

Sierra Nevada yellow-legged frog's site fidelity may lead to further decline

March 11 2010

USDA Forest Service researchers found that site fidelity, the tendency to return to previously occupied habitats, is strong in the Sierra Nevada yellow-legged frog. Research showed how the cumulative effects of a changing climate and introduced non-native trout are negatively impacting the habitat of a species already gone from 90 percent of its historic localities, and will further stress frogs with strong site fidelity.

In a 10-year study using mark-recapture methods, Kathleen Matthews and Haiganoush Preisler quantified site fidelity of the frogs in a high elevation basin of Kings Canyon National Park and found that frogs were returning to breed in lakes that dry up after low snowpack years, killing all tadpoles, or to lakes where predation by introduced non-native trout reduced breeding success of frogs.

Site fidelity is usually an effective life history strategy, allowing efficient relocation of important breeding, feeding and overwintering habitats. Because of their short active season (3-4 months) in high elevation streams and lakes of the [Sierra Nevada](#) Mountains, site fidelity of the yellow-legged frog was probably historically advantageous. However, if a site deteriorates or has a new disturbance, e.g. lake drying or introduced trout, then frogs are returning to sites that can no longer sustain their life stages.

The frog requires perennial water for successful tadpole development, which can take up to 4 years, so when a lake dries, up to four year-classes of tadpoles are lost. Currently in the study area, the largest,

deepest lake not susceptible to drawdown by snowpack variability is unfavorable for successful breeding because introduced non-native trout prey upon all life history stages of the frog.

The study notes that restoration projects that removed non-native [trout](#) respond with increased adult frog and tadpole abundance and underscores the need for incorporating site fidelity habits of this already imperiled [frog](#) into future restoration strategies.

More information: The full article published in the *Canadian Journal of Fisheries and Aquatic Sciences* titled "Site fidelity of the declining amphibian *Rana sierrae* (Sierra Nevada yellow-legged frog)" can be viewed at [www.fs.fed.us/psw/publications ... 2010_matthews001.pdf](http://www.fs.fed.us/psw/publications...2010_matthews001.pdf)

Provided by USDA Forest Service

Citation: Sierra Nevada yellow-legged frog's site fidelity may lead to further decline (2010, March 11) retrieved 26 April 2024 from <https://phys.org/news/2010-03-sierra-nevada-yellow-legged-frog-site.html>

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