

AAG 2005 in Denver

**Abstract Title:**

*Monitoring Alpine Plants in the Crown of the Continent Ecosystem: The Glacier National Park GLORIA Project.*

is part of the Paper Session:

**The Crown of the Continent Ecosystem: New Insights from Recent Research – I**

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**Author(s):**

Ms. Karen Holzer - US Geological Survey

Daniel Fagre, Ph.D - US Geological Survey

**Abstract:**

The Global Observation Research Initiative in Alpine Environments (GLORIA) is an international research network whose purpose is to assess climate change impacts on vegetation in alpine environments worldwide. A standard protocol was developed by the international office in Vienna, Austria, and has specific site requirements and techniques allowing sites to be compared worldwide. This protocol requires four summits to be selected within a target region, covering zonal differences of subalpine to nival, and on each of these summits intensive vegetation plots are set up and monitored on a five year interval. Three target regions in North America have been completed to date, one in Glacier National Park, Montana, and the other two in the Sierra Nevada and White Mountains, California. The four summit plots in Glacier National Park were completed over the summers of 2003 and 2004. Treeline is strongly influenced by terrain and is more variable than in the central Rocky Mountains. This also was true of zonal differences of alpine vegetation. Subalpine and grassland species were found on the same summits as upper alpine species and subnival areas. While different zonal areas often occurred on one summit, they were highly influenced by the aspect and slope of that summit area. Between 51 and 82 vascular plants were documented on each summit. There was a high degree of variability in species diversity and percent cover on each summit that was correlated to directional exposure. The summit morphology caused loose vegetative associations that varied with exposure, slope angle, and substrate.

**Keywords:**

mountains, vegetation plots, climate change