

>> SYNTHESIZE MOUNTAINS OF KNOWLEDGE <<

Submitted Abstract

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Abstract

We are facing a monumental biodiversity crisis where a human-caused sixth mass extinction is taking place. Mountain ecosystems are increasingly under threat from climate change, non-native species introductions, resource extraction, and other anthropogenic pressures. These ecosystems are classified by their prevailing climatic conditions and are characterized by perennially cold temperatures and winter snow cover. Mountain ecosystems are particularly vulnerable to global change because they are home to highly adapted species that are limited in their ability to cross biogeographic barriers for migration to new suitable environments. Thus, species and habitat monitoring are the key components that allow scientific evaluation of the state of mountain biodiversity and are the basis of adaptive management decisions.

Developing an effective biodiversity monitoring program in mountain protected areas involves a holistic approach considering environmental, social, and economic factors. We propose using the Monitoring Global Guideline (MoniGloG) as a unified framework for monitoring. This framework includes determining background site information, goals and legal obligations, as well as assessing key questions to systematically establish how monitoring should proceed. Critical to the framework is participation of diverse stakeholder groups. Support from indigenous groups and local residents allows for program acceptance. Integrating traditional knowledge, communities, and local actors will pinpoint areas of interest for local conservation.

To deliver scientific and quantitative information about the state of mountain ecosystems, and to best inform environmental policies, communication of findings to different end-user groups requires knowledge transfer in various formats. Outreach can involve direct engagement of visitors through citizen-science initiatives. To reach the scientific community and policy-makers, we advocate submitting data and reports in open-access repositories. Reporting in specific formats may be further required by regional or national protected area networks.

We present a comprehensive overview of the MoniGloG, including checklists for data acquisition, analysis, and storage, with a focus on communication of findings to the diverse stakeholders involved in mountain protected area management plans.