

PLANT INVASIONS INTO MOUNTAINS

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ABSTRACT

Across North America and around the globe, mountain ecosystems are increasingly threatened by invasive plants and research is urgently needed to understand this problem. In 2005, an international research network was established to address the issues of plant invasions into mountains. The Mountain Invasions Research Network (MIREN) addresses the problem of plant invasions in mountain regions, using mountains as model study systems for research into the mechanisms of plant invasions, particularly under the conditions of global climate change. MIREN aims to respond to management needs to conserve the unique ecosystems of high mountains as well as to general research needs to understand the mechanisms behind plant invasions. High mountains vary greatly in structure, climate, and vegetation although all show strong environmental gradients that affect plant invasions. MIREN analyzes the changing patterns and processes along these gradients to gain a deeper understanding of plant invasions. Six core mountain regions, including two locations in North America, are currently participating in standardized baseline screening and monitoring and in standardized comparative experiments. These core mountain regions cover the major climatic zones and include island and continental systems. MIREN is responding to the

increasing needs for managing plant invasions into mountains by

- Developing mechanistic understanding for efficient control
- Providing reference databases on mountain plant invasions
- Facilitating exchange of expertise
- Providing specific management guidelines

Preliminary results of the standardized baseline screening have found more than 400 species of non- native plants in core regions. Eighty species were found in more than one region. Monitoring efforts that are underway may help gauge the relations of climate change in mountain ecosystems. Global warming is expected to weaken the abiotic resistance of mountain ecosystems to plant invasions. Generally, an increase in temperature and growing season and correspondingly a decrease in frost and snow cover frequency and duration are predicted for mountains around the world. These conditions will favor native and non-native lowland plants and threaten native high elevation mountain plant communities. For more information on non-native plant invasions into mountains, see the Mountain Invasions Research Network <http://www.miren.ethz.ch>.