

# Assessing climate change potentials in native plants on the Sierra National Forest

## 2009 Accomplishments

Funding for this project was initiated in 2009 to support the assessment of native plant climate performance across elevations on the Sierra National Forest. The annual plant, *Mimulus laciniatus* (Figure 1), is endemic to the Sierra Nevada, growing between 760 – 3,270 m. *M. laciniatus* has been sampled across the greatest climate gradient within the species range from each of 24 populations. Adaptations to climate are being examined within environmental growth chambers at University of California, Davis and at experimental climate gardens (Figure 2) under partnership with the US Forest Service and private land owners. Breeding among populations is also being tested for its effects on increasing performance in relatively warm and fast-drying climates. Additionally, genetic markers are being used to estimate natural migration potential among populations.

In 2009, approximately 10,000 plants were grown at low-, mid-, and high-elevation sites with the help of ten UC Davis student assistants and volunteers. Data processing and analysis on population-based performance at these sites is underway. Genetic analyses from more than 2000 plants are underway to assess gene flow and genetic diversity among study populations, and will continue through 2010.



Figure 2. High-elevation field experiment to assess elevation-based climate adaptations.

Year Awarded: 2009

Project completion: 2010

Report number: 1 of 2

Expenditures: \$15,000

Partners/Contractors/Cooperators: University of California, Davis



Figure 1. Cut-leaved monkeyflower, a Sierra Nevada endemic plant species.



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