Detection dogs spot northern spotted owls, even those alarmed by barred owls

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Max, a member of the University of Washington's Conservation Canines program, pauses after locating a northern spotted owl roosting in a tree in the Shasta-Trinity National Forest. Credit: Jennifer Hartman/U of Washington

A series of forest searches by dogs specially trained to sniff out northern spotted owl pellets – the undigested bones, fur and other bits regurgitated by owls – improved the probability of finding the owls by nearly 30 percent over a series of traditional vocalization surveys.

Since the 1980s scientists and land managers have relied on vocalization surveys that use simulated northern spotted owl calls to elicit owl

responses. As forests have been invaded by barred owls, which displace and even kill spotted owls, concerns have grown that spotted owls may be timid about responding to such vocalization surveys and may open themselves to attack if they do, said Samuel Wasser, University of Washington research professor and director of the UW Center for Conservation Biology.

"Wildlife managers spent years trying to get good forest practices in place that are contingent on spotted owl presence and now the invading barred owl is hindering our ability to show it's there," Wasser said.

"Vocalization surveys have a lot of value and by no means are we suggesting that the dogs should replace the vocalization surveys. But dogs can add value. The dogs have higher detection probabilities than vocalization surveys under some circumstances, can simultaneously detect spotted and barred owls and don't need owls to vocalize to be detected. The vocalization surveys have the advantage of being able to cover a much, much bigger area. The two together would be very complementary."

A comparison of the two approaches, published in a paper Aug. 15 in the Public Library of Sciences journal *PLOS ONE*, is based on work in the Shasta-Trinity National Forest in northern California.

UW researchers trained Shrek, a Labrador retriever mix, and Max, an Australian cattle dog mix, to locate owl pellets and feces of northern spotted and barred owls at the base of trees where the owls roost. Maps showing the habitat types were used to hone in on the best places to search for roosts. DNA analysis of the samples confirmed the species of owl.

The detection probability for northern spotted owls was 87 percent after three searches by the dogs compared to 59 percent after six vocalization

surveys following U.S. Fish and Wildlife Service protocols, nearly 30 percent better, Wasser said.

In the study area barred owls were relatively uncommon. The average detection probability was about 20 percent with the dogs compared to about 7 percent using vocalization surveys.

"This was a carefully planned study to try to make everything as equivalent as we could," Wasser said. "More work is needed to determine when the two methods work best together or if one is preferable over the other." The costs of the two approaches were roughly equivalent, he said.

Wasser's co-authors from the UW are Lisa Hayward, Jennifer Hartman, Rebecca Booth, Kristin Broms, Jodi Berg, Elizabeth Seely and Heath Smith, as well as Lyle Lewis, who is retired from the U.S. Fish and Wildlife Service, which funded the work.

"We have forest practices in place to benefit the spotted owl but some are saying, 'Look these restrictions didn't make any difference because the barred owl is just coming in and taking over,'" Wasser said. "We're at risk if we abandon the forest practices before we really have the numbers to understand the tradeoff between forest management and barred owls."

Provided by University of Washington