Frequently Asked Questions about Northern Spotted Owl Recovery

Barred Owl / Northern Spotted Owl Interaction:

What is known about the barred owl's movement into the northern spotted owl's range?

Barred owls are native to eastern North America. It is believed they began moving west of the Mississippi River around the turn of the 20th century. Barred owls reached the range of the northern spotted owl in British Columbia by about 1959, continued to expand southward, and were first documented in Washington, Oregon, and California in the 1970s. Barred owls now outnumber spotted owls in many portions of the latter's range.

The barred owl's movement could have been a natural range expansion or human-caused or a combination of both; no one knows why for sure, and we will likely never know. We do know that barred owls were not imported or spread by people, unlike many other encroaching or invasive species.

There are several theories about why barred owls progressively moved westward. The most common one is that it was caused by changes to the environment in the Great Plains as people increasingly settled there and dramatically altered the landscape. Things like fire suppression, the decimation of bison, and orchard planting may have altered natural barriers that previously inhibited the barred owl's cross-country migration and settlement into new areas.

What is known about the interaction between barred owls and northern spotted owls?

Barred owls are larger, more aggressive, and more adaptable than northern spotted owls. They displace spotted owls, disrupt their nesting, and compete with them for food. Researchers also have seen a few instances of barred owls interbreeding with or killing spotted owls.

The U.S. Fish and Wildlife Service has identified competition from barred owls as one of two main threats to the spotted owl's continued survival (habitat loss is the other).

The barred owl encroached into the spotted owl's range and rapidly expanded and increased in number especially over the last few decades. Barred owls now outnumber spotted owls in many portions of the latter's range. Researchers have seen strong evidence that spotted owl population declines are more pronounced in areas where barred owls have moved into their range. Declines are greatest where barred owls have been present the longest. We are concerned that the spotted owl is likely to go extinct in some parts of its range without barred owl population management.

Because the spotted owl is already struggling due to its reduced habitat, the effect of the barred owl's presence is like "adding insult to injury." An already vulnerable population has a much more difficult time withstanding dramatic changes in the ecosystem such as the encroachment of a competitor. A healthy population, on the other hand, has more flexibility to adapt to changes.

Until recently, most of the information on barred owl/spotted owl interactions was gathered incidentally from observations taking place in the course of other field research. Researchers' observations seemed to indicate that barred owl populations were increasing and causing harm to spotted owls, but they were only getting a sense of the trend, not comprehensive data. These observations eventually led to more specific research to study barred owl populations, the nature and magnitude of competition between the two species, and the impacts of the barred owl's presence on spotted owls.

What is the U.S. Fish and Wildlife Service doing about the barred owl threat to the northern spotted owl?

About one-third of the northern spotted owl recovery plan focuses on addressing the threat of the encroaching barred owl. The most significant effort is a proposal to conduct a barred owl removal experiment. An upcoming draft Environmental Impact Statement (EIS) for the experiment outlines options for removing barred owls from certain areas of the spotted owl's range to see if removing them would have a positive effect on spotted owls. If the experiment proceeds and the effects on spotted owls are positive, the U.S. Fish and Wildlife Service may consider the effectiveness and feasibility of barred owl removal on a broader scale. We would be required by the National Environmental Policy Act to initiate a separate process on any proposal to use barred owl removal as a management tool. (Also see: "**More information on the proposal for experimental removal of barred owls**" section for several additional FAQs on this topic.)

Another important effort related to barred owl management is the development of an updated survey protocol for the spotted owl. The survey protocol was first developed in 1992 to help guide forest management activities, but needed to be refined because the barred owl's presence suppresses spotted owl detection during audio surveys, an important tool for locating spotted owls.

Along with partners, we also designed a barred owl-specific survey protocol for locating barred owls that was later tested by field researchers. This is part of broader research currently underway that is helping us get a better sense of the occurrence and distribution of barred owls and the competitive interactions between barred owls and spotted owls.

More information on the proposal for experimental removal of barred owls:

What action is the U.S. Fish and Wildlife Service taking?

The U.S. Fish and Wildlife Service is releasing a draft Environmental Impact Statement (EIS) outlining options for experimental removal of barred owls from certain areas of the northern spotted owl's range to see if removing them would have a positive effect on spotted owls. Managing competition from encroaching barred owls is one of the main recommendations in the spotted owl recovery plan.

No policy decision is made by the draft EIS. The purpose of releasing the draft is to seek public review and comment on the various options relating to experimental removal of barred owls prior to making a policy decision. We will consider all public comments received, refine the proposal, and release a final EIS, probably by the end of the 2012.

The options we're considering include non-lethal and lethal methods of removal (non-lethal methods include capture and translocation or capture and permanent captivity). The draft EIS also includes a "no action" option. We have used non-lethal and lethal removal of wildlife as a management tool in many other situations where no other options existed to conserve an endangered species or species of concern. In this case, we are concerned that spotted owls are likely to become extinct in parts of their range without barred owl population management. Even with those high stakes, these are very difficult considerations and we do not take them lightly. All options are designed to minimize trauma, pain, and suffering.

The purpose of the experiment would be:

- To obtain and evaluate information on the effects of barred owls on spotted owl occupancy, survival, reproduction, and population trend through experimental removal;
- To determine the feasibility of barred owl removal; and
- To expeditiously develop information for potential decisions on future management of barred owls.

If the proposed experiment proceeds, it would give us valuable information about how barred owls impact the population growth and dynamics of spotted owls. The experiment would allow us to gather information without being excessive, helping to assess the efficacy and feasibility of barred owl population management. We hope to

determine whether the barred owl population could be managed to an extent that would allow the spotted owl a chance to rebound enough that the two species can eventually co-exist.

The draft EIS includes eight potential courses of action, called "alternatives," for public consideration, including one to take no action. Each alternative includes information on the experiment location(s), the estimated cost and duration, the approximate number of barred owls that would be removed, the potential effect on other species, and any potential social, economic, cultural, and recreational effects. If it proceeds, the experiment would take place over a period of 3-10 years (the duration varies in the different alternatives). The cost of the experiment would depend on the alternative chosen, but we estimate it would range from $1.2 million to $17 million.

The draft EIS proposes that experiment sites include one or more of the 11 "demographic study areas" where monitoring of spotted owl population dynamics has taken place for two decades, or other areas within the range of the spotted owl. Most proposed study areas for the experiment are focused on federal lands managed by the U.S. Forest Service, Bureau of Land Management, and National Park Service. One proposed study area includes the Hoopa Valley Indian Reservation in California. Interspersed state and private lands may occur within the boundaries of a study area but would only be included in the experiment with landowner permission. Each experiment site would include a treatment area where barred owls would be removed and control areas where they would not. This would allow comparisons of spotted owl data before and after removal.

Are there opportunities for public review and comment on the draft Environmental Impact Statement on experimental removal of barred owls?

Yes. The U.S. Fish and Wildlife Service encourages anyone with an interest in northern spotted owl recovery to provide comments on the draft Environmental Impact Statement (EIS). We will accept public comments for 90 days from the draft EIS's publication in the *Federal Register* on March 8, 2012. We will hold at least two public meetings at different locations within the range of the spotted owl in Washington, Oregon, and California. We will announce specific meeting locations and times in local news media outlets and on this website once they are arranged.

To submit written comments, please use one of the following methods, and note that your information request or comment is in reference to the Barred Owl Draft EIS:

- Email: **barredowlEIS@fws.gov**
- U.S. mail: Paul Henson, Field Supervisor, U.S. Fish and Wildlife Service, Oregon Fish and Wildlife Office, 2600 SE 98th Ave., Suite 100, Portland, OR 97266.
- In-Person drop-off, viewing, or pickup: Call (503) 231-6179 to make an appointment during regular business hours to drop off comments or view received comments at the above address.
- Fax: Paul Henson, 503-231-6195, Attn.: Barred Owl Draft EIS.

Is there evidence that barred owl removal might benefit northern spotted owls?

There are reasons to believe that removing encroaching barred owls may benefit northern spotted owls. This is part of what led the U.S. Fish and Wildlife Service to consider a scientific experiment to further study the effects of barred owl removal on spotted owls.

In 2006, the California Academy of Sciences obtained permits to collect 20 barred owl specimens in northern California. They collected barred owls from three sites formerly occupied by spotted owls on Green Diamond Resource Company's lands in coastal northern California. Spotted owls returned to all three sites after barred owls were removed. While only a small pilot effort, this indicates that spotted owls will re-occupy sites from which barred owls are removed, at least under some circumstances.

In addition, in southern British Columbia, where spotted owls are on the brink of extinction, the provincial government is undertaking an effort that involves protecting about a dozen known birds remaining in the wild, bringing a small

number of birds into captivity for a breeding program, and conducting a limited barred owl removal experiment. In 2007, the British Columbia natural resources agency began an effort to capture and translocate barred owls from about 10 sites historically occupied by spotted owls, but doing so proved extremely challenging. In 2009, the agency included lethal methods of removal. About 90 barred owls have been removed so far, and seven spotted owls that were not known to exist have returned to previously occupied sites, some as soon as a year after removing barred owls. Successful breeding also was observed following barred owl removal.

Did the U.S. Fish and Wildlife Service take ethical considerations into account when developing this proposal?

Yes. There is a chapter specifically devoted to ethical considerations in the draft Environmental Impact Statement (EIS) on experimental removal of barred owls to support northern spotted owl recovery.

As part of our spotted owl recovery plan implementation process, in early 2009, we established a Barred Owl Stakeholder Group. This group included representatives of broad-interest environmental organizations, bird-specific conservation groups, animal welfare organizations, the timber industry, tribes, state and local government agencies, and others.

The Barred Owl Stakeholder Group was one of a variety of sources of information that helped the U.S. Fish and Wildlife Service consider the ethical aspects of potential barred owl management decisions. To facilitate constructive group dialogue, we hired an environmental ethicist who helped all of us better understand the value conflicts embedded in environmental controversies. He also provided background information for exploring various ethical theories and moral questions to gain insight on a range of perspectives on wildlife-related ethics.

What are the removal methods the U.S. Fish and Wildlife Service is evaluating?

The draft Environmental Impact Statement (EIS) on experimental removal of barred owls to support northern spotted owl recovery evaluates the use of non-lethal and lethal methods of removal, and combinations of the two. Non-lethal methods could include capture and translocation or capture and permanent captivity. Capture would be conducted with tested techniques such as mist nets with decoys. Lethal methods would involve killing on site using a shotgun; this is considered the best way to minimize the potential for trauma, pain, and suffering because it is most likely to result in instantaneous death.

If the experiment proceeds, all barred owl removal would be conducted using methods that are as safe, humane, and efficient as possible. Every effort would be made to minimize the risk of unnecessary injury or trauma to barred owls and other species. A detailed description of the potential procedures is described in Appendix E of the draft EIS.

Is there potential for translocation of captured barred owls or placement in permanent captivity?

As part of assessing the feasibility of a potential barred owl removal experiment, the U.S. Fish and Wildlife Service has begun to explore options relating to translocation of captured barred owls or placement in permanent captivity.

We chose not to consider releasing captured barred owls in other areas of the Northwest. This was primarily because it could increase their population even more and lead to other problems, such as barred owl predation on other species that did not evolve with it. However, we have looked into translocating barred owls back to their historical range.

We contacted 29 state fish and wildlife agencies within the historical range of the barred owl about the potential for translocation of captured barred owls and their release into the wild. We also have initiated contact with zoos nationwide about the potential for placing captured barred owls in permanent captivity.

More than 20 state agencies have responded to our requests for assistance with this effort, but none was willing to accept barred owls from the Northwest. Their reasons included a lack of sufficient unoccupied habitat; concerns over dilution of local gene pools; potential conflicts with resident barred owls; disease or parasites; costs; and conflicts with other species. So far, we have heard from only a few zoos, and they indicated an interest in providing for permanent captivity for up to five birds.

We intend to continue exploring the feasibility of permanent captivity as we proceed through the EIS process.

If it proceeds, when would the barred owl removal experiment begin?

If the U.S. Fish and Wildlife Service moves forward with the proposed barred owl removal experiment to support northern spotted owl recovery, the soonest we would expect to take action would likely be late 2013. After the 90-day public comment period on the draft Environmental Impact Statement (EIS), we will review all public comments received and develop a final course of action. We would probably finalize an EIS by the end of 2012. Unless the "no action" alternative is chosen, survey work to locate barred owls could take place during the spring of 2013, and the first removal could begin later that year. We may be able to get an initial spotted owl population trend estimate after three years.

If it proceeds, where would the barred owl removal experiment take place?

If the U.S. Fish and Wildlife Service moves forward with the proposed barred owl removal experiment to support northern spotted owl recovery, study areas depend on which alternative is chosen out of seven outlined in the draft Environmental Impact Statement (EIS).

The draft EIS proposes that experiment sites include one or more of the 11 "demographic study areas" where monitoring of spotted owl population dynamics has taken place for two decades, or other areas within the range of the spotted owl. Most proposed study areas for the experiment are focused on federal lands (U.S. Forest Service, Bureau of Land Management, and National Park Service). One proposed study area includes the Hoopa Valley Indian Reservation in California. Interspersed state and private lands may occur within the boundaries of a study area but would only be included in the experiment with landowner permission. Each experiment site would include a treatment area where barred owls would be removed and control areas where they would not. This would allow comparisons of spotted owl data before and after removal.

Does the U.S. Fish and Wildlife Service plan to use barred owl removal as an ongoing management tool?

If the proposed experimental removal of encroaching barred owls proceeds, any decision on barred owl removal as a broader management tool to support northern spotted owl recovery would first depend on two things: 1) whether the experiment is effective, and if so, 2) whether it would be feasible to use the removal method(s) that were tested on a broader scale.

Even if the answer to both of those questions is yes, it doesn't necessarily mean the U.S. Fish and Wildlife Service would choose to employ broad-scale removal as a management tool. There would likely be other things to consider once we completed the experiment. If we did decide to pursue it, we would be required by the National Environmental Policy Act to initiate a separate process on any proposal to use barred owl removal as a management tool. The current proposal is only for the experiment to study the effects of limited barred owl removal on spotted owls.

Has the U.S. Fish and Wildlife Service used wildlife removal as a management tool in other situations?

There have been several occasions when the U.S. Fish and Wildlife Service found it necessary to carry out removal measures for one species to safeguard another species listed under the Endangered Species Act or a species of concern. Such measures are only considered when there are no other viable options. Even so, these are very

difficult considerations and we don't take them lightly. Our actions are always designed to minimize trauma, pain, and suffering.

Examples of the agency's use of removal as a management tool include: taking red-tailed hawks to help endangered parrots; taking brown-headed cowbirds to protect Kirkland's warblers and southwestern willow flycatchers; and taking several species of raptors to protect San Clemente Island loggerhead shrikes. In the Northwest, examples of removal measures taken to protect listed species include removing sea lions and Caspian terns to benefit salmon, and removing foxes, crows, and ravens to protect western snowy plovers.

What are some of the commonly cited scientific research papers relating to barred owls?

The following is a list (more references are included in the draft Environmental Impact Statement on experimental removal of barred owls in support of northern spotted owl recovery). Also see this **timeline** on the evolution of the barred owl threat, which summarizes the significance of this key research.

Anthony, R.G., E.D. Forsman, A.B. Franklin, D.R. Anderson, K.P. Burnham, G.C. White, C.J. Schwarz, J. Nichols, J.E. Hines, G.S. Olson, S.H. Ackers, S. Andrews, B.L. Biswell, P.C. Carlson, L.V. Diller, K.M. Dugger, K.E. Fehring, T.L. Fleming, R.P. Gerhardt, S.A. Gremel, R.J. Gutiérrez, P.J. Happe, D.R. Herter, J.M. Higley, R.B. Horn, L.L. Irwin, P.J. Loschl, J.A. Reid, and S.G. Sovern. 2006. **Status and trends in demography of northern spotted owls, 1985–2003**. Wildlife Monograph No. 163.

Buchanan, J.B., R.J. Gutierrez, R.G. Anthony, T. Cullinan, L.V. Diller, E.D. Forsman, and A.B, Franklin. 2007. **A synopsis of suggested approaches to address potential competitive interactions between barred owls and spotted owls**. Biol. Invasions 9:679-691

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

Dugger, K.M., R.G. Anthony, and L.S. Andrews. 2011. **Transient dynamics of invasive competition: barred owls, spotted owls, and the demons of competition present.** Ecological Applications.

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 40. Cooper Ornithological Society.

Gutiérrez, R.J., M. Cody, S. Courtney and A.B. Franklin. 2007. **The invasion of barred owls and its potential effect on the spotted owl: a conservation conundrum**. Biological Invasions 9:181–196.

Hamer, T.E. 1988. **Home range size of the northern barred owl and northern spotted owl in western Washington.** M.S. thesis, Western Washington University, Bellingham, WA.

Note: the citation for the published version of the above is:

Hamer, T. E., E. D. Forsman, and E. M. Glenn. 2007. **Home range attributes and habitat selection of barred owls and spotted owls in an area of sympatry.** Condor 109:750–768.

Kelly, E.G., E.D. Forsman, and R.G. Anthony. 2003. **Are barred owls displacing spotted owls?** Condor 105:45–53.

Olson, G.S., R.G. Anthony, E.D. Forsman, S.H. Ackers, P.J. Loschl, J.A. Reid, K.M Dugger, E.M. Glenn, and W.J. Ripple. 2005. **Modeling of site occupancy dynamics for northern spotted owls, with emphasis on the effects of barred owls.** Journal of Wildlife Management 69:918–932.

Singleton, P.H., J.F. Lehmkuhl, W.L. Gaines, and S.A. Graham. 2010. **Barred owl space use and habitat selection in the eastern Cascades, Washington.** Journal of Wildlife Management 74:285–294.

USFWS. 1989. **Status review supplement for the northern spotted owl**.

Wiens, J.D., R.G. Anthony, and E.D. Forsman. 2011. **Barred owl occupancy surveys within the range of the northern spotted owl.** Journal of Wildlife Management 75(3): 531-583.

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