

Sierra Nevada Native Grass Seed Zone Study

2008 Accomplishments

The Sierra Nevada Native Grass Seed Zone Study was initiated in 2003 to determine the seed zone for three native grasses, blue wild rye (*Elymus glaucus*), squirreltail grass (*Elymus elymoides*) and California brome (*Bromus carinatus*) in 15 field plots on the Plumas, Tahoe, Inyo, Eldorado, and Sierra National Forests in the Sierra Nevada Mountains to provide optimal growth and preserve genetic diversity.

In 2003, seed was collected for the study, grown into grass plugs in 2004 and planted in the fall of 2004 and spring of 2005. In 2005, data loggers were installed to measure air and soil temperature at all field plots, and survival data were collected at all field plots and in west side low and Inyo NF field plots, leaf length, culm height and number and damage data were collected. In 2006, leaf length, culm height and number and damage data were collected in all plots using BLM funding. Dr. Jay Kitzmiller analyzed the preliminary data from 2005 and submitted the Plumas NF Native Grass Seed Zone Study for publication in Native Plants Journal.

As part of a collaborative CESU study, Dr. Kitzmiller and Dr. Kevin Rice (UC Davis) consulted on the overall analysis of the data from all 15 field plots, and Dr. Kitzmiller produced a draft report that established seed zones for the three grass species. Dr. Rice, along with co-authors Dr. Kitzmiller and USFS Botanist Linnea Hanson, will present the Plumas results at an upcoming January conference. In addition, these important results will be published in a peer-reviewed journal such as Restoration Ecology.

During the summer of 2008, Dr. Kevin Rice from UC-Davis re-surveyed plants from a subset of the gardens to establish long term demographic monitoring. In addition, over 600 plants were measured for stomatal conductance in order to better understand the physiological basis for local adaptation in these species.



Figure 1. Undergraduate student intern Carmen Cortez (UC-Fullerton) and graduate student Chris Mallek (UC-Davis) measuring plants at the El Dorado Forest seed zone common gardens.



Figure 2. Seed zone common garden at Mammoth Lakes

Year Awarded: 2008

Project completion: 2008

Report number: 4 of 5

Expenditures (through 10/2008):

- **Total funding expended \$25,100 (researchers);**
- **\$19,000 (forests)**
- **\$0 total remaining**

Partners/Contractors/Coop:

CESU Joint Venture Agreement with
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