

THREATS

Past, Present, and Future

LISTING CONSIDERATIONS

- **Loss of Habitat**
- **Overuse (exploitation of species)**
- **Disease or Predation**
- **Inadequacy of Existing Regulatory Mechanisms**
- **Other Factors (e.g., demographic trends, competition from Barred Owls)**

HABITAT LOSS

1990 Status Review:

- Identified as #1 threat to Northern Spotted Owl

2004 Status Review:

- Identified as #1 accomplishment for Conservation of Northern Spotted Owl since listing

HABITAT LOSS

1990 Status Review:

- Many sources of habitat loss – timber harvest #1 source

2004 Status Review:

- Decline of timber harvest on Federally managed land – *Northwest Forest Plan*
- Past habitat loss could still have negative effects
- Continuing threat from insects (e.g., fuel for fire)
- Continuing threat from uncharacteristic stand replacing fires
- Increasing threat from sudden oak death

Suitable Habitat on Federal Lands

Habitat Trends	1990 Threat	2004 Threat
Habitat Harvest	Moderate/Severe	Decreased
Natural Disturbance	Significant In Some Areas	Same Or Increased
Non-Federal Lands	No Assurance	Increased Assurance

HABITAT LOSS

Key Uncertainties

1990 Status Review:

- Causal Link Between Demographic Trends and Habitat Loss (general knowledge about owl habitat)

2004 Status Review:

- Causal Link between demographic parameters estimated and Habitat Conditions (much greater knowledge of owl habitat relationships)
- Trends in habitats on public and private lands

HABITAT LOSS

Future Risk

2004 Status Review:

- Could not assess Private Land
- Possible increasing threat from fires and insects if other threats emerge as significant future threats such as
 - sudden oak death
 - barred owls

TAXONOMY AND GENETICS

*Relevance to Listing Decision
and Future Evolutionary
Potential*

TAXONOMY AND GENETICS

- **2004 Status Review:**
- *Strix occidentalis caurina* supported
- Introgression with CSO – unknown risk
- Loss of Genetic Variation – unknown risk (note: dynamics more likely control owl persistence)

OTHER FACTORS

*Demographic Trends and
Competition*

POPULATION DYNAMICS

- **Status Review 1990:**
 - Two populations and Short Duration
- **Status Review 2004:**
 - Major accomplishments
 - 14 Studies, most of long duration
 - 12% of range of spotted owl
 - Coordinated Effort
 - Largest analysis of capture recapture data for a nongame species

GENERAL RESULTS

POPULATION STUDIES

- **1990 Status Review:**
- Relatively Little information – relative abundance by province
- 2 studied populations declining
- **2004 Status Review:**
- Major accomplishments in analysis of population dynamics
- 14 extant major studies in range of NSO
- 7 Populations Declining
- 7 Stable or improving
- Original two study populations show improvement

THREATS POPULATION TRENDS

- **Lag Effects due to Past Habitat Loss?**
- **Effect of Unfavorable Weather?**
- **Effect of Barred Owls?**
- **Direct Loss of Habitat in Some Areas?**
- **Synergistic Effects?**

BARRED OWLS

1990 Status Review: "a competitor with potential for adversely impacting spotted owl population levels"

2004 Status Review:

- BO Increasing throughout NSO range
- All suggestions in 1990 review confirmed
- BO use old forests and other forests
- Negative Correlative Effects on Survival on 3 Washington Demographic Areas

BARRED OWLS

Key Uncertainties

2004 Status Review:

- Single area of most disagreement among panel members
- All studies are correlative
- Ambiguity of data and processes
- Use of cumulative numbers confound inference
- Incidental Data collection

BARRED OWLS

Future Threats

2004 Status Review:

- Panel Unanimous this is a threat
- Disagreement centers on ultimate magnitude of threat
- Theory predicts competition
- Generalist vs. Specialist life history
- Rapid Spread and Increase in BO
- Correlative evidence of survival and occupancy effects

OTHER FACTORS: EFFECT OF BIOLOGISTS

- **1990 Status Review:** No mention
- **2004 Status Review:**
 - Decreased Risk due to change in radio transmitter type
 - Possible Risk due to Increased Surveys



DISEASE AND PREDATION

DISEASE

- **1990 Status Review:** no significant threat
- **2004 Status Review:**
 - West Nile Virus, currently unknown but may be significant future risk
 - Recently Arrived
 - No evidence of other disease or parasite threats (increased globalization predicts)

PREDATION

- **1990 Status Review:** no significant threat
- **2004 Status Review:** no significant threat
(caveat: Barred Owl predation
circumstantial but possible threat if
common)

FAILURE OF EXISTING REGULATORY MECHANISMS

- **1990 Status Review:** Major Factor
- **2004 Status Review:** Much reduced Factor
 - Primarily because of NWFP, but there is no recovery plan
- **Future Risk**
 - Lack of Commitment to Monitoring and Research
 - Inappropriate Application of "Healthy Forest Initiative"
 - Possible excessive demand for owl surveys for minor projects

THREATS SUMMARY

- **Qualitatively, threats are different today**
- **Rate of habitat loss due to tree harvest greatly reduced**
- **Increased threat of Barred Owls**
- **Increased threat of disease**



THE END

Can I Go Home Now?