area increase, but what evidence do we have that barred owls are the cause?

Simple correlation isn't enough.

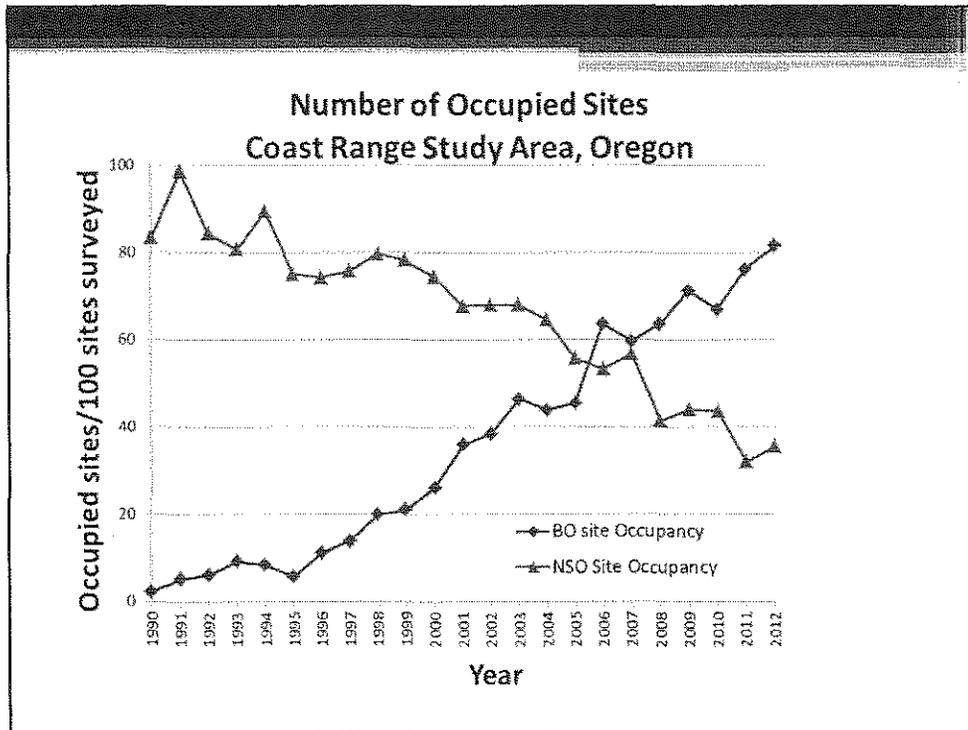
Other, unmeasured, impacts could be the cause

S6.1 For example, maybe it's habitat loss from logging, forest fire, or climate change

S6.2 Well, habitat loss from logging on Federal lands has been significantly curtailed since 1994, which make up most of the study areas

S6.3 Fire has removed some habitat, but not at levels that would account for the spotted owl declines

S6.4 While weather and climate do affect spotted owls on a year-to-year basis, no weather or other large-scale climate events have been correlated to the observed population declines.



S7. The only correlation that seems to fit is the barred owl population increase

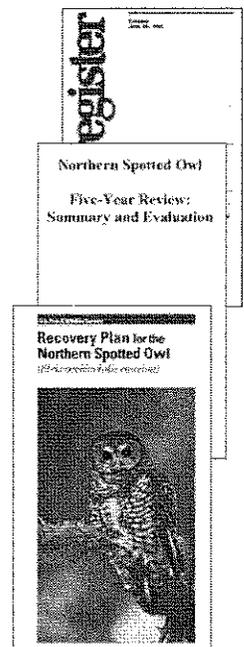
For example, in central Oregon they survey over 100 sites for spotted owls each year. BO responses on these sites have been increasing, and concurrently, SO occupancy on those same sites is decreasing.

The same pattern occurs on all of the 10 study areas

Formal occupancy analyses have shown that increased barred owl presence is associated with decreased site occupancy and reduced colonization rates by spotted owls.

Recognition of the Threat

- The long term impact [of barred owls] to the spotted owl is unknown, but of considerable concern. (Listing 1990)
- Our understanding of this [barred owl] threat has improved, raising it from an issue of concern to a primary threat of greater imminence.” (5-year review 2004)
- The Recovery Plan identified two predominant threats: increasing competition from barred owls, and habitat loss from timber harvest and fire. (Spotted Owl Recovery Plan 2008)



Mounting concern – 2 minutes

S8: This pattern has not gone unnoticed by the biological community.

Historically, conservation of SOs was focused on habitat protection, because habitat loss was the main identified threat.

S8.1: At the time of the spotted owl’s listing in 1990, the BOs were mentioned as a threat, but of unknown level. *(slide with quotes, coming up, then retreating/ dimming – with date)*

“The longterm impact [of barred owls] to the spotted owl is unknown, but of considerable concern.”

S8.2: The spotted owl 5-year review in 2004 identified competition from BOs as a greater threat, at least in the northern areas.

“Our understanding of this [barred owl] threat has improved, raising it from an issue of concern to a primary threat of greater imminence.”

S8.3: By the 2008 Recovery Plan, BO competition was ranked as one of the primary threats, equal to habitat loss, across the range.

“The 2008 Recovery Plan identified two predominant threats: increasing competition from barred owls, and habitat loss from timber harvest and fire.”

* *Recovery Action 30: Manage to reduce the negative effects of barred owls on spotted owls.*

* *Recovery Action 29: Design and implement large-scale control experiments to assess the effects of barred owl removal on spotted owl site occupancy, reproduction, and survival.*

U.S. Fish & Wildlife Service
**Revised Recovery Plan
for the Northern Spotted Owl
(*Strix occidentalis caurina*)**



S9. To address this threat, the 2011 Northern Spotted Owl Revised Recovery Plan identified 10 recovery actions specific to BOs – These include --

Recovery Action 30: Manage to reduce the negative effects of barred owls on spotted owls.

And, to provide the information needed to design and implement RA 30, --

S9.1 RA 29 – to implement a large-scale experiment to assess the effects of BO removal on SO populations.

Recovery Action 29: Design and implement large-scale control experiments to assess the effects of barred owl removal on spotted owl site occupancy, reproduction, and survival.

The remainder of this talk is focused on implementation of Recovery Action 29.

Barred Owl Workgroup

- Scientists and managers from a wide variety of groups and agencies



Barred Owl Stakeholder Group



The approach – 3 minutes

S10: To ensure the necessary coordination on the Recovery Actions related to BOs, USFWS convened Barred Owl Workgroup in November 2008 – consisting of biologists from 10 Federal, State and non-governmental agencies and organizations.

They were charged with, in part, providing information on research topics and completing some recovery actions

They identified Recovery Action 29 – the barred owl removal experiment – as the highest priority barred owl-associated recovery action

Then engaged with researchers in developing a conceptual design for a barred owl removal experiment.

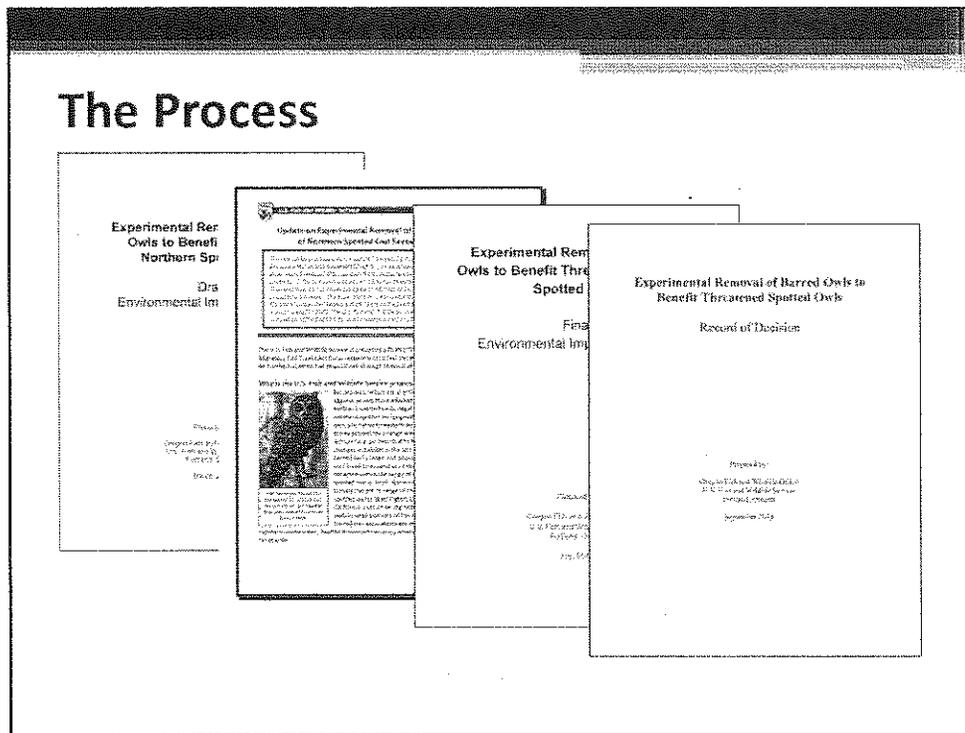
We knew that the removal of any species, particularly a bird of prey, in relatively large #s, would be controversial

Decided to proactively engage with stakeholders-

S10.1 Convened the Barred Owl Stakeholder Group, a group of 30 representatives from 25 groups, including

- Native American tribes,
- animal welfare and protection groups
- forest products industry,
- environmental organizations,
- Federal and state government agencies

to help us identify and better respond to ethical issues presented by this proposal.



The process and decision – 3 minutes

S11.1 The combination of strong scientific information on the spotted owl from years of studies and focused outreach activities were essential for the Service’s ability to conduct this controversial project, but not sufficient. To reach a decision and issue the necessary permits we needed an Environmental Impact Statement - EIS

Developed a draft EIS, (layer documents – showing first page on each)

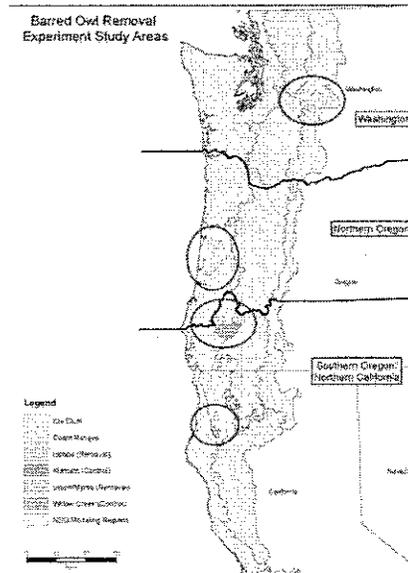
S11.2 conducted outreach, a public meeting, and several webinars during the comment period

Followed by a S11.1 the final EIS

S11.1 Signed the Record of Decision in September 2013.

The Decision

- * Decision
 - Demography study on up to 4 study areas
 - Distributed north to south
 - Combined lethal and non-lethal removal, mostly lethal
 - Estimated 4 years of removal to complete the study.



S12.1 The decision (map showing study areas, with side panel of these items)

S12.2 4 study areas

S12.3 distributed across range

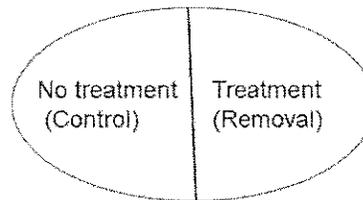
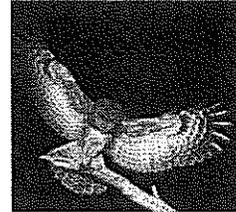
S12.4 Combined Removal methods

S12.5 Anticipate 4 years

Removal Experiment General Design

• Description of the study

- Demographic study
- Divide the study area in 2 similar portions
- Survey barred and spotted owls throughout
- Remove barred owls from treatment portion only, Leave barred owls on control portion
- Compare spotted owl population trends between treatment and control areas



S13 Study Approach – standard treatment and control

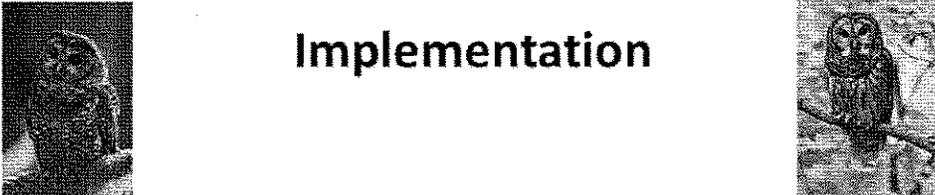
Demographic study, tracking individual spotted owls – using study areas with a long history of demography surveys so that we have pre-treatment data

Divide each study area into treatment and control areas

Remove BOs on the treatment area. Leave them alone on the control area

Track spotted owl population dynamics on the entire area

If barred owls are having a significant impact on spotted owls, we would expect the spotted owl populations on the treatment areas to do better than those on the control area.



Implementation

- * Initiated study on Hoopa Reservation, Fall 2013
 - Removed 71 barred owls in fall and winter of 2013/14
 - Removed 59 barred owls in fall and winter of 2014/2015
 - Completed spotted owl surveys for 2014, 2015

- * Implement 3 remaining study areas – spring 2015
 - Spotted owl and barred owl surveys conducted on all areas

S14. Implementation

We began the study on the Hoopa Reservation in the fall of 2013. The Hoopa tribe has been conducting barred owl surveys for several years, so they had the necessary pre-treatment data on barred owl populations.

They removed 71 barred owls in fall and winter of 2013/14, and 59 barred owls in fall and winter of 2014/2015.

They have been conducting surveys for both spotted and barred owls for several years now, and we expect to see results of barred owl removal on analyses of these data.

We are initiating the other 3 study areas with barred owl surveys in spring 2015, and barred owl removal at most beginning in fall 2015/



Implementation



- * Early and extensive outreach reduced, not eliminated, controversy
 - Initial lawsuit filed October 1, 2013
 - Refiled lawsuit September 9, 2014
 - Judge Aiken ruled in our favor July 20, 2015

S15. Conclusion – 2 minutes

Early and extensive outreach reduced the controversy, allowing the experiment to move forward

But did not remove it completely

Continue to get periodic letters and editorials about the experiment

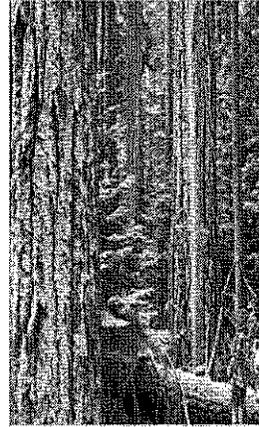
Lawsuit

Initial lawsuit filed Oct 1 2013. Judge ruled in our favor in July 2014

New version of same lawsuit filed Sept 9 2014 --
Judge ruled in our favor earlier this week.

Safe Harbor Agreements

- **Purpose:** Create incentives for non-federal landowners to voluntarily conserve listed species by providing regulatory certainty.
- Provide assurances through issuance of a permit that ongoing activities will not be constrained and will not result in ESA restrictions regarding the covered species.
- The landowner can return their lands to baseline conditions in the future.



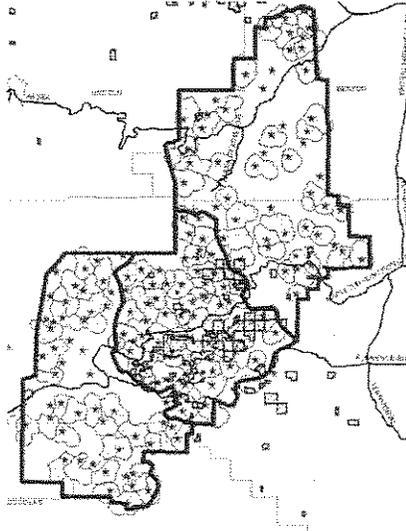
S.16

Purpose: Create incentives for non-federal landowners to voluntarily conserve listed species by providing regulatory certainty.

Provide assurances through issuance of a permit that ongoing activities will not be constrained and will not result in ESA restrictions regarding the covered species.

The landowner can return their lands to baseline conditions in the future.

Safe Harbor Agreements



- Pursuing SHAs with ODF and industrial land owners
- Landowners that allow access and barred owl removal will receive assurances that they will not be encumbered by new owls that may show up on treatment area.

S. 17

Safe harbor agreements

Study areas are primarily federal lands (Forest Service, BLM) but are also interspersed with State and private lands.

This map shows the Oregon Coast Range study area.

The center polygon shows the treatment area where barred owls will be removed, and

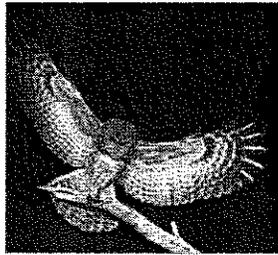
The to adjacent polygons show the control area, where owls will be monitored, but no action taken.

The red cross-hatched areas show ODF lands within this study area.

We are pursuing safe harbor agreements with ODF and several industrial forest owners to provide assurances that these landowners will not be encumbered by new owls that may show up on the treatment area after barred owl removal begins.

* More information on the decision

www.fws.gov/oregonfwo/
links to barred owl information



Questions?

For more details on the experiment, check the website and follow the links to the barred owl information

Questions