

THE ALPINE CONSERVATION PARTNERSHIP

A global initiative to protect and restore alpine ecosystems.

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Relentless harvesting of shrub juniper and dwarf rhododendron by lodges during the past 10 years has had severe impacts on the alpine ecosystems of the upper Hinku Khola valley in Makalu-Barun National Park and Buffer Zone, Nepal. In May 2007, however, lodge owners agreed to ban the harvesting of juniper following a meeting with the Mountain Institute and national park representatives. *Alton Byers*

Alpine ecosystems, gateways to the world's highest summits, are among the world's most beautiful and important landscapes. They are characterized by low-growing shrubs, cushion plants, and grasslands adapted to the harsh, high-altitude climate between the upper treeline and permanent snowline. Covering just three percent of the Earth's surface, they contain over 10,000 species of plants, the highest biodiversity per unit area of any ecosystem in the world. They are also critically important to millions of people in the lowlands as sources of fresh water for drinking, agriculture, and hydropower.

Compared to rainforests, oceans, and coastal regions, however, alpine environments throughout the world have been neglected by the international conservation community, possibly because of their remoteness, high altitudes, harsh climates, and extremely difficult travel and working conditions. They are nevertheless exceptionally fragile ecosystems, characterized by young and thin soils, slow plant growth cycles, and a lack of resiliency, where even minor forms of disturbance can take decades to heal.

During the past 30 years, devastating but often insidious human and domestic-animal impacts have occurred throughout the world's alpine ecosystems. Alpine environments are being rapidly transformed into high-altitude wastelands by overgrazing, overharvesting of fuelwood, uncontrolled lodge construction, and other impacts. In response, in early 2007 the American Alpine Club (AAC) and the Mountain Institute (TMI) launched a pioneering project designed to reverse these trends: the Alpine Conservation Partnership (ACP).



This project's genesis dates back to 1984, when I spent a year living in Khumjung village in Nepal, measuring soil erosion and studying landscape change between Namche Bazaar and Dingboche. Surprisingly, I found that most hill slopes below 4,000 meters were stable, but those above 4,000 meters were losing tons of soil to erosion, for reasons that I didn't entirely understand. In 1995, I replicated hundreds of historic photographs and found that, while there were more trees in 1995 than in 1961, more than 50 percent of the shrub juniper in the Dingboche region had been removed.

In 2001, we followed up this work by conducting the first detailed study of contemporary human impacts in the upper Imja Khola and Gokyo valleys of Sagarmatha (Mt. Everest) National Park in Nepal. We found that the typical tourist lodge, of which there are dozens throughout the alpine zone, had dozens of cords of shrub juniper stacked outside, each piece typically taking 175 years to grow to a diameter of only 2 centimeters. Up to 50 percent of the typical groundcover plot we sampled was bare during times when a continuous cover of herbs and grasses should have been found.

In addition to demonstrating their awareness of these growing problems, the local Sherpa voiced a strong desire to take action to protect and restore their fragile alpine ecosystems. They specifically recommended a community-based project that would give them the chance to educate all stakeholders about these problems, including climbers, trekkers, development agencies, and lodge owners. They also hoped to introduce alternative fuel and energy sources and to establish exclosures, similar to those constructed near Namche Bazaar by the Himalayan Trust, that would allow the land to heal itself.

The Everest Alpine Conservation and Restoration Project officially launched in Nepal in 2003 with a \$21,000 start-up grant from the AAC that was subsequently matched by over \$100,000 from conservation organizations (e.g., the National Geographic Society), governments (e.g., the U.S. Agency for International Development), foundations, and private individuals.

Since its formation, the Everest project has:

- Established the Khumbu Alpine Conservation Council (KACC), the world's first alpine NGO committed to protecting and restoring high-altitude ecosystems
- Saved more than 80,000 kilograms of fragile shrub juniper per year that was formerly used for fuelwood
- Banned the burning of shrub juniper as incense at the Everest base camp
- Established a kerosene and stove depot as alternative fuel for tourists and lodges
- Restored a porters' rest house in Lobuche to provide shelter, warmth, and cooking facilities, thereby decreasing porter dependence on local shrubs for fuelwood
- Developed new curricula for local schools
- Begun actively restoring revegetated hill slopes by building high-altitude nurseries and cattle-proof demonstration exclosures.

In February 2006, the KACC received a \$50,000 capacity-building grant from the United Nations Development Programme/Nepal that will strengthen its ability to sustain the Everest project. And in January 2007, the Alpine Conservation Partnership was officially launched with a \$150,000 grant from the Argosy Foundation. Now the ACP will begin expanding the conservation success in the Everest region to alpine regions worldwide.



Over the next 10 years, the community-based models of alpine conservation developed in the Everest region will be adapted, modified, and applied to priority alpine ecosystems throughout the world that include the Gokyo and Thami valleys in Sagarmatha National Park (an expansion of the existing activities); Mera Peak in Makalu-Barun National Park (TMI conducted a detailed survey of this heavily impacted area in May 2007); Huascarán National Park, Peru (activities in the Ishinca and Pisco valleys are scheduled to commence in June–July 2007); and the Baltoro and Biafo glacier regions, Pakistan. Patagonia Inc. recently provided a generous grant to the project that will assist the Patagonia National Park authorities in Argentina with the conservation of heavily impacted backcountry sites there. Phase II (2012–2017) could expand the project even more, with prospective work sites including the Wind River Range, Wyoming; Aconcagua National Park, Argentina; Kilimanjaro National Park, Tanzania; Mt. Kenya National Park, Kenya; and Belukha Nature Park, Russian Altai.

The continued refinement of the Everest model will represent a major contribution to the field of high-altitude conservation and adventure tourism management in general. For example, while recent research suggests that the impacts of poor alpine ecosystem management are nearly identical worldwide, it is clear that the causes will differ on a case-by-case basis, thus demanding a scientific understanding of the real threats before prescribing solutions. Linking conservation with real improvements in local people's livelihoods, and building their capacity to manage and sustain conservation/livelihood projects themselves, will be critical to achieving the long-term objectives of the project.

Additional benefits and opportunities related to the project could include internships for young AAC members to work with the various alpine conservation and restoration projects; "green guide" training for climbing guides throughout the mountain world; workshops on themes such as conservation-linked mountaineering expeditions and high-altitude sanitation technology; and the development of new partnerships among scientific, educational, and conservation organizations, international mountaineering clubs, and the private sector.

In summary, the Alpine Conservation Partnership represents an unprecedented opportunity for the AAC, TMI, and other partners to play a lead role in the hands-on conservation of the world's fragile and rapidly deteriorating alpine ecosystems. Our goal is to leave a legacy that will be unmatched in the history of conservation projects initiated by mountaineers.

A NOTE ABOUT THE AUTHOR:

Alton C. Byers, Ph.D., is director of the Research and Education Program at the Mountain Institute (www.mountain.org). In February 2006, he received the AAC's David Brower Conservation Award. In March 2007, he received the Sir Edmund Hillary Mountain Legacy Medal for "remarkable service in conservation of culture and nature in remote mountainous regions."