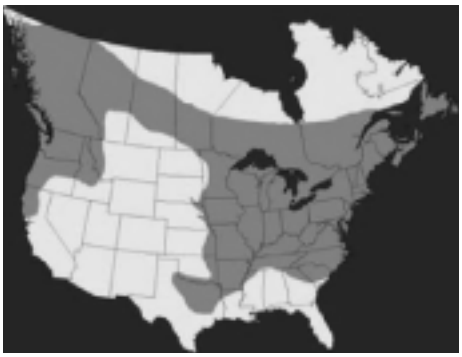
FYI INFORMATION

A Research Summary From the Washington Forest Protection Association

New Threat to Spotted Owl Comes Not from Human Causes, but from Competition with Larger and More Aggressive Barred Owl



Originally found only on the eastern side of the Rockies, the Barred Owl has been expanding its range over the last half-century. Shown in grey on the map, it is now found across the entire range of the Spotted Owl.

"It is clear that Barred Owls are competing directly with the Spotted Owls, and they're winning. They're able to reproduce successfully in a wider range of habitats, and utilize a greater variety of prey than the Spotted Owl."

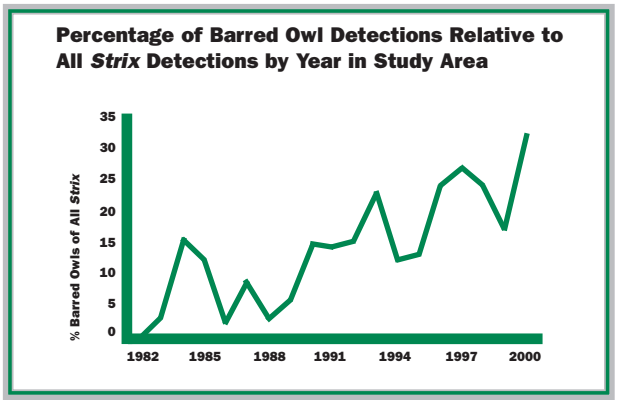
—Robert Pearson

Despite rigorous environmental protection measures implemented over the last decade that set aside millions of acres of forested habitat for northern Spotted Owl protection and drastically reduced timber harvest levels, a relatively new threat has emerged in recent years: the Barred Owl. Since the Spotted Owl was listed under the Endangered Species Act as a "threatened" species in 1990, comprehensive regulations and conservation measures such as the Northwest Forest Plan, Habitat Conservation Plans, state forest practices rules, and private-federal land exchanges have addressed the protection of Spotted Owl habitat, but recently the larger and more aggressive Barred Owl has begun to displace its gentler cousin in Northwest forests.

In their recent publication, which drew on nearly 25 years of data, Robert Pearson and Kent Livezey have discovered a decline in Spotted Owl populations in areas where Barred Owl populations have begun to increase. While many scientists predicted that the Spotted Owl population would go through a long-term decline before it stabilized, it has been more rapid and precipitous than anticipated in many areas where Barred Owls have intruded. The analysis of Pearson and Livezey, taken together with other work done in the Northwest, shows a potentially troubling increase in the ratio of Barred Owls to Spotted Owls, which has increased an average of 8.6 percent annually since 1978 in the Gifford Pinchot study area, and shows no sign of leveling off.

Barred Owls Gradually Displacing Spotted Owls in Study Area

Various studies have shown that the northern Barred Owl has been expanding its range across North America. Historically only found in the eastern half of the continent, the first Barred Owl documented in the West was in British Columbia, and the population has gradually worked its way southward. Pearson's and Livezey noted the first detection in Washington occurred in 1965, followed by sightings in Oregon in 1974, and



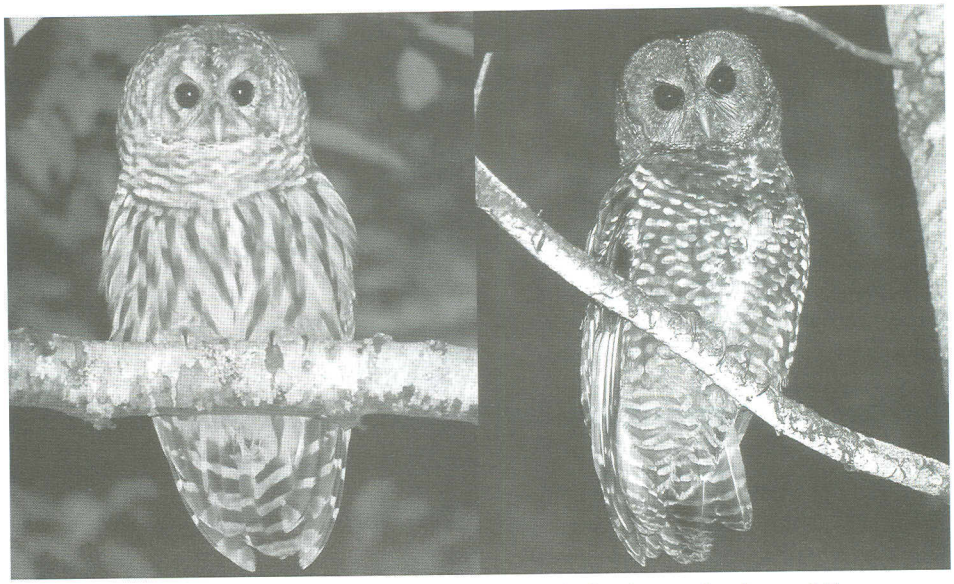
Robert Pearson's and Kent Livezey's study analyzed owl surveys from the last 25 years in the Gifford Pinchot National Forest. They found an average increase of 8.6% per year in the ratio of Barred Owls to Spotted Owls.

California in 1981.

Since 1978, Spotted Owl sites in the Gifford Pinchot National Forest have been monitored to assess the distribution, number, habitat associations and overall status of Spotted Owls. "These observations indicate Barred Owls are choosing to nest in the same habitat we've set aside for the Spotted Owls," said Livezey, a wildlife biologist with the U.S. Fish and Wildlife Service. "They are bigger, more aggressive, produce more young, and are simply taking over the best habitat."

A study by Elizabeth Kelly at Oregon State University shows that Spotted Owls and Barred Owls can occupy the same area if the overlap in their home ranges is not extensive. Kelly's study in Oregon and Washington shows that Spotted Owls will abandon a nest site if Barred Owls are within 500 acres (0.8 km radius) of their nest site, but they have been shown to coexist if farther apart.

According to Robert Pearson, who works as an independent wildlife contractor, research on the range expansion of the Barred Owl and its effect on the relationship between the two species is limited. "It is clear that Barred Owls are competing directly with the Spotted Owls, and they're winning," he said. "They're able to reproduce successfully in a wider range of habitats, and utilize a greater variety of prey than the Spotted Owl. In some instances, Barred Owls have been observed directly attacking Spotted Owls, apparently while competing for territory."



The Barred Owl (left) is readily identifiable by its vertical stripes on its chest, while a more horizontal pattern is visible on the northern Spotted Owl (right). The Barred Owl's aggressive nature and larger size—21 inches versus 17 inches—has enabled it to displace the Spotted Owl in most cases when they compete directly for territory. The Barred Owl also has other competitive advantages: it can inhabit a broader range of territory, has a more varied choice of prey, and reproduces more often and more successfully than the Spotted Owl.

Study Reveals Interesting Patterns in Owl Nesting Sites

Surveys have shown some interesting trends in both species' choice of habitat. The study area in the Gifford Pinchot National Forest is primarily Douglas-fir—with some hemlock, true fir, and western redcedar—more than half of it greater than 80 years old and considered to be good habitat for the Spotted owl.

The Barred Owl seems to move into lower-elevation areas first, preferring valleys and areas of gentle slopes. Spotted Owl sites that have remained occupied tend to be on the higher ground and steeper slopes. This is one reason for optimism, in Pearson's opinion. "One of the major sources of data is the survey required prior to any timber harvest. Many higher elevation areas, due to accessibility issues, have not been harvested and therefore never surveyed. I think there could be more Spotted Owls in those areas than people think."

Can Forest Management Help the Spotted Owl Recovery?

"There are a lot of things we still don't understand about both species' behavior," said Livezey. The most compelling need, he thinks, is a better understanding of their choices of habitat type. Although it has been widely held that Spotted Owls prefer old growth or late successional reserves in the Pacific Northwest, forest age class is only part of the story.

Multiple complex factors, such as prey base, amount of forest edge available for hunting, weather patterns, and predators all affect habitat suitability and productivity of owl populations. For example, occupied Spotted Owl nests actually outnumbered Barred Owl nests in areas that have allowed timber harvest under the Northwest Forest Plan. The reverse was true in areas reserved from harvest—late successional reserves, congressionally-reserved, and administratively-reserved areas—where Barred Owls outnumber Spotted Owls by a ratio of two to one. This suggests Spotted Owl site occupancy may be even more affected by the presence of Barred Owls than by age class of trees.

It's unclear without further study why this is occurring, in Livezey's opinion. He believes more research is needed. "We have, I believe, the most complete study done to date of unmarked Spotted Owls and Barred Owls in a large area," he said, "but there are large areas of federal land that haven't been surveyed at all in the last 10 years, and this needs to occur before more definitive conclusions can be drawn regarding habitat needs and preferences of the two species.

It is clear that the findings of Pearson and Livezey are garnering a lot of interest from professional foresters and others who are trying to ensure the continued survival of the Spotted Owl. Future policy, protection laws, and harvest decisions will depend on information from studies like this one. Adaptive management, as called for in the Northwest Forest Plan, will help to develop and test new management approaches and maximize our understanding of how forest practices can help to better provide for the needs of wildlife and create a healthy forest environment. ■

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