

# Investigating the Distributional Limits of the Coastal Tailed Frog (*Ascaphus truei*) Near its Southern Range Terminus<sup>1</sup>

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## Abstract

Documenting species distribution patterns and habitat associations is a necessary prerequisite for developing conservation measures, prioritizing areas for habitat restoration, and establishing baseline conditions for long-term monitoring programs. The coastal tailed frog (*Ascaphus truei*) ranges from coastal British Columbia to northwestern California and is one of several species of co-occurring amphibians that breed in cold headwater streams. Several accounts of tailed frog distribution suggest that the species' range has been unchanged during the age of industrial timber harvesting. However, explicit knowledge regarding its historic distribution is incomplete as there are little published data to support contemporary delineations of its southern range boundaries in Mendocino County, California.

To address this knowledge gap, we initiated tailed frog distribution surveys on 90,157 ha of coast redwood (*Sequoia sempervirens* (D. Don) Endl.) and Douglas-fir (*Pseudotsuga menziesii* (Mirb.) Franco) forests managed for commercial timber production. From 2003 to 2011, 400 stream reaches were surveyed in 59 planning watersheds, including several in northern Sonoma County. Larval tailed frogs were detected in 82 reaches covering 16 planning watersheds, all located in Mendocino County. Based on these surveys, the southern and eastern limits of tailed frog distribution were Schooner Gulch (7 km southeast of Point Arena) and Elk Creek (11.4 km east of the Pacific Ocean), respectively. Because much of this region is privately owned, additional surveys in nearby streams and watersheds may be necessary to establish more definitive range boundaries.

Although distribution surveys were the primary focus of this project, we also evaluated environmental factors potentially influencing tailed frog presence/absence in a model selection framework based on the published literature. A total of 12 variables were measured, either in the field or using a GIS, to characterize habitat at survey locations. Preliminary results indicate that factors such as stream embeddedness, water temperature, and distance from the coast may not only be important predictors of tailed frog presence at a given location, but may also interact to ultimately limit their distribution within this region. We discuss these results further in light of data quality, analysis methods, and tailed frog biology.

**Keywords:** *Ascaphus*, distribution, range limit, redwood, temperature

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