

Determining Extent of Summer Amphibian Habitat in Sierra Nevada Meadows

Executive Summary

Amphibian species such as frogs and toads in California are in systematic decline, with numerous species on the Endangered Species List. Mountain meadows in the Sierra Nevada provide habitat and refuge for many of these species. Climate change places additional stress on these habitats though, altering the timing of snowmelt and causing additional heat and water shortage stress in the summers. This project proposes to explore the potential to use publically available satellite imagery to monitor changes in the ecosystem that may affect amphibians.

Specifically, this project seeks to answer whether amphibian habitat in meadows in California's Sierra Nevada Habitat can be detected using satellite imagery and whether the availability of the habitat throughout the summer in recent years declines faster than in prior years. I expect that due to the low-resolution of Landsat imagery relative to amphibian habitat, habitat will be difficult to detect directly from imagery, but a trained classifier using ground-truthed data collected by teams in my office may allow us to find habitat and detect changes throughout the summer. Further, I expect that habitat availability has declined more rapidly in recent summers, either as a result of climate change, or of the state's 4-year drought.

This executive summary is mostly a copy and paste of the introduction and expectations of the full proposal. That's OK – the intent isn't to make you do more work, but so you'll have a condensed version of your proposal that goes along with the rest of your work.