

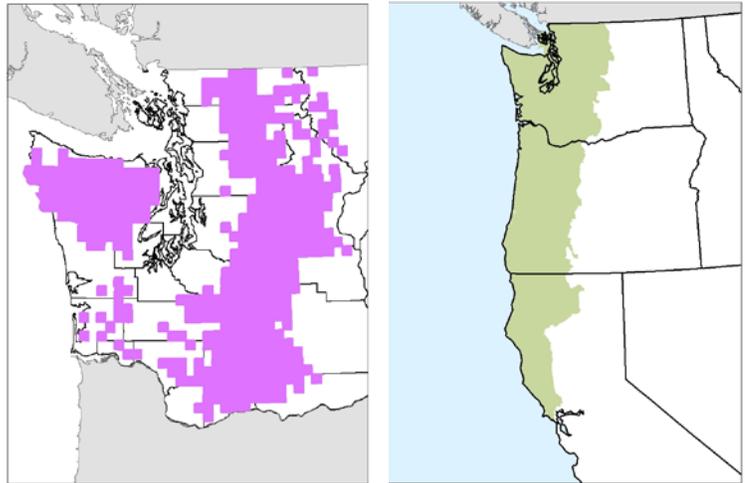
Species Fact Sheet

Northern Spotted Owl

Strix occidentalis caurina



Photo Credit: USFWS



STATUS: THREATENED
CRITICAL HABITAT:
DESIGNATED

Northern spotted owl potentially occurs in these Washington counties: Jefferson, Clallam, Mason, Grays Harbor, Pacific, Wahkiakum, Thurston, Lewis, Clark, Cowlitz, Whatcom, Skagit, Snohomish, King, Pierce, Skamania, Chelan, Klickitat, Okanogan, Kittitas, Yakima.

(Map may reflect historical as well as recent sightings)

The Washington, Oregon, and California population of the northern spotted owl, *Strix occidentalis caurina*, was federally listed as threatened under the Endangered Species Act in 1990. In 1992 and 2008, areas of critical habitat were designated to further protect this

subspecies on Federal lands. Revised critical habitat was proposed again in 2012. A final revised recovery plan was published in July 2011.

Current and Historical Status

The northern spotted owl is believed to have historically inhabited most forests throughout southwestern British Columbia, western Washington and Oregon, and northwestern California as far south as the San Francisco Bay. Loss and degradation of nesting, roosting, and foraging habitat, and increased competition with barred owls have led to a decline throughout much of the species' historic range. Current estimates suggest that the amount of suitable habitat available to spotted owls has been reduced by over 60 percent in the last 190 years. Spotted owls have become rare in British Columbia, southwestern Washington, and the northern coastal ranges of Oregon. Owl numbers across the listed range appear to have declined annually by 2.4 to 5.8 percent per year on average since 1985, when many studies began. Rates of decline in owl populations in the four Washington study areas range from 4.4 to 10.4 percent per year. These declines are probably largely due to declines in apparent adult survival rates in Washington. Only one other study area (in northwestern California) also experienced such declines in apparent adult survival during the study period.

In Washington, the range of the spotted owl is partitioned into 4 regions or provinces based on recognized landscape subdivisions exhibiting different physical and environmental features. These include the Eastern Washington Cascades, Olympic Peninsula, Western Washington Cascades, and Western Washington Lowlands. A small and virtually isolated population persists on the Olympic peninsula. As stated above, steep declines have been observed in all provinces in Washington. Although the listing of the spotted owl as threatened and the designation of critical habitat offer some protection for the spotted owl and its habitat on Federal lands, past trends suggest that much of the remaining unprotected habitat could disappear in 10 to 30 years.

Description and Life History

The northern spotted owl is the largest of the three subspecies of spotted owls. The taxonomic separation of the three subspecies is supported by genetic, morphological, and biogeographic information. Recent studies analyzing mitochondrial DNA sequences and microsatellites confirmed the validity of the current subspecies designation for northern spotted owls.

Northern spotted owls are medium-sized, dark brown owls with barred tails and white spots on the head and breast. Their eyes are dark brown surrounded by prominent facial disks.

The sexes are dimorphic, with males averaging about 13 percent smaller than females. They superficially resemble barred owls, a species with which they occasionally hybridize. Hybrids exhibit physical and vocal characteristics of both species. Northern spotted owls are generally nocturnal but also forage opportunistically during the day. Their diet varies geographically and by forest type. In Douglas-fir and western hemlock forests in Washington, flying squirrels are the predominant prey.

Spotted owls may live up to 20 years and are primarily monogamous. Sexual maturity is reached at 1 year of age, but breeding rarely occurs until 2 to 5 years of age. Spotted owls nest in the tops of trees or in cavities of naturally deformed and/or diseased trees. The breeding season varies with geographic location and elevation. Nesting generally occurs from about February (courtship) to June (fledging), and parental care of the young owlets can extend into September, when young owls begin to disperse from the area. Mortality from starvation, predation, and accidents is generally high during this period and has exceeded 70 percent in some studies. The timing of nesting and fledging varies with latitude and elevation. Most spotted owl pairs do not nest every year, nor are nesting pairs successful every year. One to four (usually two) eggs are laid in the early spring and hatch about a month later. During incubation, the male typically does most of the foraging and brings food to the female and the young owlets. At three to four weeks of age, the owlets are able to perch away from the nest, but still depend on their parents for food.

Spotted owls are territorial, and the median size of their annual home range varies from 2,955 acres in the Oregon Cascades to 14,211 acres on the Olympic Peninsula. Home ranges of adjacent pairs of owls overlap, suggesting that the defended area is smaller than the area used for nesting. The portion of the home range used during the breeding season (approximately 1,000 acres) is smaller than that used for the remainder of the year.

Habitat

Northern spotted owls generally inhabit older forested habitats that contain structures and characteristics required for nesting, roosting, and foraging. Preferred habitat is characterized by forest stands with moderate to high canopy closure (60 to 90 percent), which provides thermal cover and protection from predators; multi-species canopies of several tree species of varying size and age, but with large overstory trees; large standing and fallen dead trees; high incidence of large trees with various deformities; and, sufficient open space among the lower branches to allow flight under the canopy.

Foraging habitat is generally similar to nesting and roosting habitat, but it may not always support successfully nesting pairs. Dispersal habitat, at a minimum, consists of stands with

adequate tree size and canopy closure to provide protection from avian predators and at least minimal foraging opportunities.

Reasons for Decline

The three main threats to the spotted owl are competition from barred owls, past habitat loss, and current habitat loss. Barred owls reportedly have reduced spotted owl site occupancy, reproduction, and survival. Limited experimental evidence, correlational studies, and much anecdotal information all strongly suggest barred owls compete with spotted owls for nesting and roosting sites, and food, and possibly predate spotted owls. Because the abundance of barred owls continues to increase, the effectiveness in addressing this threat depends on immediate action.

In 1990, the USFWS estimated that spotted owl habitat had declined by 60-88 percent since the early 1880s, primarily due to timber harvest and land-conversion activities at lower elevations. Fragmentation of forests increased substantially at that time, up to a 500 percent increase in some areas.

Between 1994 (the time of adoption of the Northwest Forest Plan) and 2004, loss of spotted owl habitat from non-Federal timber harvest averaged 8 percent across the listed range of the species, with Washington experiencing a 12 percent loss. Meanwhile, loss of spotted owl habitat on Federal lands averaged 0.3 percent, with Washington experiencing only a 0.1 percent loss. Habitat losses due to natural events total about 0.1 percent of habitat in Washington, and are mainly due to wildfires (75 percent of natural event losses), followed by insects and disease. Very little loss from windthrow was reported during the 10-year period.

Conservation Efforts

Listing of the northern spotted owl as threatened and the designation of critical habitat are helping to reduce habitat loss on Federal lands. Although the need for timber necessitates continued harvesting, new forest management practices now stress restricted harvesting in old-growth forests.

In 1992, the USFWS designated nearly 6.9 million acres of critical habitat for the spotted owl, 2.2 million of which are in Washington.

In 1994, the USFWS, USFS, NPS, and BLM created the Northwest Forest Plan, a system of late-successional reserves (LSR) across the species' range that is designed to provide suitable nesting habitat over the long term. The Federal forest lands outside these reserves

are managed to allow dispersal between the LSRs through riparian reserves and other land allocations. After over a decade of monitoring we can't yet determine if implementation of the NWFP has reversed the spotted owl's declining population trend because not enough time has passed to provide the necessary measure of certainty.

On non-Federal lands, eight Habitat Conservation Plans have been completed in Washington that include spotted owl conservation. These HCPs generally are intended to provide demographic or connectivity support. In 1996, the Washington Forest Practices Board adopted rules that would contribute to protection of spotted owls on strategic areas of non-Federal lands. These rules were based in part on recommendations from a Scientific Advisory Group that identified important non-Federal lands and recommended roles for those lands in spotted owl conservation.

In 2004, the Fish and Wildlife Service completed a five-year review of the status of the northern spotted owl and concluded that the species continues to warrant the protection of the Endangered Species Act. A final revised Recovery Plan was completed in 2011.

References and Links

Regulatory Documents

[Final Listing Rule 1990, FR 55 26114](#)
[Proposed Critical Habitat 2012](#)

[Comparison and Overlap of Northern Spotted Owl and Marbled Murrelet Critical Habitat](#)

Documents

[Revised Recovery Plan 2011](#)
[USFWS Recovery Plan 2008](#)
[USFWS 5-Year Review 2004](#)
[Q & A for Critical Habitat Revision 2008](#)

Status Reviews

[Interagency Conservation Strategy](#)
[10-Year NWFP - Status and Trends of Populations and Habitats](#)
[SEI Scientific Status Review 2004](#)

Survey Protocols

[Survey Protocol 1992](#)

Other Northern Spotted Owl Websites

[USFS NSO Species Page](#)

[USFWS Endangered and Threatened Species Profile](#)

Northwest Forest Plan Information

[10-Year Report NWFP of Old-Growth Forests](#)

[Regional Ecosystem Office - NWFP](#)