5-YEAR REVIEW
Short Form Summary
Species Reviewed: Northern Spotted Owl (*Strix occidentalis caurina)*
Current Classification: Threatened

FR Notice announcing initiation of this review:
The U.S. Fish and Wildlife Service published in the *Federal Register* on November 24, 2010, a Notice initiating the 5-year status review for this species (75 FR 71726), and reopened the public comment period for this 5-year review on April 20, 2011 (76 FR 22139).

Lead Region/Field Office:
Pacific Region
Sarah Hall, Chief, Division of Recovery – (503) 231-6868

Name of Reviewer(s):
Betsy Glenn, Oregon Fish and Wildlife Office, Northern Spotted Owl Specialist - (503) 231-6970.
Rollie White, Oregon Fish and Wildlife Office, Acting Assistant Project Leader – (503) 231-6179.

Methodology used to complete this 5-year review:
Review of science assessing the current status of the northern spotted owl (NSO) was conducted in conjunction with development of the 2011 Revised Recovery Plan for the Northern Spotted Owl. Development of the Revised Recovery Plan involved over 20 Fish and Wildlife Office staff reviewing NSO science, consultation with spotted owl experts, input from working groups, scientific peer-review, and 2 public comment periods. The Revised Recovery Plan addresses current status, population trends, threats (including the five listing factors), recovery objectives, recovery criteria, and recovery actions needed for this species.

Application of the 1996 Distinct Population Segment (DPS) Policy:
Not applicable. Not listed as a DPS.

Review Analysis:
Please refer to the 2011 Revised Recovery Plan for the northern spotted owl for a complete review of the species status (including biology, population trends, and habitat), threats, and recovery actions. The following is a summary of findings and recommendations from the 2011 Revised Recovery Plan.

<u>Reasons for Listing and Assessment of Threats</u>

The Endangered Species Act identifies five listing factors for determining whether a species merits Federal listing as threatened or endangered:

*This short form is to be used ONLY when there is no new information, or when the 5-year review is being done concurrent with another range-wide status review (such as a 12-month finding on a delisting petition) that completely addresses all the questions outlined in the standard 5-year review template. Attach a copy of the final 12-month finding or other status review to this form.

A. The present or threatened destruction, modification, or curtailment of its habitat or range;
B. Overutilization for commercial, recreational, scientific, or educational purposes;
C. Disease or predation;
D. The inadequacy of existing regulatory mechanisms;
E. Other natural or manmade factors affecting its continued existence.

The northern spotted owl was listed as threatened throughout its range "due to loss and adverse modification of spotted owl habitat as a result of timber harvesting and exacerbated by catastrophic events such as fire, volcanic eruption, and wind storms" (USFWS 1990). More specifically, threats to the spotted owl included low populations, declining populations, limited habitat, declining habitat, inadequate distribution of habitat or populations, isolation of populations within physiographic provinces, predation and competition, lack of coordinated conservation measures, inadequacy of regulatory mechanisms and vulnerability to natural disturbance (USFWS 1992). These threats were characterized for each province as severe, moderate, low or unknown (USFWS 1992). The range of the spotted owl is divided into 12 physiographic provinces from Canada to northern California and from the Pacific Coast to the eastern Cascades. Declining habitat was recognized as a severe or moderate threat to the spotted owl throughout its range, isolation of populations was identified as a severe or moderate threat in 11 provinces, and a decline in population was a severe or moderate threat in 10 provinces. Together, these three factors represented the greatest concerns about range-wide conservation of the spotted owl. Limited habitat was considered a severe or moderate threat in nine provinces, and low populations was a severe or moderate concern in eight provinces, suggesting that these factors were also a concern throughout the majority of the spotted owl's range. Vulnerability to natural disturbances was rated as low in five provinces.

The Service conducted a 5-year review of the spotted owl in 2004 (USFWS 2004), based in part on the content of an independent scientific evaluation of the status of the spotted owl (Courtney *et al.* 2004) performed under contract with the Service. For that evaluation, an assessment was conducted of how the threats described in 1990 might have changed by 2004. Some of the key ideas relative to threats identified in 2004 were: (1) "Although we are certain that current harvest effects are reduced, and that past harvest is also probably having a reduced effect now as compared to 1990, we are still unable to fully evaluate the current levels of threat posed by harvest because of the potential for lag effects" (Courtney and Gutiérrez 2004:11-7); (2) "Currently the primary source of habitat loss is catastrophic wildfire, although the total amount of habitat affected by wildfires has been small" (Courtney and Gutiérrez 2004:11-8); and (3) "We are convinced that Barred Owls are having a negative impact on Spotted Owls at least in some areas" (Gutiérrez *et al.* 2004:7-43) and "there are no grounds for optimistic views suggesting that Barred Owl impacts on Northern Spotted Owls have been already fully realized" (Gutiérrez *et al.* 2004:7-38).

On June 1, 2006, the Service convened a meeting of seven experts to help identify the most current threats facing the species. Six of the seven were experts on the biology of the spotted owl, and a seventh was an expert on fire ecology. The workshop was conducted as a modified Delphi expert panel in which the seven experts scored the

severity of threat categories. The baseline assumption of this meeting was that existing habitat conservation strategies (*e.g.*, the NWFP) would be in place. With that assumption, the experts identified and ranked threats to the spotted owl. The 2007 Recovery Team then had an opportunity to interact with them to discuss their individual rankings and thoughts on spotted owl threats. The experts re-ranked the threats if they felt this was relevant given the substance of the discussion.

These experts identified past habitat loss, current habitat loss, and competition from barred owls as the most pressing threats to the spotted owl, even though timber harvest recently has been greatly reduced on Federal lands. They noted that evidence of these three threats is presented in the scientific literature. The range of threat scores made by the individual experts was narrowest for barred owl competition and slightly greater for habitat threats, indicating that there was more agreement about the threat from barred owls. The experts identified disease and the effect of climate change on vegetation as potential and more uncertain future threats.

The experts also ranked the threats by importance in each province. Among the 12 physiographic provinces, the more fire-prone provinces (Eastern Washington Cascades and Eastern Oregon Cascades, California Cascades, Oregon and California Klamath) scored high on threats from ongoing habitat loss as a result of wildfire and the effects of fire exclusion on vegetation change. West-side provinces (Western Washington Cascades and Western Oregon Cascades, Western Washington Lowlands, Olympic Peninsula, and Oregon Coast Range) generally scored high on threats from the negative effects of habitat fragmentation and ongoing habitat loss as a result of timber harvest. The province with the fewest number of threats was Western Oregon Cascades, and the provinces with the greatest number of threats were the Oregon Klamath and the Willamette Valley.
(end excerpt)

Between 2006 and 2011, additional scientific research has indicated that northern spotted owl populations have continued to decline at a rate of 2.7% per year, with declines being associated with both habitat loss and barred owl presence (Forsman et al. 2011). The northern spotted owl is doing poorer than at the time of the last 5-year review, and observed population declines indicate an increased possibility for this species to become endangered in the future. At this time, we do not know what the outcome of barred owl-spotted owl competition will be. Barred owls generally have a greater negative impact on spotted owls in northern areas; however, the relationship between the two species is highly variable across range of the northern spotted owl. While populations are declining, spotted owls are still present across the majority of the species range.

Given the declining population trends, habitat loss, and threats from barred owls, the northern spotted owl meets the definition of a threatened species. The term "threatened species" means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The term "endangered species" means any species which is in danger of extinction throughout all or a significant portion of its range.

Recommendations for Future Actions:
The 2011 Revised Recovery Plan identifies 33 Recovery Actions that have been developed to meet Recovery Objectives and Criteria. The recovery objectives of the 2011 Revised Recovery Plan for the northern spotted owl include the following:

1. Spotted owl populations are sufficiently large and distributed such that the species no longer requires listing under the ESA;
2. Adequate habitat is available for spotted owls and will continue to exist to allow the species to survive without the protection of the ESA; and
3. The effects of threats have been reduced or eliminated such that spotted owl populations are stable or increasing and spotted owls are unlikely to become threatened again in the foreseeable future.

Recovery Criteria include the following:

Recovery Criterion 1 – Stable Population Trend: The overall population trend of spotted owls throughout the range is stable or increasing over 10 years, as measured by a statistically reliable monitoring effort.

Recovery Criterion 2 – Adequate Population Distribution: Spotted owl subpopulations within each province (*i.e.*, recovery unit) (excluding the Willamette Valley Province) achieve viability, as informed by the HexSim population model or some other appropriate quantitative measure.

Recovery Criterion 3 – Continued Maintenance and Recruitment of Spotted Owl Habitat: The future range-wide trend in spotted owl nesting/roosting and foraging habitat is stable or increasing throughout the species range, from the date of Revised Recovery Plan approval, as measured by effectiveness monitoring efforts or other reliable habitat monitoring programs.

Recovery Criterion 4 – Post-delisting Monitoring: To monitor the continued stability of the recovered spotted owl, a post-delisting monitoring plan has been developed and is ready for implementation within the States of Washington, Oregon, and California, as required in section 4(g)(1) of the ESA.

Recovery actions developed to meet these objectives and criteria include increased protection of spotted owl sites and habitat, encouraging forest management practices that will develop future spotted owl habitat, examination of effectiveness of removing barred owls from areas to enhance spotted owl recovery, and continued demographic monitoring of spotted owl populations to assess effectiveness of recovery actions.

Literature Cited

Courtney, S., and R. Gutiérrez. 2004. Chapter 11 in S. Courtney (editor), Scientific evaluation of the status of the northern spotted owl. Sustainable Ecosystems Institute, Portland, Oregon.

Courtney, S.P., J.A. Blakesley, R.E. Bigley, M.L. Cody, J.P. Dumbacher, R.C. Fleischer, A.B. Franklin, J.F. Franklin, R.J. Gutiérrez, J.M. Marzluff and L. Sztukowski. 2004. Scientific evaluation of the status of the northern spotted owl. Sustainable Ecosystems Institute, Portland, Oregon.

Forsman, E.D., R.G. Anthony, K.M. Dugger, E.M. Glenn, A.B. Franklin, G.C. White, C.J. Schwarz, K.P. Burnham, D.R. Anderson, J.D. Nichols, J.E. Hines, J.B. Lint, R.J. Davis, S.H. Ackers, L.S. Andrews, B.L. Biswell, P.C. Carlson, L.V. Diller, S.A. Gremel, D.R. Herter, J.M. Higley, R.B. Horn, J.A. Reid, J. Rockweit, J. Schaberl, T.J. Snetsinger and S.G. Sovern. 2011. Population demography of northern spotted owls: 1985–2008. Studies in Avian Biology. Cooper Ornithological Society.

Gutiérrez, R. J., M. Cody, S. Courtney and D. Kennedy. 2004. Chapter 7 in S. Courtney (editor), Scientific evaluation of the status of the northern spotted owl. Sustainable Ecosystems Institute, Portland, Oregon.

USFWS (U.S. Fish and Wildlife Service). 1990. Endangered and threatened wildlife and plants: determination of threatened status for the northern spotted owl. Federal Register 55:26114–26194.

USFWS (U.S. Fish and Wildlife Service). 1992. Draft final recovery plan for the northern spotted owl. U.S. Fish and Wildlife Service, Portland, Oregon.

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Pre-1996 DPS listing still considered a listable entity? _____N/A_____

Recommendation resulting from the 5-year review:

_____ Delisting
_____ Reclassify from Endangered to Threatened status
_____ Reclassify from Threatened to Endangered status
____X____ No Change in listing status

Lead Field Supervisor, Fish and Wildlife Service

[signature] Date 9/29/11
Oregon Fish and Wildlife Office

Cooperating Field Supervisor, Fish and Wildlife Service

Concur Ken S Berg Date 9/29/11
Washington Fish and Wildlife Office

Cooperating Field Supervisor, Fish and Wildlife Service

Concur [signature] Date 9-28-11
Arcata Fish and Wildlife Office, Region 8

Cooperating Field Supervisor, Fish and Wildlife Service

Concur Erin Williams Date 9-28-11
Yorke Fish and Wildlife Office, Region 8

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Lead Regional Office, Fish and Wildlife Service

Acting ARD Ecological Services

Date 10/26/11

Portland, Oregon

Cooperating Regional Office, Fish and Wildlife Service

Concur

Date 10.24.2011

Sacramento, California