

Global Research Initiative in Alpine Environments: A New GLORIA Site in Southwestern Montana

Details

Meeting	2007 Fall Meeting
Section	Global Environmental Change
Session	Climate Change in High-Elevation Mountain Environments IV Posters
Identifier	GC41A-0119
Authors	Apple, M E, Biological Sciences, Montana Tech of the University of Montana, Butte, MT 59701, United States Pullman, T Y, Biological Sciences, Montana Tech of the University of Montana, Butte, MT 59701, United States Mitman, G G*, Biological Sciences, Montana Tech of the University of Montana, Butte, MT 59701, United States
Index Terms	Global change from geodesy [1225] Abrupt/rapid climate change [1605] Impacts of global change [1630] Regional climate change [1637] Instruments and techniques [1694]

Abstract

Global climate change is expected to have pronounced effects on the alpine environments and thus the alpine plants of western North America. Predicted responses include an upward migration of treelines, altered species compositions, changes in the percentage of land covered by vegetation, and a change in the phenology of alpine plants. To determine the effects of climate change on the alpine flora of southwestern Montana, we are installing a GLORIA (Global Research Initiative in Alpine Environments) site in order to monitor temperature, species composition, and percent cover of vascular plants, lichens, and mosses along an ascending altitudinal gradient. We are including lichens and mosses because of their importance as ecological indicator species. The abundance and spatial distribution of lichens and mosses provides essential baseline data for long-term monitoring of local and global impacts on the environment. Mt. Fleecer (9250 ft.), which is west of the continental divide and semi-isolated from other peaks in the Anaconda-Pintlar Range, is currently the most likely location for the southwestern Montana GLORIA site. Mt. Fleecer is accessible because it does not have the steep and hazardous glaciated talus cirques that characterize many of the neighboring, higher peaks. However, if an accessible and suitable higher summit is found, then it will be included as the highest summit in the GLORIA site. Interesting species at Mt. Fleecer include the whitebark pine, *Pinus albicaulis*, which is a keystone species in high mountain ecosystems of the western United States and Canada, the green gentian, *Frasera speciosa*, and the shooting star, *Dodecatheon pulchellum*. Data from this site will become part of a global network of GLORIA sites with which we will assess changes in alpine flora. Information gained from this GLORIA

site can also be used as a link between studies of alpine climate change and related investigations on the timing of snowmelt and its influence on riparian ecosystems in western Montana.

Cite as: Author(s) (2007), Title, *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract GC41A-0119