

The Headwaters Salamander Project: Citizen Science in Action

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The Headwaters Salamander Project is an ongoing collaborative effort utilizing citizen science, which can be defined as volunteer partnerships with scientists, to answer real-world questions in the Bureau of Land Management's (BLM) Headwaters Forest Reserve. The Project began in 2010 as a partnership between the BLM Arcata Field Office and East High School in Fortuna. The goals of the project are to monitor the health of old-growth redwood forest ecosystems, assess the impacts of restoration treatments like forest thinnings, promote scientific literacy, and cultivate connection with place. Salamanders were chosen as the Project's indicator of forest health because they are sensitive to changes in environmental conditions and are relatively easy to capture.

Students and teachers were involved from the beginning by helping design and fabricate the salamander coverboards and assisting BLM scientist mentors with installing them in the field. BLM scientists trained the students in procedures and protocols in order to ensure consistency between the different classrooms. To date student citizen scientists have monitored 23 different salamander coverboard sites across a range of conditions in Headwaters, including old-growth groves and second-growth forests. Students from East High School, and St. Bernard's Academy in Eureka, collect data in the field monthly, which includes recording the species of salamander and its mass and length. During a given academic year, each school takes 8-12 field trips which each include a 3-11 mile hike to access sampling sites.

The Project has proven to be a legitimate approach to scientific monitoring as well as an exciting way to teach others about science and the natural world. Students have built deeper connections with their community, cultivated a sense of belonging, recognized their own self-importance for the Project, and developed an understanding that research is not just for scientists with degrees. Long-term citizen monitoring continues to be used by the BLM to assess the effectiveness of our restoration treatments and to provide the basis for adaptive management of the Headwaters Forest Reserve.