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Publication Brief
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Anticoagulant Rodenticides in Pacific Northwest Forest Owls

Researchers evaluated tissues from barred owls collected in Washington and Oregon to assess potential exposure of the Northern spotted owl and other old-forest wildlife in the Pacific Northwest to anticoagulant rodenticides (AR). They used ecologically similar barred owls as a surrogate species for the northern spotted owl, as the two species compete for space, habitat, and small mammal prey.

Recent studies in remote forests of California have shown AR contamination of the food web and transfer to sensitive forest predators, including the federally threatened northern spotted owl. The use of AR is widespread and information on exposure in northern spotted owls and other sensitive wildlife outside of California was lacking.

Barred owls were collected as part of a carefully controlled removal experiment to determine if reducing numbers of barred owls can benefit declining populations of northern spotted owls. These experimental removals have provided a unique opportunity to collect and analyze large numbers of tissue samples from free-ranging barred owls occupying a variety of forest types.

Researchers found high exposure rates, 38–64 percent, in free-ranging barred owls collected in older Oregon and Washington forests, often within close proximity to spotted owls. Both species were likely being exposed to ARs via secondary exposure from contaminated prey. Findings represent the first confirmed cases of rodenticide exposure in *Strix* owls in Washington and Oregon. Brodifacoum, an extremely toxic second-generation AR, was the most common rodenticide — detected in 89 percent of positive cases.

While this study did not identify pathways or effects of AR exposure, researchers demonstrate the potential threat for negative impacts to northern spotted owls. Although most detections of ARs were at trace levels, these results add to a growing list of studies showing that second-generation ARs, such as brodifacoum, may pose a persistent and widespread risk to sensitive forest wildlife.

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Management Implications

- Owl exposure to second-generation anticoagulant rodenticides was ubiquitous and the rates of exposure, 38–64 percent, were similar to or greater than rates reported previously in California.
- Forty-eight percent of the owls had been exposed to at least one type of rodenticide. Brodifacoum was the most commonly detected rodenticide, followed by bromadiolone, difethialone, and warfarin.
- This study, along with the earlier California study, indicate widespread exposure risk in old-forests used by spotted owls and other wildlife of conservation concern.

THIS BRIEF REFERS TO:
Wiens, J.D., Dilione, K.E., Eagles-Smith, C.A., Herring, G., Lesmeister, D.B., Gabriel, M.W., Wengert, G.M., Simon, D.C., 2019, Anticoagulant rodenticides in Strix owls indicate widespread contamination of west-coast forests: Biological Conservation, v. 238, p. online, https://doi.org/10.1016/j.biocon.2019.108238.