Amphibian Response to Management

Amphibian response to variable length riparian buffers in clearcut basins

**Presenter:** Aimee McIntyre  
**Presenter’s email and affiliation:** Washington Department of Fish and Wildlife; aimee.mcintyre@dfw.wa.gov  
**Additional coauthors:** Reed Ojala-Barbour, Timothy Quinn, Marc Hayes; Washington Department of Fish and Wildlife; Jay Jones, Andrew J. Kroll; Weyerhaeuser

In Pacific Northwest, amphibians are more abundant in headwater streams than in larger streams. Amphibians are sensitive to environmental change and are frequently the focus of research in headwater streams, as current forest management practices provide for less protection than for larger streams. We evaluated the effect of clearcut timber harvest in headwater stream basins on three stream-breeding amphibian groups in western Washington. We compared basin-wide timber harvest with variable riparian buffer treatments to unharvested reference basins. The three riparian buffer treatment configurations were no riparian buffer, and riparian buffer retentions of at least 50 percent and 100 percent of the stream length. We measured amphibian density before and after timber harvest. In the eight years following harvest, we observed substantial declines in larval coastal tailed frog density in all riparian buffer treatments, and declines in post-metamorphic tailed frog density in the 100 percent and 50 percent buffer treatments. We also observed a decline in torrent salamander density in the 50 percent buffer treatment. We did not observe a difference in giant salamander density among buffer treatments and the reference in the eight years following harvest. Continued monitoring is needed to verify whether our findings reflect longer-term trends.

Clearcut study site with a two-sided 50-ft riparian buffer along a minimum of 50% of the stream length (50 percent treatment); one of three variable riparian buffer treatments included in an evaluation of the effects of timber harvest on fishless headwater streams in western Washington.