

# Amphibian Larva Occupancy of Inland Northwest Wetlands - Threat of Non-Native Fish

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Amphibians are the most endangered vertebrate taxa globally. Amphibian conservation and management strategies will benefit from understanding ecological and environmental variables that predict occupancy. We studied amphibian larvae occupancy in four ecoregions along a gradient extending from the Northern Rockies of western Montana to central Washington's Columbia River Basin. We used classification and boosted regression trees to evaluate the performance of 32 environmental variables in ecological models predicting occupancy of over 7000 amphibian larvae of 6 of the 10 species captured in 106 wetlands. We found that classification trees and boosted regression trees used 3-5 variables to correctly predict amphibian larvae occupancy in wetlands with relatively high accuracy (i.e., 62-99% correct classifications) for Long-toed Salamander (*Ambystoma macrodactylum*), Pacific Chorus Frog (*Pseudacris regilla*), Columbia Spotted Frog (*Rana luteiventris*), Barred Tiger Salamander (*Ambystoma tigrinum mavortium*), Northern Leopard Frog (*Rana pipiens*), and American Bullfrog (*Lithobates catesbeianus*). Qualitative models were used to describe the occurrence of the Sierra Chorus Frog (*Pseudacris sierra*), Western Toad (*Anaxyrus boreas*), Great Basin Spadefoot Toad (*Spea intermontane*), and Rough-skinned Newt (*Taricha granulosa*) due to their limited detection in our study. Occupancy of amphibian species varied among the species but often included landscape variables such as proximity to grasslands, forested or woodland areas, streams, and species assemblage. Across three of the four ecoregions, native amphibian occupancy was negatively associated with the presence of non-native fish. Our results suggest that non-native fish may depress native amphibian populations in inland northwest lentic wetlands.