Plethodontid Salamander Population Ecology in Managed Forest Headwaters in the Oregon Coast Range

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Poster Abstract

We examined temporal and spatial patterns of terrestrial amphibian species abundances and individual movements in western Oregon managed headwater forest stands using artificial cover object (ACO) arrays. Using mark-recapture methods, we estimated the effects of species and seasonality on apparent survival rates and recapture probabilities. We captured, marked, and released over 300 individual salamanders during 18 site visits between 2006 and 2009. These captures were dominated by three plethodontid species: Ensatina (*Ensatina eschscholtzii*), Western Red-backed Salamander (*Plethodon vehiculum*), and Dunn's Salamander (*P. dunni*). We observed 64 animals move between ACOs at least once with most salamanders moving between adjacent ACOs (<5 m), and the maximum distance traveled being 31 m (Ensatina). Although total captures were evenly distributed between near-stream (<15 m from stream edge) and upslope arrays (>15 m), species distributions differed with distance from stream, and most movement occurred in the near-stream arrays (<15 m from stream edge). Using the program MARK, the annual apparent survival rate for our dominant species was 0.63; however, recapture probabilities varied among species and between site visits. Our results have implications for the efficacy of forest management approaches to address ground-dwelling species with limited dispersal capabilities in headwaters: riparian corridors are frequently used by both semi-aquatic and upland species. Stream-to-ridgeline dispersal occurs, yet is less frequent, although our ACO design likely was restricted in its utility for monitoring plethodontid salamander movements.

Keywords: dispersal, movements, riparian, survival, recapture probabilities.

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