

World spotlight on mountain biodiversity

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Experts and officials from the 187 Parties to the Convention on Biological Diversity met in Montreal, Canada from March 10-14 to assess the current status of mountain biological diversity, as well as the human pressures on mountain ecosystems. Mountains cover one-fourth of the Earth's surface and are home to one-eighth of the human population. Half of humanity relies on mountain ecosystems for fresh water, a fact that makes mountains particularly important from a political perspective. Mountains also harbor a significant portion of the world's biodiversity.

"Many species that have become extinct in lowlands due to human activities are now surviving in mountain regions; others exist only in mountain areas, which harbor a richness of plant and animal species adaptable to various altitudes and climates. Overlooked for many years, the important role that mountains play, together with their inhabitants, in preserving this biodiversity, has now come to the world's attention," said Klaus Töpfer, Executive Director of the United Nations Environment Programme.

Why should we care about mountain biodiversity? Christian Körner of the Global Mountain Biodiversity Assessment and keynote speaker at the meeting explained that plant diversity holds steep mountain soils in place, keeping water flows clean and ecosystems healthy. As part of our natural and cultural heritage, biodiversity has both ecological and aesthetic value. Mountain biodiversity provides medicines, fiber, and food security to upland and lowland communities. "We have an ethical responsibility to maintain this treasure for future generations," stated Körner.

"Of the twenty plant species that supply most of the world's food, six originate in mountains," said Thomas Hofer of the United Nations Food and Agriculture Organization. "Among them the potato first appeared in the Peruvian Andes, maize in the Sierra of Mexico and sorghum in the highlands of Ethiopia. The reserves of genetic diversity found in mountains ensure our food, farm power and transport, clothing and energy for the future. Yet, these mountain ecosystems are generally fragile. Each day armed conflict, poverty, hunger,

climate change and environmental degradation threaten the extraordinary web of life that mountains support."

Recognizing the serious consequences that the loss of mountain biodiversity might bring to the world's biological diversity and food security, the United Nations declared 2002 the International Year of Mountains, in order to raise awareness and elicit action on this issue. "Before the Year, many people wondered why mountains - symbols of strength and stability - were in need of an international year. Now, thanks to a global awareness-raising campaign, many around the world have heard the message that mountains are crucial to all life on earth," said Hofer.

"Mountain people live in areas rich in biodiversity, but they are amongst the world's poorest and most food insecure. Despite the fact that these mountain people are the primary managers of this biodiversity, they rarely profit from the resources being extracted or the services they provide. Marginalized and living in isolated landscapes, far from centers of commerce and power, many mountain people have little influence over the policies and decisions that affect their lives," Hofer continued.

How can we move forward? One way is to tap mountain people's traditional knowledge, experience, and expertise in mountain biodiversity, much of which is held by women. Most delegates agreed that there is a need to develop policies that acknowledge, support and compensate mountain people in their roles as the primary guardians and providers of mountain biodiversity.

Some countries are already moving forward with this agenda. The Alpine Convention provides legal support to mountain communities and ecosystems in the eight countries of the European Alps. Similar conventions are under consideration in the Altai, Carpathian and Caucasus mountain ranges. Mountain laws that recognize the special management needs of fragile upland environments and economically disadvantaged populations are in force in twelve countries, and new legislation to safeguard mountain people and environments has been drafted in five more. For example, the Swiss mountain law provides direct payments to mountain farmers who manage their steepplands according to sustainable uses as defined by slope and land classification. In North Ossetia-Alania, part of the Russian Federation located in the Caucasus mountains, a 50% tax reduction is granted to public enterprises that choose to establish themselves in mountain regions. In Australia, land use planning is based on 60 catchment areas that cover the entire continent, bringing upland-lowland interests within each watershed into immediate negotiation.

Programme of Work

This eighth meeting of the Convention's Subsidiary Body on Scientific, Technical and Technological Advice assessed the current status, trends, and threats to mountain biodiversity worldwide. Armed with this knowledge, the meeting proposed a programme of work on mountain biological diversity.

The goal of the programme of work in mountain biodiversity is to promote the implementation of the overall objectives of the Convention on Biological Diversity in natural and man-modified mountain ecosystems. The elements of the programme of work cover three main issues:

- a. Conservation, sustainable use, and benefit-sharing. Reduce or mitigate the impacts of threatening processes on ecosystem function, with special consideration of sustainable use in high-elevation low-elevation linkages;
- b. Institutional and socio-economic enabling environment. Activities aimed at strengthening the institutional and socio-economic atmosphere in order to ensure implementation of the proposed activities;
- c. Monitoring and assessment. Evaluate the impacts of climate-change on high-elevation specific biodiversity, and ecosystem functioning. Develop valuation systems of high-elevation mountain ecosystems with emphasis on linkages to low-elevation areas.

Five Key Mountain Issues

In addition to this general programme of work, the meeting identified five main issues of specific relevance to mountains for action:

1. High vulnerability to human and natural disturbances, and low rates of ecosystem recovery following these disturbances. Suggested actions: monitoring and assessment of mountain environments, threats to pollution, and hazardous areas most vulnerable to erosive processes and other natural perturbations. Studies on land-use zoning. Protection of unique, fragile mountain ecosystems. Identification of suitable interventions for accelerating ecosystem restoration processes.
2. High degree of ecological and human connectivity to lowland areas, with particular reference to water resources. Suggested actions: promotion of integrated watershed management practices at the local, national, and regional levels: soil, water, and agricultural management, restoration of degraded areas, promotion of diversification of income-generating activities. Assessment of effects of climate change on upland sources of freshwater. Assessment of pollutants from distant sources. Development and conservation strategies on an upstream-downstream basis, and introduction of compensation mechanisms for goods and services. Integration of biodiversity protection into main productive sectors of the economy.

3. High levels of crop genetic diversity, and also a high potential for diversification of agricultural varieties. Suggested actions: activities aimed at maintaining the exceptional agrobiodiversity of mountain regions both for meeting current demands and as an adaptation measure to climate change.
4. Exceptional levels of human cultural diversity. Suggested actions: decentralization, encouraging full participation and involvement of local communities in decisions that affects them. Improvement of local livelihoods, maintenance of cultural self-determination and traditional beliefs.
5. Relatively higher abiotic and biotic susceptibility to climate change than lowland areas. Suggested actions: landscape planning of protected areas (to allow migration). Development of monitoring systems based on identification of key abiotic and biotic indicators of changes in ecosystem structure and function. Development of adaptation measures to alterations in hydrologic regimes in lowland areas.

Technologies

The meeting recommended a set of technologies, including biotechnology and traditional knowledge, relevant to the conservation and sustainable use of biodiversity. They were organized under three themes. The first theme "knowledge, assessment and monitoring" recommended ground-based assessments such as environmental impact assessments and forest inventories, remotely sensed assessments, indicator-based monitoring such as stream sampling or canopy measurements, geographic analysis (e.g. spread of invasive species), and statistical analysis (e.g. correlating annual counts of rock hyraxes with the number of giant groundsels in a particular Afroalpine environment).

Recommended technologies in the second theme of "conservation, sustainable use and benefit-sharing" focused on integrated and sustainable management of pests, forests, water, and soils. The third theme "institutional and socio-economic enabling environment" recommended the use of Internet-based and wireless information and communication technologies leading to greater access to information, transparency of decisions, and participation in democratic processes. The participants endorsed the clearing-house mechanism of the Convention as an important medium for exchange of information on technologies.

In addition to adopting the above programme of work, the SBBSTA encourages relevant organizations to include mountain biological diversity in their assessments, develop activities aimed at improving monitoring and evaluation of mountain biodiversity, including ecological functions, valuation of ecosystem services, impacts of climate change on biotic and abiotic components, and development of sustainable management practices, including tourism.

Other key issues addressed by the meeting included inland water ecosystems, marine and coastal biological diversity, dry and sub-humid lands biodiversity, biological diversity and tourism.

The Convention on Biological Diversity is the main international instrument for policy-making and implementation relating to the conservation and sustainable use of biological diversity. It fosters scientific and technical cooperation, equitable sharing of the benefits from the use of genetic resources, and widespread use of environmentally sound technologies. It is the first global agreement to cover all aspects of biological diversity - genetic resources, species and ecosystems - and the first to recognize that the conservation of biological diversity is a common concern of humankind and an integral part of efforts to achieve sustainable development.

More Information:

Meeting documents are available on the Convention on Biological Diversity website at <http://www.biodiv.org>

Information on mountain biodiversity is available from the Global Mountain Biodiversity Assessment at: <http://www.unibas.ch/gmba/>

General information about mountain issues and action is available on the following websites:

- International Year of Mountains <http://www.mountains2002.org>
- Mountain Forum <http://www.mountainforum.org>

Notes to readers

This is a report from the Eighth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice of the Convention on Biological Diversity. 10-14 March 2003.

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