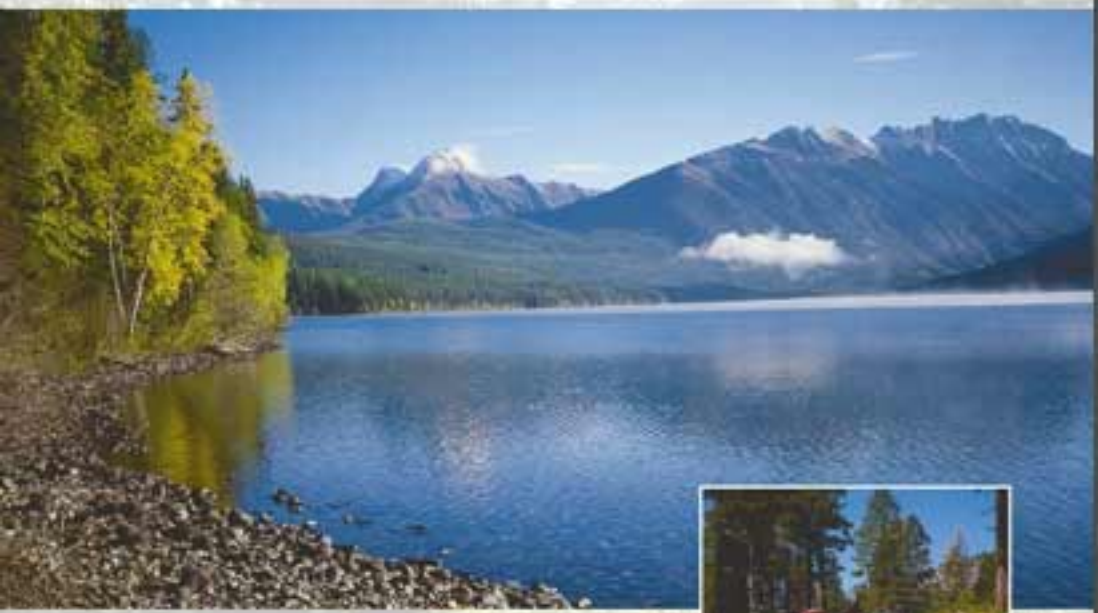
INTERNATIONAL

Journal of Wilderness



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Front cover photo of colorful autumn foliage, looking towards Kintla Lake in Glacier National Park, Montana, USA and the inset photo of hikers enjoying the trail © 1999 by Dave Spildie, Aldo Leopold Wilderness Research Institute. Background mountain image © 1999 by John Foxx Images.

International Journal of Wilderness

The *International Journal of Wilderness* links wilderness professionals, scientists, educators, environmentalists, and interested citizens worldwide with a forum for reporting and discussing wilderness ideas and events; inspirational ideas; planning, management, and allocation strategies; education; and research and policy aspects of wilderness stewardship.

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Editorial Perspective

Wilderness: Reigniting the Passion!

BY MARGARET PETERSEN

It wasn't that I had meant to think about it, it just happened as I was floating down the lower reaches of the scenic Sandy River. Maybe it was the pair of Canada geese, staunchly guarding their irresistibly cute, fluffy young, as they grazed at river's edge. Or maybe it was the merganser, with her spiky cropped hairdo, followed by 18 babies close to the river's edge. It could have been the osprey that dived into the river, and, seemingly proud of her catch, circled our raft three times until each of us had a good look at the fish, before she landed high in the trees.

My thoughts snapped out of focus on the river scene and mulled over a recent article on the state of U.S. wilderness. Are there really so many problems or threats to our wild patterned jewels, and so little interest in reviving a community's connection to them? Only in the United States can we point to other cultures and wish we still had our own connection to nature. We have apparently done a good job of isolating ourselves from wildness.

It is not the declining dollar, nor is it declining staffing, that threatens the management, or lack thereof, of our wilderness system. It is the decline of a passion that ignites the imagination of children and adults alike. John Hendee and Marilyn Riley (*IJW* vol. 5, no.3) have referred to the acceptance of ourselves and each other as our heart space, a place where we can acknowledge our honest and true feelings. In my heart space, there is sorrow and, yes, shame. For it seems that we in the heart of wilderness have perhaps forgotten our greatest asset. We have forgotten about educating our children and our communities about the values of wilderness, and why it might be worth protecting ancient cycles of life and death, flow and function, structure and energy. With threats to our wilderness system building, we need to address these concerns as serious, while also reinvigorating a positive, energetic focus on programs and issues that we can influence now, and that will also influence the future of wilderness. Rebirth of a passion begins with people and the communities they live in. That could rebuild the support for the wilderness system Mike Dombeck, Chief of the U.S. Forest Service, calls for in his Soul of the Wilderness article in this issue.

Our nation's wilderness deserves better than to have us throw up our hands in despair about our inability to stave off the impending doom. Almost twenty percent of our nation's public land heritage is designated as wilderness; yet once designated, some of us allow ourselves to think of these areas as "set asides." They are too often places we restore last because we have not integrated our thinking about wilderness within the larger landscape. Fire, air, water—these are all critical forces that symbolize the wildness of natural processes. Wilderness will die as an island. It is the last great refugum for some species, but they too will not thrive if we manage wilderness as an island. We know this; we have to continue to act on it.

Are we guilty of allowing ourselves to validate polarized thinking and positioning around wilderness? This is a question I hope each of us will ask ourselves and answer truthfully. If we cannot build with communities the management framework that can protect and restore our wilderness, we might as well quit now. But I don't think that is the case. In Kenton Miller's article on p. 35, this issue, he describes an interface between wilderness and sustainable living. Most communities treasure their wild places and value them for many reasons, including employment and spiritual relevance. The common interest and focus of community support and energized people can make things happen. In our case, moving mountains would allude to establishing quality all-party monitoring programs, restoring native vegetation when nonnative weeds have encroached, and providing premier recreational experiences protecting solitude.

Perhaps wilderness managers are scared of impending threats and yet are still rooted in old ways of stewarding wilderness. Now is the time to somersault to the clouds and face the challenge. Involve the children, involve the communities. Reignite the passion. **IJW**

Soul of the Wilderness

A Wilderness Agenda and Legacy for the U.S. Forest Service

BY MIKE DOMBECK,
CHIEF OF THE U.S. FOREST SERVICE

(Speaking at the 75th Anniversary of the Gila Wilderness, New Mexico)

"It is hereby declared to be the policy of Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness. A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." With those words, 35 years ago, Congress created the National Wilderness Preservation System in the United States.

Of all of the natural resource management laws, The Wilderness Act remains my personal favorite. It has a soul, an essence of hope, a simplicity and sense of connection. Unlike the jargon-filled tomes of most laws, in a very few words The Wilderness Act says that what we have today is worth preserving for future generations. That in a world of compromises and half measures, there are lands and waters where we will not allow expediency to override conviction.

Article author Mike Dombeck.

Gila—The First Wilderness

Our wilderness heritage in the U.S. Forest Service runs deep. Passage of The Wilderness Act was the result of a lifetime of work by U.S. Forest Service employees such as Arthur Carhart and Bob Marshall. But it all began here in this place in New Mexico when a young assistant district forester in the Albuquerque office, Aldo Leopold, worked proactively in New Mexico and Washington, D.C., for the creation of the Gila Wilderness Area, finally succeeding in 1924. Who would know that 25 years later an older Aldo Leopold would publish *A Sand County Almanac,* condensing a lifetime of experience into a work that today rivals *Silent Spring* as one of the most influential books about the relationship of people to their lands and waters. And who would have known then that creation of the Gila Wilderness would lead 40 years later to creation of an entire wilderness system.

The National Wilderness Preservation System has grown from nine to 104 million acres since 1964. It provides ecological services such as clean water and air, naturalness, habitats for endangered and non-endangered plants and animals, solitude, scenic beauty, and economic benefits to communities through tourism and recreation. Wilderness, with proper stewardship, can serve as a benchmark for determining our nation's environmental health. I want to share with you our new strategic agenda for wilderness whose purpose is to strengthen and insure that proper wilderness stewardship occurs.

A New Wilderness Agenda

In recent years I have become concerned, like many others, that our national commitment to The Wilderness Act has diminished, and that resources committed to protect and manage the wilderness have not kept pace with our needs. Five years ago, my predecessor Jack Ward Thomas asked the

question, "I wonder who will be the next ones to step up, lead, and sacrifice for this precious (wilderness) resource? Who will see that the wilderness doesn't get inched away from us, one compromise at a time?" It was with Jack's words in mind that I commissioned the development of this new wilderness strategy. It is a "work in progress"—not unlike the wilderness system. The agenda builds upon the Interagency Wilderness Strategic Plan, renewed in 1995 (see the article by Chris Barnes in *IJW,* vol. 3 no. 1). Considerable progress has been made in implementing this plan, but significant challenges still face us. Our wilderness agenda is an expression of our continued commitment, and sets forth some specific actions to help meet the broad goals of that interagency plan.

More Representative and Diverse Wilderness

I have six goals for us to focus on as we implement our new agenda for wilderness.

1. Should there be more wilderness? Ultimately, that's for Congress and the American people to decide. The responsibility of the U.S. Forest Service is to identify those areas that are suitable for wilderness designation. We must take this responsibility seriously. For those national forests undergoing forest plan revisions, I'll say this: Our wilderness portfolio must embody a broader array of lands—from prairie to old growth. As world leaders in wilderness management, we should look to better manage our existing wilderness, and identify potential new wild lands to become wilderness. The National Wilderness Preservation System can, and should, play a larger role in our efforts to address concerns of forest health and sustainability. Future additions to the wilderness system may be targeted to enhance this role. We should pay special attention to potential wilderness areas that may fill critical habitat gaps in our wilderness system.

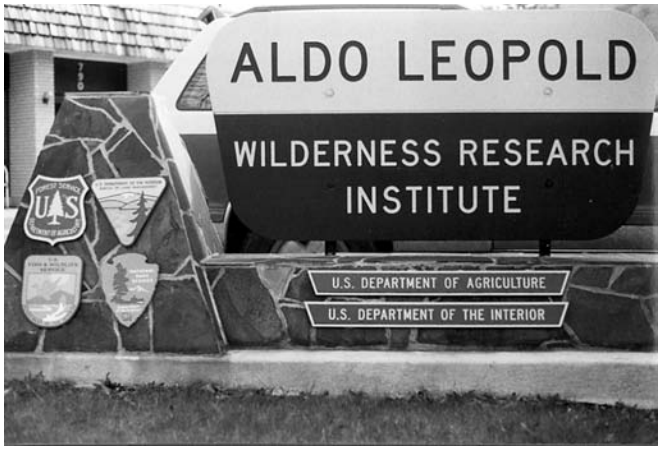


Photo by Alan Watson.

2. Wilderness requires collaboration; no one agency or entity controls the whole system. Thus management of existing wilderness will and should be coordinated by area managers in different agencies. But we can help strengthen coordination. I pledge within a year to bring together government and nongovernmental interests to strengthen trust among players and identify wilderness actions that can be successfully addressed through collaborative efforts.

3. I have formed a U.S. Forest Service wilderness advisory group of employees, from every level of the organization and every region of the country, to advise me about wilderness needs. It's a long way from the backcountry to the beltway or from the woods to Washington. Wilderness will now enjoy a higher profile among our national office concerns.

4. Our agenda places a renewed emphasis on wilderness monitoring. Such monitoring takes place through long-term forest inventory and analysis and forest health monitoring programs. We receive help from other agencies such as the Environmental Protection Agency and the U.S. Geological Survey, Biological Resources Division. The U.S. Forest Service research organization and the interagency Aldo Leopold Wilderness Research Institute will lead this approach, enabling us to better use wilderness as a baseline of comparison for determining our nation's environmental health. In addition to acquiring better information about the condition and trends in wilderness, we are also putting an emphasis on learning what society understands and values about this resource. Wilderness will be a major component in the upcoming National Survey on Recreation and the Environment


The Alpine Lakes Wilderness in Washington State is one of the gems of the wilderness system, which is managed by the U.S. Forest Service. Photo by John C. Hendee.

Wilderness requires collaboration; no one agency or entity controls the whole system.

led by our Outdoor Recreation and Wilderness Assessment Group.

5. We are placing an added emphasis on the wilderness and recreation interface. The American people are welcome in their wilderness. However, all uses must occur within the limits of the land and the preservation goals for each area's wilderness values. We will provide a range of recreational opportunities in wilderness, from solitude to more social experiences, yet this will occur within the context of protecting wilderness resource conditions. We are piloting this approach on the revision of the Mt. Hood National Forest plan, working with wilderness users and the public to address concerns about access to their wilderness. We are also partnering with other agencies, states, and private recreation providers to ensure the availability of quality backcountry recreation opportunities outside wilderness.

6. I want every U.S. Forest Service employee to understand our wilderness stewardship responsibility and what it means to their jobs. I fully expect employees with decision-making responsibilities for wilderness areas to demonstrate wilderness expertise. The interagency Arthur Carhart National Wilderness Training Center will refocus its offerings to meet the needs of our diverse, multidisciplinary workforce. Wilderness management work occurs at all levels of the organization, with some of the most important tasks taking place on the ground in the wilderness. Dedicated employees, cooperators, and volunteers are the lifeblood of wilderness stewardship.

In closing, I would like to pay one last tribute to Aldo Leopold, the man whose vision and passion we celebrate today. Leopold said, "There are two things that interest me: the relationship of people to their land and the relationship of people to each other." I believe that the respect we accord one another is reflected in the way we treat the lands and waters that sustain us.

Leopold understood that the same qualities that define a good land manager—patience, humility, study, and learning to listen rather than always talking—were more than a recipe for stewardship. Today it is those same qualities that provide our most important hope for protecting wilderness, as well as for learning to live in community with each other. **IJW**

MICHAEL DOMBECK became the 14th Chief of the U.S. Forest Service on January 6, 1997. Raised in northern Wisconsin's lake country, Dombeck worked as a fishing guide in the region for 11 summers. He holds a doctorate in fisheries biology from Iowa State University. Dombeck was formerly acting director of the Bureau of Land Management (BLM). As Forest Service Chief, Dombeck has focused his efforts on promoting partnerships, collaborative stewardship, accountability, and financial health. For additional information contact Jerry Stokes, Assistant Director for Wilderness. Telephone: 202-205-0925. Email: jstokes/wo@fs.fed.us

Chad Dawson Is Acting *IJW* Executive Editor for Science

Chad Dawson, professor of forestry in the College of Environmental Science and Forestry, State University of New York (SUNY) at Syracuse, is *IJW* acting executive editor for science, August 1999–February 2000. Chad is standing in for Alan Watson, winner of a Fulbright visiting scholar award to study wilderness in Finland, during that time period.

Chad received a B.S. degree in conservation and resource planning from University of Michigan (1970), a Masters in resource policy and planning from Cornell in 1979, and a Ph.D. in resource management and policy from SUNY in 1983. He teaches courses and does research in wilderness and river recreation management. "Chad is an experienced wilderness scientist, teacher and *IJW* author; and I know he will do a great job," said John Hendee, *IJW* editor in chief.

Transfrontier Conservation Areas

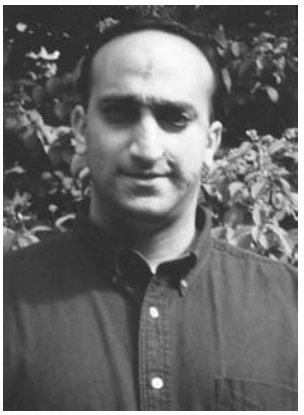
Creating Opportunities for Conservation, Peace, and the Snow Leopard in Central Asia

BY JAIDEV "JAY" SINGH AND RODNEY JACKSON

Abstract: Transboundary or transfrontier conservation areas (TFCAs) are large natural spaces that span international borders and may include nature reserves (potentially wilderness) as well as multiple-use conservation areas. This article discusses possibilities for fostering peace and sustainable growth through different levels of TFCAs. In particular, we emphasize creation of viable transboundary habitat for the endangered and nomadic snow leopard through TFCAs in Central Asia.

Species, habitats, and ecosystems are often best managed using an "ecosystem-level" approach whereby large contiguous areas are managed to simulate natural processes (Miller 1996). This strategy offers many benefits, including the maintenance of landscapes and corridors that meet the conservation needs of migrants and area-sensitive species, especially large carnivores like the snow leopard (*uncia uncia*) and the herbivores upon which they prey (many of which are also threatened). Among the specific protected area actions that can be adopted by adjacent nations are: intergovernmental agreements, comanagement strategies, scientific and economic exchanges, and community-level approaches with economic benefits to local people. "Precisely because it tends to affect us all (at least in the long run), environmental change may force societies to seek cooperation with one another, which may establish ties that could outlive acute crises and conflicts" (Brock 1991).

In addition to creating regional economic opportunities, conservation and biodiversity protection can also open channels for peaceful cooperation. This is particularly true in areas where common resources are shared along borders having competing natural resource and economic policies. Moreover, in Central Asia many states are antagonistic toward each other, reducing opportunities to manage adjoining protected areas that share such problems as poaching: uncontrolled harvesting: and illegal trade in valuable medicinal plants, endangered wildlife species, and drugs.



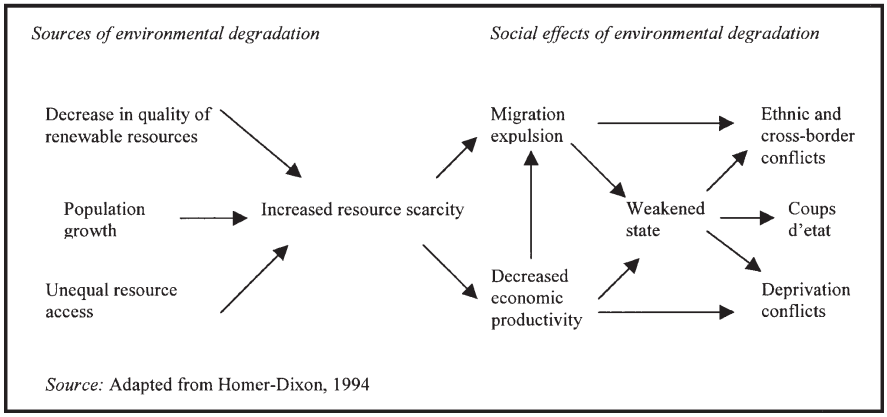
Article coauthor Jaidey "Jay" Singh.

Transboundary or Transfrontier Conservation Areas

Transboundary or transfrontier conservation areas (TFCAs) are large natural spaces that span international borders and may include nature reserves (potentially wilderness) as well as multiple-use conservation areas. A TFCA requires protected areas on both sides of the border (Zbicz and Green 1997), and to function successfully TFCAs require sustained dialogue at all levels of government. They then

Article coauthor Rodney Jackson.

Figure 1—Environmental Degradation: Sources and Social Effects



Source: Adapted from Homer-Dixon, 1994

may offer a favorable vehicle for international or regional confidence building (Westing 1998). TFCAs bring two or more nations to the table—which in many cases is the first step toward more productive relationships. For instance, the La Ruta Maya Ecocultural Program—a transboundary cultural area based upon the ancient Maya empire between Mexico, Belize, and Guatemala—is expected to bring in greatly needed revenues from tourism. This area has already attracted international funding, thus bringing these three states together and fostering trust among them. Weed (1994) noted: "As a result of this and other examples of cooperation and organization, the flow of international funds for conservation to the area has increased dramatically."

The world's first TFCA, Glacier-Waterton International Peace Park, created in 1932 is located between the United States and Canada. However, the concept of establishing TFCAs to resolve border disputes and build peace actually began in 1924 with the Krakow Protocol between Czechoslovakia and Poland (Westing 1998). This protocol eventually led to the creation of three parks World War II. Germany then established peace parks with Belgium, Holland, and Luxembourg to foster goodwill (Thorsell and Harrison 1990). Many other European nations subsequently established TFCAs, even during the cold war. However, not until the 1970s did the growth of TFCAs increase at a rapid pace. There were an estimated 70 TFCAs throughout the world both de jure and de facto in 1990 (Thorsell and Harrison 1990); their number has since grown to 136 involving 98 countries (Zbicz and Green 1997).

TFCAs and Environmental Security

Environmental degradation, control, and access to natural resources can have dramatic effects on the welfare of human populations, often aggravating a precarious balance of international security. These relationships are so pervasive that several writers have used the term "environmental security," with an implicit assumption that the degradation of the environment and scarcity of natural resources will lead to a breakdown of national, and often regional, security. Figure 1 outlines these relationships. A recognition that environmental degradation threatens political stability can lead countries to cooperate with each other in order to sustain the productivity of land and people, and at the same time foster peace.

Biodiversity and natural resources are often concentrated along border areas, and are useful for both cash crops and subsistence, given the elevation and topographic range of most mountains and river valleys. For example, many Central Asian border regions are in extremely remote and rugged terrain. Nevertheless, pastoral or nomadic peoples with subsistence-based livelihoods regularly crossed these boundaries. Now, increasing population growth in most developing countries is changing these remote areas and linking them with expanding population centers in adjacent "lowlands." This trend, plus poverty, high foreign debt, and political instability, often all encourage uncontrolled harvesting of endangered and threatened species such as the snow leopard.

Many borders are contested because they are poorly-defined, leading to disputes over territory and border wars having devastating effects upon the environment as well as on peaceful relations. The recent border problems between India and Pakistan in the Himalayan region around Kargil have caused serious environmental harm to the fragile mountain ecosystem. Thus, there is an urgent need to create zones

Snow leopards remain an elusive animal, and photographs of snow leopards in the wild are rare. Photo courtesy Helen Freeman and the International Snow Leopard Trust.

Table 1—TCBA Typology Based on political climate (*source:* Singh, 1997)

Level of TFCA	Political Climate	Primary Reason for Establishing TFCA	Resulting TFCA	Example
Level I	Warm relations	Ecological, cultural or economic as well as political symbols of friendship	Co-management (informal/ formal) de jure TFCA	Glacier-Waterton International Peace Park between US and Canada. The Khunjerab and Taxkorgan TFCA between China and Pakistan.
Level II	Peaceful relations	Ecological, cultural or economic as well as to establish a political symbols of friendship	Complementary management. de jure TFCA	Qomolangma and Makalu Barun TBCA between Nepal and Tibet Autonomous Region in China.
Level III	Tense or strained relations	To establish a zone of peace	Little or no cooperation de facto TFCA	The Greater Serengeti Ecosystem between Kenya and Tanzania. Demilitarized zone between North & South Korea
Level IV	Post-war	Political symbols of friendship	Co-management (informal/ formal) de facto TFCA	A number of European parks after World War II

of peace along some international boundaries for environmental as well as humanitarian reasons. TFCAs respond to this need and offer biological buffers between countries where environmental security is at risk, as well as contribute to regional peace.

- Level I: Where two countries have warm relations, the potential for creating one or more TFCAs is excellent, especially if the economic conditions in both are similar. The resulting TFCA can be established formally through a treaty or a Memorandum of Understanding (MOU), or informally through exchanging personnel and expertise.

- Level II: Where countries share cool—albeit peaceful—relations, there is a potential for further "warming the relationship" by managing a shared ecosystem and apportioning the benefits. Because issues of sovereignty may not allow comanagement, managing border areas complementarily may be an effective recourse, with the park agencies mimicking each other's management methods through an informal consensus process. Such cooperation in turn can lead to improved relations and possible comanagement at a later stage.

- Level III: Border parks can help countries to maintain an "uninhabited" buffer zone and "zone of peace" along their shared boundary (McNeil 1990). Such a TFCA is proposed as a peace park between Turkey and Greece along the Evros River Watershed, a critical source of water for both nations, especially along the Lake Gala wetland site (Thorsell and Harrison 1990). An interesting example of a Level III TFCA is the demilitarized zone between North and South Korea, which has served as a de facto TFCA and core nature preserve because human influence is minimal, although minefields pose a significant hazard to large animals.

- Level IV: After a major conflict, confidence building measures could include the creation of special TFCAs as peace parks, such as those established in the aftermath of World War II between Germany, Belgium, Holland, and Luxembourg (Thorsell and Harrison 1990).

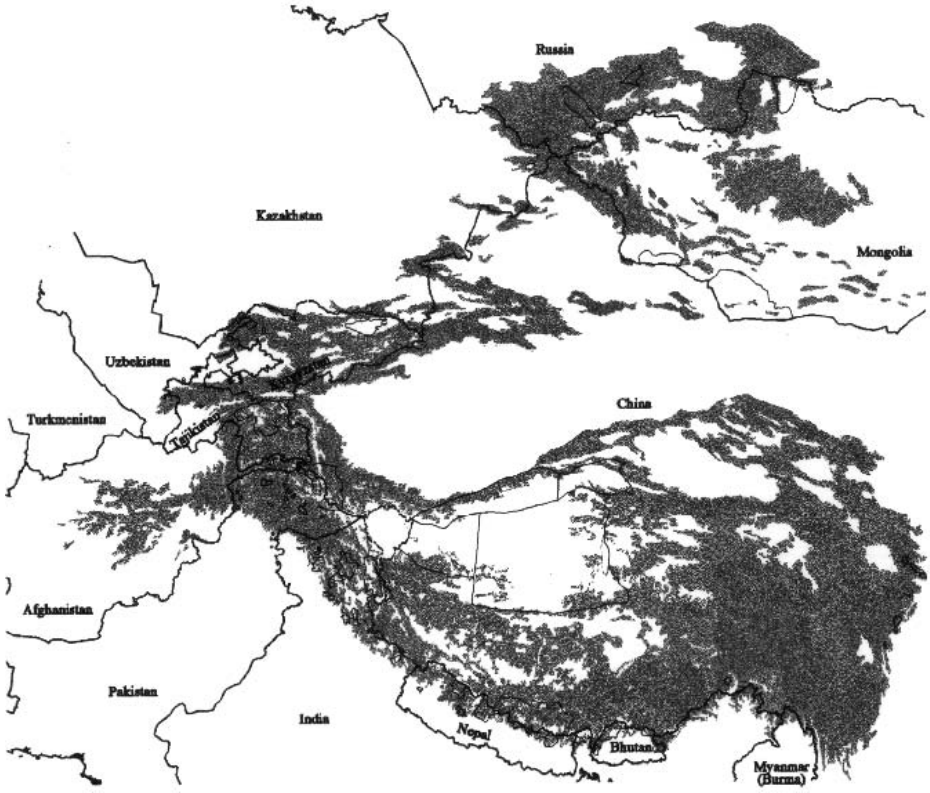


Figure 2—Snow Leopard *(Uncia uncia)* Habitat

Poverty, high foreign debt, and political instability often encourage uncontrolled harvesting of endangered species like the snow leopard, whose skins are shown here. Photo courtesy National Geographic Society and Rodney Jackson.

Central Asia and Snow Leopard Conservation

The snow leopard inhabits mountain ranges in Afghanistan, Tajikstan, Uzbekistan, Kazakhstan, Kyrgyzstan, Russia, Mongolia, China, Bhutan, Nepal, India, Pakistan, and possibly Myanmar (Figure 2). Scientists place the snow leopard population at 4,500 to 7,500 animals, associated with some of the world's most remote, rugged, and harsh terrain (Jackson and Fox 1997). Snow leopards are increasingly threatened by human activities that degrade their habitat, reduce their prey, intensify conflict with livestock herders and others, and fragment the population, reducing gene exchange and thus the snow leopards' long-term genetic viability. Wild sheep and goats, critical prey throughout the cats' range, are being overhunted in many areas, forcing snow leopards to rely more upon domestic stock. They are killed by herders in retaliation for livestock depredation, for the illegal international fur trade, and for the burgeoning traditional Asian medicine trade. Following sharp declines in tiger populations, demand for snow leopard bones as a substitute is on the increase, fueled by Asia's growing population and economic power. In the deteriorating economy of the former Soviet Union, more and more poachers are seeking quick profits from snow leopard body parts. In conjunction with intensified livestock predation, the growing temptation among pastoralists to kill snow leopards and sell or barter their bones is understandable. Laws are difficult to enforce given the rugged and remote terrain and limited government human power and budgets. In general, the 12 countries of the region share similar socioeconomic characteristics, all of which have negative implications on the snow leopard's survival in the wild: recently established governments and transitional economies and lack of effective natural resource management regimes; political instability; high foreign debt; border insurgencies and border disputes; large population pressures (especially in China, India, Pakistan, and Nepal); and poor infrastructure.

Up to a third of the snow leopards' 2.5 million square kilometer range falls along international border regions, and it is endangered almost everywhere within this range. Few protected areas are large enough to support genetically viable populations of snow leopards. Their sparse distribution is exacerbated by the highly fragmented habitat provided by many mountain ranges, greatly increasing vulnerability to human disturbance, and further population and genetic fragmentation. TFCAs offer unique opportunities for increasing the size of protected areas and for linking populations across borders within key parts of the snow leopard's range.

Snow leopards are among the most beautiful and widely admired of the world's large cats. They rank with other charismatic megafauna like the lion, tiger, and elephant. Since the snow leopard requires a large home range, it can serve as an umbrella species, meaning if its habitat is protected, a variety of associated alpine plants, animals, and habitats will also be protected, such as the Marco Polo sheep (*Ovis ammon polii*)—which regularly crosses back and forth over Chinese, Afghan, Tajik, and Pakistani borders.

TFCAs as Mechanisms for Peace in Central Asia

There is a definite need in Central Asia to bring nations together towards peaceful cooperation, while also providing opportunities for economic growth and conservation. By their very nature, TFCAs can potentially break the poverty/instability cycle. Some of the TFCAs in the region are providing visible benefits to local economies and political relationships (see also Table 2):

1. Taxkorgan Nature Reserve (China) and the Khunjerab National Park

The paws of a snow leopard being transported from the remote Tibetan mountains of Gundan to sell in urban markets like Lhasa, Beijing, and Chengdu. The individual who purchased the remains for 400 yuan hoped to gain substantially by selling it for medicinal purposes. Photo courtesy Rodney Jackson, and the International Snow Leopard Trust.

Table 2—Potential TFCAs in the Himalayan Region of Centra Asia
(Source: Shengji and Sharma, 1998)

Name of Protected Area	Country	Counterpart Protected Area	Country
Royal Manas National Park	Bhutan	Manas Tiger Preserve	India
Royal Chitwan National Park Parsa Wildlife Reserve	Nepal	Valmiki Tiger Reserve	India
Suklaphanta Wildlife Reserve Royal Bardia National Park	Nepal	Dudwa National Park	India
Tongbiguan Nature Reserve	China (Yunnan)	Pidaung Wildlife Sanctuary	Myanmar (Kachin State)
Kanchanjunga National Park Qomolangma Nature Reserve	India (Sikkim) China (Tibet)	Kanchanjunga Conservation Area	Nepal
Qomolangma Nature Reserve	China (Tibet)	Kanchanjunga National Park	India (Sikkim)
Medog Nature Reserve	China (Tibet)	Dibang Wildlife Sanctuary	Myanmar
Zayu Nature Reserve	China (Tibet)	Kakaborazi National Park	Myanmar
Uvs Nuur Watershed Nature Reserve	Mongolia	Ubsunurskaya Kotlovina Zapovednik	Russia
Kakaborazi National Park	Myanmar	Dichu Forest Reserve	India (Arunachal Pradesh)

(Pakistan): Both countries have signed a MOU toward "collaborative management" of the two reserves to create an international peace park. Although the MOU does not constitute a formal agreement, both states are discussing joint efforts to survey the wildlife, suppress illegal hunting, and address the problem of human occupancy in the protected areas (WWF-Pakistan 1998). This TFCA is what we consider a Level I TFCA, as it is not only fostering ecological sustainability but also symbolizing the continuing friendship between the two nations.

2. Qomolangma Nature Reserve (Tibet Autonomous Region-China), and Langtang National Park, Makalu-Barun National Park and Conservation Area, and Sagarmatha National Park in Nepal. This TFCA system is the largest in the region, spanning almost the entire Nepal-Tibet border. The region shares a dynamic history of cultural and biological exchange that is now being strengthened through a transboundary program supporting cooperative natural resource management and enhancement of local livelihoods through traditional trade, tourism, and conservation. The Mountain Institute (TMI), an international nongovernmental organization, and the governments of Nepal and China facilitate "bottom-up" transboundary exchanges, bringing scientists, natural resource managers, and park officials from neighboring protected areas in Nepal and the TAR-China together to share ideas and work toward the conservation of the common mountain ecosystem. This TFCA complex illustrates a Level II TFCA.

3. Kanchanjunga National Park (Sikkim, India) and Kanchanjunga Conservation Area (Nepal). TMI is working with the governments of Nepal and India and the World Wildlife Fund—Nepal Program, to establish a TFCA in which shared solutions to common management issues, such as trans-border grazing, are being sought through collaborative workshops. In Sikkim, TMI is collaborating with the park authority and the G. B. Pant Institute of Himalayan Environment and Development to promote ecotourism in ways that benefit local communities and reduce outside leakage of revenues (Rastogi et al. 1997).

TFCAs—New Opportunities for Cooperation

TFCAs offer long-term benefits to conservation in Central Asia and could help solve some boundary disputes creatively, even though establishing TFCAs usually involves difficult sovereignty issues. However, nations can choose from several levels of TFCA agreements and collaboration (Table 1), providing negotiators room to maneuver. The roles of nongovernmental and intergovernmental agencies are equally important and critical in the process, as these institutions are usually able to bring to the attention of heads of state and concerned ministry officials the various

This photo is of the border between Pakistan and China and the fence that divides the Khunjerab National Park in Pakistan from the Taxkorgan in China. Photo courtesy Ahmad Khan and the International Snow Leopard Trust.

The Qomolangma Nature Reserve part of the Qomolangma and Makalu Barun TFCA; Tibet Autonomous Region in China and Nepal. This is one of the world's largest TFCAs. Photo courtesy Rodney Jackson and the International Snow Leopard Trust.

benefits and advantages of establishing TFCAs, while offering crucial funding during the initial stages of conceptualization and development. Thus, by playing an important role in agenda setting as well as funding regional efforts, the World Bank, Global Environmental Facility, TMI International Snow Leopard Trust, Worldwide Fund for Nature, and other organizations can help governments create new opportunities for cooperation.

The creation of TFCAs has also benefited immensely from such international agreements as Article 8 of the Convention on Biological Diversity, emphasizing insitu conservation, the Convention of International Trade in Endangered Species, and the Ramsar Convention on Wetlands of International Importance. These treaties offer a ready-made forum within which to collaborate, but in the near term, TFCAs, serving as an ad hoc mechanism to get two or more countries together may be more effective and consequential than such countries being parties to one of the global conventions, since financial support under these conventions is either lacking or widely dispersed.

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The International Snow Leopard Trust (ISLT) is dedicated to the conservation of the endangered snow leopard and its mountain ecosystem through a balanced approach that considers the needs of the people and the environment. ISLT, a 501 (c) (3) nonprofit founded in 1981, has worked on more than 100 projects with local populations throughout Central Asia in small, creative, and visible programs to facilitate on-the-ground and long-lasting conservation.

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Wilderness Access Issues for Education, Personal Growth, and Therapeutic Use

a U.S. Panel Summary

BY ALAN EWERT, JOHN HENDEE, SAM DAVIDSON, RICHARD BRAME, AND CRAIG MACKEY

A proliferation of wilderness access issues surrounds the designation and management of wilderness in the United States. For example, how should wilderness lands be used? What uses should have access priorities and privileges? What is the proper role of socially beneficial uses of wilderness, such as for education, personal growth, and therapy? What adjustments in wildness should be allowed to facilitate use? These issues were addressed by a panel of experts at the national "Wilderness Science in a Time of Change" conference in Missoula, Montana, USA, May 17–23, 1999.

The following articles by these panelists summarize some key issues related to changing use of wilderness lands and access policies. By necessity, each article is short and focused, and no doubt raises more questions than it answers. A hopeful result is that each article does help better define the important parameters of wilderness access issues. The statements and their authors in order of presentation are: Compiler and commentator, Alan Ewert, Indiana University; John Hendee, University of Idaho Wilderness Research Center; Sam Davidson, The Access Fund; Richard Brame, National Outdoor Leadership School (NOLS); and Craig Mackey, Outward Bound and Wilderness Inquiry.

While few would argue that activities such as hunting, fishing, camping, horse packing, and hiking have been traditional wilderness endeavors, the issue of what is the most appropriate use of wilderness lands is becoming more controversial and contentious. Some would argue that the highest and best use of wilderness lands are as places for strict preservation with only limited and mostly scientific use. Others would argue that recreation is the primary use of wilderness resources, both for the current and future generations. In the first article, John Hendee, professor and director of the University of Idaho Wilderness Research Center, takes the position that another, equally valuable use of wilderness is for education, personal growth, and therapeutic or health-care interventions. He describes these uses and their growing popularity on wilderness lands and then he identifies emerging policy issues.

—Alan Ewert

A variety of wilderness experience programs pursue objectives ranging from personal growth to therapy and change in behavior. Most wilderness experience programs serve adolescents. Photo by John C. Hendee

Wilderness Experience Programs for Education, Personal Growth, and Therapy

BY JOHN C. HENDEE (E-MAIL: HENDEEJO@UIDAHO.EDU)

Wilderness experience programs (WEPs) are organizations that take paying clients into wilderness or comparable lands in order to develop their human potential through education, personal growth, leadership training, group dynamics, or purposive therapeutic interventions (Friese et al. 1998). Evidence suggests that WEPs represent a large and growing use of wilderness. One nationwide survey of wilderness managers found that, among those reporting WEP use in wilderness they administered, two-thirds said such use was increasing, and more than one-third expressed concern over environmental impacts of use by such groups or conflicts with other users (Gager et al. 1998). Because of the size of wilderness and prospects for continued growth, its use for education, personal growth and therapy, or behavioral health care by organized wilderness experience programs presents growing management challenges and growing opportunities for enhanced social benefits from wilderness.

Photo by Alan Ewert

Educational Use of Wilderness

Wilderness is used for both higher education and conservation education purposes, as sites for field trips, study areas for student research, and a source of instructional examples are utilized within its boundaries. Reed et al. (1989) reported that 39% of National Wilderness Preservation System (NWPS) wilderness managers claimed that environmental and conservation education programs were being conducted in areas they administered in 1987. Studies in the mid-1990s document more than 200 education-oriented wilderness experience programs (excluding higher education institutions and youth organizations), ranging from several large programs serving hundreds of students (e.g., Teton Science School), to many small programs serving fewer than a hundred per year (Friese 1996; Dawson et al. 1998).

Because bona fide schools and higher education institutions may be exempt in some locations from having to secure special use permits to use wilderness, there is a lack of systematic data about the extent of this type of institutional outfitting. Not surprisingly, commercial outfitters would like to see all educational users required to have permits and be required to pay for their use of wilderness lands (Mackey 1998). Thus, as wilderness enters the 21st century, one of the most important policy issues is whether, and how, to bring educational use of wilderness into the wilderness use accounting system and further, whether and/or how to charge for use.

Wilderness Personal Growth and Therapy Programs

Wilderness personal growth and therapy programs, part of an emerging category of use called "outdoor behavioral health care," use various combinations of challenge adventure and reflective activities to help participants achieve their goals. These wilderness experience programs serve all age classes, but adolescents and young adults are the most frequent participants, with enhanced self-esteem and other variations in empowerment the most consistently reported effects in studies of such use (Friese et al. 1996).

Wilderness personal growth programs seek to empower participants. These programs challenge a participant's preconceived abilities through wilderness activities. These activities teach participants that their capabilities exceed what they imagined—and that they may also be self-limiting their performance in their daily lives. Recent surveys (Friese et al. 1998; Dawson et al. 1998) have identified over 230 personal growth programs ranging from several large programs serving thousands of clients annually to many small programs (100

or fewer clients per year). For example, Outward Bound, the largest organization, served about 30,000 clients in 1998. These programs charge about US $100 per participant day, so they generate substantial revenues.

Wilderness therapy programs seek to heal and restore functioning by using the natural consequences of wilderness living and primitive skills to cleanse participants. Individual and/or group therapy and solo experiences help to connect participants with their inner selves as the ultimate source of their afflictions—and their recovery (Russell and Hendee 1999; Russell et al. inpress). A recent study identified 38 wilderness therapy programs. Data from five of them projected a total estimate of 12,000 wilderness therapy clients in 1998, generating 392,000 wilderness field days and US $143 million dollars in revenue. The programs studied ranged from three to eight weeks and charged an average of US $325 per participant day, with about 40% of clients receiving some degree of copayment from medical insurance (Russell and Hendee 1999; Russell et al. inpress). A higher leader-to-participant ratio in the field and clinical oversight of the process increases the cost of wilderness therapy. The study also found that such programs are growing, and that medical insurance companies, social service agencies, judicial authorities, and school officials are increasingly turning to wilderness therapy programs to help adolescents overcome problem behaviors such as substance abuse, resistant and defiant behavior, emotional adjustment, and psychological problems.

Conclusion

The emergence of the use of wilderness for education, personal growth, and therapy (outdoor behavioral health care) documents the attraction of wilderness for such use, and the relevance of wilderness management to important social benefits. Is the use of wilderness for the education, personal growth, and healing of young people as important, or more important, than commercial or public recreational use? Increasingly, wilderness managers will face such questions in policy and actions that favor one kind of use over another. **IJW**

Solitude as a Factor in Access to Wilderness: *Social Encounter Standards Should Not be the Sole Basis for Restricting Access*

BY SAM DAVIDSON (E-MAIL: SAM@ACCESSFUND.ORG)

Along with use, who gets access to the resource is becoming one of the most contentious of wilderness issues. This issue revolves around the prioritization of users (i.e., who gets access to wilderness permits), what types of activities should be given preference, and should educational and nonprofit organizations have special access rights over private and/or commercial for-profit organizations. In the following section, Sam Davidson of the Access Fund argues that in the case of climbing, solitude is an incomplete attribute on which to base wilderness access decisions. He suggests that solitude should be only one of a constellation of factors on which to base access decisions.

—Alan Ewert

The Access Fund is a climbers conservation and advocacy group. Primary goals of the Access Fund include preserving existing wilderness and establishing new wilderness areas. This is particularly relevant since many of this country's most historic, scenic, and challenging climbing opportunities are found in designated wilderness and wilderness study areas.

Solitude as a Management Issue

Since one issue of particular interest to climbers is solitude, it may be instructive to look at how the climbing community is affected by solitude-based management decisions. Solitude-based restrictions affect climbers in unique ways. Climbers may be denied access not because social encounter standards are being exceeded on the actual climb, but because they are

being exceeded on the trails that climbers use only briefly as part of the approach to the climb.

Second, restrictions based on inflexible social encounter standards may be inconsistent with climbers' expectations for their wilderness experience. Climbers do not expect to find solitude on many of the most popular wilderness climbs; in fact, surveys indicate most climbers would prefer not to find solitude if it means that they can climb the route of their choosing.

Third, virtually all of the better-known wilderness peaks (e.g., Mt. Shasta, Mt. Whitney, Mt. Hood) have one climbing route that is far and away the most popular, usually because it is the easiest line up the mountain. If solitude standards are rigidly applied to these routes, climbers will be forced (if they want to climb at all) onto other routes with greater risk and difficulty.

Climbing is highly weather and season dependent, and climbers often travel great distances to attempt specific climbs. As a result, there is often substantial incentive to climb something, even if it is not the route of choice. Given these motivations to climb, it seems reasonable to expect that solitude-based restrictions will lead to an increase in climber accidents, injuries, and rescues–not to mention fewer opportunities for solitude on currently less-popular routes, and the dispersion of associated resource impacts into more pristine areas.

Conclusion

Solitude is not a good stand-alone basis for limiting access to wilderness-based climbing opportunities. To satisfy the mandate of managing wilderness for its full variety of values, and to ensure that management prescriptions are understood and supported by wilderness users, solitude must be integrated with more resource impact-based criteria in making decisions that may affect public access. This goal will be advanced by greater cooperation between wilderness managers, the scientific and academic communities, and wilderness use and advocacy groups. **IJW**

Wilderness Education
Part of the Solution

BY RICHARD BRAME (E-MAIL: RICH_BRAME@NOLS.EDU)

What role will wilderness education play in the overall stewardship of wilderness and other protected lands? Although touted as a way to prevent excessive negative impacts to the wilderness resource by training the user in proper wilderness use ethics, does exposure to wilderness areas through educational, personal growth, and recreational programs, also increase the overall numbers of visitors? Rick Brame from the National Outdoor Leadership School (NOLS) argues that wilderness education organizations are essential partners in the stewardship of wilderness areas.

—Alan Ewert

The National Outdoor Leadership School (NOLS) was founded in 1965 to teach technical outdoor skills, conservation techniques, and leadership to students on courses in backcountry and wilderness areas. Approximately 3000 students per year attend one of the eight schools held worldwide. In addition to a field curriculum, NOLS has extensive wilderness research, publication, and national public lands public policy involvement. NOLS' mission is to be the best source and teacher of wilderness skills and leadership that serve people and the environment.

The Role of Wilderness Education in Land Conservation

NOLS and other wilderness education organizations play a growing role in preserving the long-term health of wilderness and wildlands. The most powerful role these organizations fill is to "link" their students, who primarily come from urban settings, with the wilderness they find themselves in and hopefully help them develop a greater appreciation of that wilderness resource. In turn, this appreciation may provide for a more supportive and better-educated public for dealing with public lands management. In many cases, this greater appreciation can also

help integrate the work of land managers and researchers with the public, particularly since regulations, enforcement, and scholarly publications alone cannot reach all of the public or build the ethics that determine recreational and conservation behavior.

Wilderness Education Is an Accountable and Professional Partner

Because wilderness education organizations (WEOs) are often commercial and as such participate in a permit system, they are usually easily identified and regulated by the land management agencies. Their procedures, curriculum, and qualifications are often scrutinized, modified, and improved by the overseeing land management agency. This partnership between the WEOs and land management agencies can often result in better land management practices and reduced impacts to the resource.

In the specter of ever-increasing public use of public lands, intuition and research suggest that it is the behavior of the visitors, not the number, that determines real social or ecological impact. Moreover, it is often the amount and type of wilderness education that individuals receive through professional wilderness education means that determines their behavior and impacts upon the wilderness resource.

Wilderness Education Can and Should Pay Its Own Way

Legitimate WEOs support quality management of public lands. Managers must have the tools to preserve, protect, and provide public lands. Moreover, providing tools means political and economic support as well as actual wilderness management techniques. Fees generated by the publics and WEOs' use of federal lands, when they are kept in the locality, are an appropriate means to support public lands management. Legitimate wilderness education organizations such as NOLS, support the use of sustainable fees for public lands access.

Conclusion

There is a potential for individuals and land managers to characterize WEOs as major threats to the health of public lands. However, upon closer examination of the benefits that wilderness education brings through service, ethical and conservation pedagogy, empowered and diverse citizenship, and economic contributions, it becomes apparent that wilderness education programs can be powerful and positive influencing agents for public lands. **IJW**

Protecting and Promoting Wilderness Values: *The Science and Management Interface*

BY CRAIG MACKEY (E-MAIL: CWMACKEY@AOL.COM)

Some may characterize wilderness education programs as a threat to the ecological integrity of public lands because they stimulate increased use. Others point to the educational and service benefits that wilderness education programs provide. Within the last two decades there has been a growing attention shown to the importance of integrating management and science, with the expectation that this partnership will result in better and more equitable decisions (Salwasser 1999). Craig Mackey from Outward Bound and Wilderness Inquiry extends this reasoning by suggesting that science, management, and politics all have roles to play in the safekeeping of our wilderness resources.

—Alan Ewert

Delve into the body of literature on American wilderness, and, from Leopold to Foreman, you will be overwhelmed with the romantic notion of the frontier and the opportunities it holds. Wilderness is more than fundamental to the American heritage, the argument goes, it has become part of our individual and national psyches. Americans, it is argued, cannot function properly as individuals or as a greater society without the untamed wilderness as provider of both inspiration and humility.

Unfortunately, capital "W" wilderness is also a political construct. While the challenge of the frontier has beckoned many an American in body and spirit, the United States Congress today controls that frontier. The Congress created wilderness, and any

Photo by Alan Ewert.

commodity that Congress created can quickly be altered or orphaned by that same institution.

As a child of the American political system, wilderness thrives only to the point that a strong, vocal, and diverse constituency speaks on its behalf. While Supreme Court Justice William O. Douglas once proposed that rivers and other natural resources be allowed plaintiff status in the American courts, I have yet to see a wilderness area work the back halls of the U.S. Capitol. Today, we are selling wilderness short. Not in the Congress, but in the field. Not in politics, but in both management and science. The champions of the American wilderness system recognized that the resource held a range of values for a range of people. Today, recreation has become the wilderness value of choice. And solitude has become the recreational value of choice.

But stop and think about what wilderness means to you. Wilderness hosts many values and opportunities: recreational, educational, scientific, biological, cultural, historical, spiritual, therapeutic, and physical, to name a few. For wilderness to survive as a physical resource it must first survive as a healthy political construct. To accomplish both these goals, we must begin to recognize, manage for, and promote wilderness and all its values.

Why, when many see wilderness as overused and even abused, would we want to promote additional values or uses in wilderness? The answer is diversity. Not all wilderness supporters are wilderness users. Not all wilderness users are hardcore recreationists. The U.S. populace is changing, aging, and diversifying. The reasons for how and why we utilize or support our public lands are diversifying. The role of the outfitter has evolved from one of hunting guide to that of primary provider of a spectrum of outdoor activities for many Americans. For example, many in the Hispanic culture utilize public lands not for solitude but for traditional family and group recreation. As traditional wilderness users age, we may see traditional demands decline; others will rise. Interest in the biological or biodiversity values of wilderness is rapidly increasing. While The Wilderness Act of 1964 dictates that man is merely a visitor in wilderness, many other species call it home. For managers and scientists, the challenge will be to balance these physical demands and impacts while allowing and encouraging wilderness "support" from an increasingly diverse America.

Social science has a role to play. With insufficient physical impact data from recreation use data, the social implications of encounter rates and group size have dominated efforts to control wilderness use and dictate the wilderness experience. Solitude has become the recreational, and therefore wilderness, value of choice. Not without reason. The Act speaks to "outstanding opportunities for solitude." However, the Act also speaks to wilderness education, risk, and adventure as equal opportunities or values. Again, social science must play a role in recognizing, balancing, accommodating, and enhancing a range of wilderness experiences for a range of wilderness users and supporters. The future of wilderness, as romance and reality, depends on it.

Overall Conclusions

One can conclude from the previous discussions that there are many issues and controversies surrounding wilderness use and access. Many of these issues are evolving, and any solutions will require long-term processes and dialogue with the different stakeholders—managers, public citizens, scientists, special-interests groups, politicians, etc. In part, this dialogue will be problematic because it will involve different cultures and languages (Portney 1992). That is, managers may be concerned about topics of little interest to scientists, while the public and special interest groups may have an entirely different focus on various issues. But one thing seems clear and seemed evident at the Congress; the easy battles for allocation have been fought and generally won. Now the difficult issues of how to use these wilderness areas begins.

—Alan Ewert

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Wilderness for Healing and Growing People

Highlights of a Wilderness Therapy Conference at the University of Idaho

BY KEITH KILBURN

During Earth Week, April 20–23, 1999, the Wilderness Research Center at the University of Idaho hosted a conference called "Wilderness for Healing and Growing People"—namely, wilderness therapy. Wilderness therapy addresses a contemporary dilemma: what to do with middle-class kids who are self-destructing? Wilderness therapy is beginning to develop a reputation as a more effective and less expensive treatment for drug abusing teenagers than residential treatment or special schools (see article by Cooley, *IJW,* vol. 4, no. 3).

Rob Cooley, president of Catherine Freer Wilderness Therapy Expeditions, delivered the first guest lecture. Cooley described wilderness therapy as basically involved with three questions: (1) How did you get where you are?, (2) Where do you want to go?, and (3) How should you get there? Freer's program runs for three weeks, averages six to seven kids, three staff, including a wilderness guide, and an assistant and a master's level therapist. The program includes lots of solo time, journaling, nature awareness, and individual and group therapy on a daily basis. Clinical supervisors work with families while their kids are trekking. Near the end of every three-week trek, each kid does a solo camp for three days. Follow-up may include residential treatment, work on a ranch, or intensive outpatient therapy.

Conference participants, who included representatives of most of the top wilderness treatment programs, subsequently met in a seminar to discuss the development of a degree program in wilderness treatment at the University of Idaho. Curriculum would consist of hard skills (rafting, backpacking, rock-climbing, mountaineering, etc.) and soft skills (communication, basic diagnosis and treatment, alcohol and drug issues, etc.). The program would take pieces from social work and recreation therapy, and teach unique skills required in wilderness therapy. Research needed to support and advance wilderness therapy were also discussed in the seminar.

Article author Keith Kilburn.

Wilderness Therapy Versus Boot Camps

Gary Ferguson, a nature writer, lectured, read, and signed copies of his book *Shouting at the Sky* (see book review, p. 46) based on four months at the Aspen Achievement Academy, another model wilderness therapy program. Gary distinguished Aspen from programs full of mindless discipline (so-called "boot camps"), in which adolescents experience further loss of spirit and discouragement. As one of the wilderness staff at Aspen said, "It seems strange to try to mold kids with heavy doses of discipline, then expect them to go back into a world where that sort of outside influence is completely absent." Aspen's therapeutic director acknowledges that "for perhaps 10 to 15% of the problem kids out there, discipline might be the better way to go. It's probably most appropriate for kids on both extremes of the behavior scale. Older, more

Wilderness therapy expeditions provide adolescent participants greater access to their feelings, better anger management, and brighter visions of their own futures. Photo by Keith Russell.

hardened kids who've successfully used anger and control for years to get what they want, and then the flip side—kids who are total victims, the ones who won't take care of themselves at all."

Ferguson found the kids at Aspen incredibly therapy-wise, most having already been treatment "failures" at other programs. They were very good at telling therapists and other adults what they wanted to hear and at "pushing their buttons." When graduates and staff were asked to evaluate what makes Aspen effective, they ranked four components in descending order of importance: (1) the role of the wilderness (natural consequences); (2) mentoring by field staff, minute by minute, day by day; (3) tribal power—responsibility for and to the community; and (4) therapy.

The Outdoor Behavioral Healthcare Industry Council (OBHIC), a consortium of leading programs, held their quarterly meeting at the conference and discussed issues of mutual concern including land use, program treatment standards (quality and ethics), risk management, marketing, and research needs. Preliminary data from a study based on incident reports indicates time in the wilderness may be four times as safe as driving to your high school in the morning with your friends. Given the news of school shootings in Littleton, Colorado, which broke during the conference, it was obvious to everyone that being in the wilderness was far safer than spending time in some high schools. Of grave concern to the business of OBHIC was that none of their programs are able to operate within California because of California laws that overly regulate the daily operations of therapeutic programs (e.g., the right to have access to a telephone on a daily basis, the right to wear one's own clothes, the right to have access to modern plumbing, etc). Having effectively eliminated wilderness therapy from California, the policy may also apply to California kids elsewhere, thereby eliminating the placement of troubled adolescents outside of California. Is this a Catch-22?

Wilderness Therapy Outcomes

Keith Russell defended his doctoral dissertation with members of the industry and the academic community present. Entitled "Theory, Process and Reported Outcomes of Wilderness Therapy as an Intervention and Treatment for Adolescents with Problem Behaviors," Russell's dissertation focused on four wilderness therapy expedition programs: Catherine Freer, Aspen, Anasazi, and the School for Urban and Wilderness Survival (SUWS). Providing the scientific research counterpoint to Gary Ferguson's lyrical narrative, Russell spent time in the field with each of the programs and cross-correlated reams of data to discern commonalities among all four programs (Russell 1999).

He found typical wilderness therapy clients are adolescents with substance abuse problems, mood disorders, oppositional defiant disorder, and/or attention deficit disorder. The client has been a failure in at least one other treatment. Clients are perceived as resistant but innately good, not as problem children but as persons with particular qualities that make modern life difficult. Programs range in length from three to eight weeks, and all programs require a high degree of parental involvement with program therapists. Wilderness leaders have high expectations, and the bias is toward waiting for the client to respond, rather than contriving manipulative interventions. The teens learn primitive skills such as making a fire with a bow drill, foraging for wild plants, and stringing a tarp for protection from the rain. All programs utilize up to three days of solo time. Program staff and graduates point to the solo time as the key transformative element of these programs. Results include better self-expression, greater access to feelings, better anger management, and brighter visions of one's future. Four-month follow-ups showed a pattern of ability to understand and cope with rules and expectations (school), increased effort to express true feelings (family), and no relapse (substance abuse). Identified therapeutic factors of the wilderness therapy process include adversity and challenge, group development, natural rewards and consequences, peer mentoring, physical exercise, time for self-reflection, self-care, and rapport and relationship with staff.

Anasazi Wilderness Therapy

The highlight of the conference for many was the Distinguished Wilderness Lecture by Larry Dean Olsen and Ezekiel Sanchez, pioneers in the field of wilderness therapy (Olsen and Sanchez 1999). Many years ago they started the SUWS, which is still operating, and then the Anasazi Foundation

in Arizona, which they still direct. Anasazi clients are referred to as Young Walkers, and the program consists of walking through desert environments foraging for wild foods and dealing with the therapeutic issues that arise spontaneously in the natural environment. The young walkers make their own moccasins and may also make their clothes out of natural materials.

Ezekiel, a Totonac Indian from Mexico, spoke first and emphasized the spiritual principles underlying the Anasazi program. Beginning with the concept of liberating "The One Who Stands Within," a direct translation from the Navajo language, he wove a worldview and profile of young people very different from mainstream society. Ezekiel explained the philosophy as, "Me lift thee, and thee lift me; and we'll ascend together. Spirit, The One Who Stands Within, may be experienced in a home filled with love, in holy places, and in the majesty of wild places. Labels provided by parents, teachers, psychiatrists, and criminal justice cover up The One Who Stands Within. Labels sow disharmony, distrust, and oppose Spirit." The Anasazi program endeavors to see the Young Walkers full of the potential that the Great Spirit sees, not through the terrible traditions of mainstream society, traditions such as the terrible twos and the terrible teens. Children who come to Anasazi are not sick; they just made some wrong choices. Those who are lost can find their way home again. It is important to lighten up and allow and encourage all individuals to be themselves.

Larry Dean Olsen then focused on the specific principles that govern the Anasazi program. Wilderness offers opportunity for great change. Teach people to be with the land and emphasize simple walking in the wilderness. Each Young Walker is a person of worth with potential for greatness, not a bad kid to be fixed. Thus, there is no use of labels of negativity, no judgment or delving into past mistakes. Go on from today. Let the past be gone. There is no need to contrive activities or situations. Each Young Walker's experience is real and personal and has its own natural consequences. Build relationships of trust. Touch the heart of the child and then they will want to change. The outdoor skills simply prepare the way for that. Olsen closed by stating that to solve the ills of the Earth, we must solve our problems with each other. "If your heart is right, you will be able to touch another heart." **IJW**

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Controversial Wildlife Management Issues in Southwestern U.S. Wilderness

BY BRIAN CZECH AND PAUL R. KRAUSMAN

Abstract: This paper describes controversial wildlife management issues in the Southwestern United States and provides recommendations for alleviating these controversies. Agency managers reported controversial wildlife management activities in 53 of 273 wilderness areas. Water provision, trout stocking, burro control, and big game surveys using motorized vehicles accounted for over half of the controversies. Less manipulative wildlife management techniques and more research and education on the relationship of economic growth to wilderness and wildlife conservation are recommended.

Article coauthor Brian Czech.

The overriding goal of The Wilderness Act (78 Stat. 890, Sec. 2a) is to preserve wilderness areas "in their natural condition." Naturalness, pursuant to The Wilderness Act, entails pristine and unmanipulated conditions (Cole 1996), though manipulation is sometimes justified to restore pristine conditions. Therefore, optimum wildlife and wilderness naturalness may contain a prudent combination of pristine and unmanipulated conditions. Cole and Landres (1996) identified the southwestern United States as a region of special concern for wilderness research due to the high conservation and scientific value of its riparian ecosystems. The Southwest (i.e., Arizona, California, Nevada, New Mexico, and Utah) has 273 designated wilderness areas in the National Wilderness Preservation System.

Methods

A survey was conducted of personnel involved in wilderness management in the Southwest. Telephone numbers were obtained for wilderness and wildlife managers from Gordon (1993), and then they were interviewed. Data from respondents who indicated that they "know of virtually every wildlife management activity being conducted" or "probably know about more than half of the wildlife management activities being conducted" in their administrative units were used for this study.

The survey was designed to ascertain sources of controversy between wilderness values and wildlife management by asking each respondent if any wilderness wildlife management activities have been controversial since the wilderness was designated. To qualify as "controversial," a wildlife management activity must have created a level of public or intergovernmental disagreement noticeable to the respondent, where "intergovernmental" refers to different levels

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of government (i.e., federal, state, and local). We did not include internal conflicts or interagency conflicts within the same level of government. Activities that tend to be controversial throughout the Southwest (e.g., predator control) were not included, unless a unique controversy involving the activity existed in a particular wilderness.

The pressures placed on wilderness to produce wildlife, livestock forage, recreation opportunity, and other goods and amenities indicate that the source of conflicts is the economic growth that usurps resources outside of wilderness.

Results

One hundred and ten people were surveyed to obtain data for all wilderness areas in the southwestern United States. Seventy respondents provided data for individual areas, and 40 provided data for multiple areas. Most respondents were employed by federal agencies, including the U.S. Forest Service (USFS) (n = 60), Bureau of Land Management (BLM) (n = 19), National Park Service (n = 14), and U.S. Fish and Wildlife Service (n = 7). In addition, 10 state wildlife agency personnel were surveyed. Managers reported controversial wildlife management activities in 53 wilderness areas (see Table 1, p. 24). Water provision, trout stocking, burro control, and big game surveys using motorized vehicles accounted for over half of the controversies (see Table 2, p. 25).

Water Provision

Six of the ten areas in which maintenance or construction of water facilities have been controversial occur on BLM lands in California (see Table 2, p. 25). Survey respondents involved with California BLM wilderness indicated that more areas will become controversial as water developments need maintenance. Controversy stems from a provision in Section 103(f) of the California Desert Protection Act, which states, "Management activities to maintain or restore fish and wildlife populations and the habitats to support such populations may be carried [out] within wilderness areas designated by this title and shall include the use of motorized vehicles by the appropriate state agencies." This provision tends to pit BLM wilderness personnel against wildlife managers with the California Department of Fish and Game (CDFG). Public groups have also entered the debate on both sides. Maintenance of water facilities constitutes manipulation, but wildlife managers contend that these waters help support populations of bighorn sheep (*Ovis canadensis*), which were extant under pristine conditions.

The other four areas in which water facilities are controversial are in Arizona. In two areas, mule deer are the target species; in one area it is bighorn sheep; and in the other area, bighorn sheep and Sonoran pronghorn are the target species. Bighorn sheep are, therefore, associated with eight of the ten areas for which water facilities are controversial.

Trout Stocking

Controversial trout stocking occurs exclusively in USFS wilderness, primarily in California (see Table 2, p. 25). Stocked trout are usually nonnative, and sometimes this controversy pits one wildlife species against another. For example, in the Emigrant Wilderness, stocked trout have been implicated in the decline of the mountain yellow-legged frog *(Rana muscosa),* a species petitioned for listing under the Endangered Species Act. Recent findings of Matthews and Knapp (1999) in the John Muir Wilderness are certain to cause the same controversy there.

Burro Control

Burro control is most controversial in California BLM areas (see Table 2, p. 25). Those who oppose burro control in wilderness areas (and elsewhere) employ the Wild and Free-roaming Horses and Burros Act (16 U.S.C. §§ 1331-1340). In Section 1331, Congress declared that: "…burros are living symbols of the historic and pioneer spirit of the West … burros shall be protected … as an integral part of the natural system of the public lands." Classifying wild burros as part of the natural system of public lands is not the same as classifying burros as a natural component of wilderness, however, and Section 1333(a) directs the secretary of the interior to manage burros "in a manner that is designed to achieve and maintain a thriving natural ecological balance."

Using Vehicles for Big Game Surveys

The controversy over using vehicles to conduct big game surveys is primarily a function of the California Desert Protection Act. This authorizes vehicle use for wildlife management and law enforcement. CDFG managers use vehicles to conduct surveys and research helpful for maintaining populations.

Table 1—Controversial wildlife management activities identified in the 273 wilderness areas of the southwestern United States.

State	Wilderness	Administrator*	Wildlife management activity
Ariz.	Beaver Dam Mountains	BLM	Restriction of cattle grazing
Ariz.	Cabeza Prieta	FWS	Existence and maintenance of water developments
Ariz.	Grand Wash Cliffs	BLM	Construction of water development using motorized equipment
Ariz.	Granite Mountain	FS	Cliff closure to climbing
Ariz.	Imperial	FWS	Burro control
Ariz.	Kachina Peaks	FS	Closure of some trails and moratorium on new trail building
Ariz.	Kanab Creek	BLM	California condor reintroduction, bighorn reintroduction
Ariz.	Mazatzal	FS	ESA Section 4 listing of willow flycatcher
Ariz.	Mount Logan	BLM	Maintenance of water developments
Ariz.	Mount Trumbull	BLM	Maintenance of water developments
Ariz.	Paria Canyon - Vermillion Cliffs	BLM	Bighorn reintroductions, bat research, restriction of livestock grazing
Ariz.	Pusch Ridge	FS	Hiking restriction proposal
Ariz.	Superstition	FS	Revocation of grazing permit
Calif.	Bristol Mountains	BLM	Maintenance of water developments
Calif.	Carrizo	BLM	Mechanical and chemical elimination of tamarisk
Calif.	Carson-Iceberg	FS	Removal of nonnative trout
Calif.	Chemehuevi Mountains	BLM	Maintenance of water developments
Calif.	Chuckwalla Mountains	BLM	Big game surveys with vehicles
Calif.	Clipper Mountains	BLM	Maintenance of water developments
Calif.	Death Valley	NPS	Burro control methodology
Calif.	Desolation	FS	Nonnative trout stocking
Calif.	Emigrant	FS	Nonnative trout stocking
Calif.	Garcia	FS	Introduction of nonnative Merriam's turkey
Calif.	Golden Trout	FS	Attempt to modify grazing permit
Calif.	Granite Chief	FS	Nonnative trout stocking
Calif.	Grass Valley	BLM	Modification of grazing allotment
Calif.	Hoover	FS	Nonnative trout stocking, ptarmigan presence, bighorn population increase
Calif.	Indian Pass	BLM	Burro control
Calif.	Joshua Tree	NPS	Maintenance of water developments
Calif.	Little Picacho	BLM	Burro control
Calif.	Manly Peak	BLM	Research access with motorized vehicles, use of infrared-triggered cameras
Calif.	Mecca Hills	BLM	Big game surveys with vehicles
Calif.	Mokelumne	FS	Target shooting, nonnative trout stocking
Calif.	Orocopia	BLM	Maintenance of water developments, capture with mechanical equipment
Calif.	Palo Verde	BLM	Burro control
Calif.	Philip Burton	NPS	Contraception of Tule elk
Calif.	Picacho Peak	BLM	Burro control
Calif.	Pine Creek	FS	Turkeys moving into wilderness following introduction nearby
Calif.	Santa Rosa Mountains	BLM	Bighorn capture with mechanical equipment
Calif.	Sawtooth Mountains	BLM	Mechanical and chemical elimination of tamarisk
Calif.	Stateline	BLM	Research access with motorized vehicles
Calif.	Surprise Canyon	BLM	Research access with motorized vehicles
Calif.	Thousand Lakes	FS	Nonnative trout stocking, cessation of trout stocking
Calif.	Trilobite	BLM	Aircraft use for capture, vehicle use for research
Calif.	Whipple Mountains	BLM	Maintenance of water developments
Calif.	Yolla Bolly-Middle Eel	FS	Nonnative trout stocking
N.M.	Bandelier	NPS	Feral burro and maverick cattle control
N.M.	Cebolla	BLM	Bison reintroduction
N.M.	Gila	FS	Wolf reintroduction, Gila trout recovery program, high elk density
N.M.	Sandia Mountain	FS	Archery only hunting allowed
Ut.	High Uintas	FS	Immigration of mountain goats, nonnative trout stocking
Ut.	Mount Timpanogos	FS	Maintenance of mountain goat population, buyout of sheep allotment
Ut.	Twin Peaks	FS	Use of mechanical equipment for capture and translocation

*BLM = Bureau of Land Management, FS = Forest Service, FWS = Fish and Wildlife Service, NPS = National Park Service.

Table 2—Types of wildlife management controversies identified in the 273 wilderness areas of the southwestern United States.

Controversial activity	Areas	State				Agency*			
		Ariz.	Calif.	N.M.	Ut.	BLM	FS	NPS	FWS
Water development or maintenance	10	4	6			8	1		1
Nonnative trout stocking	8		7		1		8		
Burro control	7	1	5	1		4		2	1
Big game surveys or research using vehicles	6		6			6			
Modification, revocation, or buyout of grazing permits	6	2	2		2	3	3		
Introduction of nonnative or arguably native birds or mammals	5		2	1	2	1	4		
Reintroduction of native birds or mammals	4	3		1		3	1		
Bighorn or mountain goat capture for study or translocation	3		2		1	2	1		
Hiking restrictions	3	3				2	1		
Vegetation eradication	2		2			2			
Other (any activity that is controversial in only one wilderness area)	9	2	4	3		2	5	2	
Totals:	**63**[b]	**15**	**36**	**6**	**6**	**33**	**24**	**4**	**2**

[a] BLM = Bureau of Land Management, FS = Forest Service, FWS = Fish and Wildlife Service, NPS = National Park Service. [b] There are more controversial activities (i.e., 63) than number of wilderness areas in which a controversial activity occurs (i.e., 53), because >1 controversial activities occur in several areas.

This controversy is managed via memorandum of understanding between the BLM and CDFG. Section 1 states, "Both agencies agree to protect and preserve the wilderness character and values of the areas while carrying out CDFG's wildlife management mission." Section 4 lists facility inspection and improvement, water hauling and pumping, censusing and monitoring, translocation, research, and other activities included under the purview of the California Desert Protection Act.

Modification, Revocation, or Buyout of Grazing Permits

Livestock grazing is one of the most controversial wilderness activities (McClaran 1990). This category includes only controversies where grazing management was altered for wildlife management purposes (see Table 2). Controversies included one buyout, one revocation, three modifications of grazing permits, and one proposed modification.

Supporters of wilderness livestock grazing cite the special provision for wilderness use found in 16 U.S.C. § 1133(d)(4), which authorizes the grazing of livestock where established prior to September 3, 1964, "subject to such reasonable regulations as are deemed necessary by the Secretary of Agriculture."

Introduction of Nonnative Birds and Mammals

Of the five controversial introductions of nonnative birds and mammals, mountain goats *(Oreamnos americanus)* and turkeys *(Meleagris gallopavo)* have each been involved in two cases; bison *(Bison bison)* in the other. In the ungulate cases, claims to native status of the species were based on early Holocene distributions. In four of the five cases, release sites were outside but near wilderness boundaries, with apparent intent to populate wilderness. State agencies were the primary sponsors.

Reintroduction of Native Species

Reintroductions of bighorn sheep (two wilderness areas), wolves *(Canis lupus)*, and California condors *(Gymnogyps californianus)* have been controversial due to potential regulatory impacts. States with bighorn sheep and mountain goats have policies to reestablish these species in all ranges to which they are native; three controversies have arisen as a result of the capture activities entailed (see Table 2). Capture activities have engendered concern among animal rights groups.

Hiking restrictions for reducing wildlife disturbance were controversial in three areas, and vegetation eradication for habitat improvement was controversial in two areas. Controversies limited to one wilderness area included the use of infrared-triggered cameras to monitor bighorn sheep, prohibition of shooting yellow-bellied marmots *(Marmota flaviventris),* contraception of Tule elk *(Cervus elaphus nannodes),* maverick cattle control, listing of the Southwestern willow flycatcher *(Empidonax traillii extimus),* bat research, maintenance of a nonnative population of white-tailed ptarmigan *(Lagopus leucurus),* maintenance of high populations of elk and bighorn sheep, and a limit of hunting method to archery.

Management Implications

Manipulation appears to be the most consistent violation of wilderness values caused by wildlife management. There are many public and private lands on which intensive wildlife management is practiced, but there are few areas where the unmanipulated component of naturalness is attempted. This increases the value of nonmanipulation to wildlife science (Leopold 1935). Nevertheless, managers have the authority in some cases to disregard naturalness, especially the unmanipulated criterion, and they will be continually pressured to do so (Panek 1997). Administrative policy-makers in federal and state agencies should support managers by developing rules, commission orders, and fiscal strategies that uphold wilderness naturalness. The following specific recommendations are intended to uphold values of wilderness wildlife.

Water Provision

Water development is a focal activity of wildlife managers in the Southwest, in and out of wilderness, and sometimes in cases where water development may be neither necessary nor prudent (Broyles 1995; Krausman and Czech 1998). Plant communities in arid regions have less ground cover and thinner soils than those in mesic regions, and are more easily altered by overgrazing livestock, hikers, packstock, and other disturbances (Holechek et al. 1989). Furthermore, the presence of water developments is itself a violation of pristine and unmanipulated conditions. On these grounds, managers should avoid constructing more wilderness water developments. However, where water developments are intended to produce densities of ungulates that approximate pristine densities, conflict is legitimate.

Should manipulative management be used to preserve unnaturally high populations of bighorn sheep in the southwestern United States? Photo by Dennis Henry, NPS.

Few managers specified whether water provision was intended to (1) mitigate activities that have reduced the availability of water inside wilderness, (2) mitigate habitat losses outside wilderness, or (3) produce more ungulates, regardless of pristine conditions. This lack of specificity contributes to unnecessary conflict, because only the first alternative is consistent with maintaining or restoring pristine wilderness ungulate densities. This situation may arise, for example, where a spring in one portion of the wilderness was lost due to the drilling of a well outside of the wilderness. A nearby water development in the wilderness, while manipulative, mitigates the water loss and theoretically contributes to the maintenance of a pristine density of wilderness ungulates.

The other two alternatives are not only manipulative, but promote wilderness ungulate populations that are likely to be higher than they were under pristine conditions. However, as economic development proceeds outside wilderness, wilderness can become the last bastion of habitat relatively free of human disturbance. This is especially problematic for bighorn sheep, which are sensitive to disturbance, have large home ranges, and have specific habitat requirements. If water is the limiting factor for bighorn sheep in a wilderness, and bighorn habitat has been lost outside the wilderness, then a lack of water provision could result in the extirpation of bighorn sheep in the region (i.e., the wilderness and surrounding lands). The question, then, is whether manipulative management to preserve unnaturally high populations of bighorn sheep is a better alternative than the maintenance of unmanipulated conditions that support no bighorn.

Empirical data will seldom be available on pristine densities of ungulates. However, managers should be able to produce rationale that identify water provision as falling within one of the aforementioned categories. Water provision falling under the first category would clearly be most defensible. Managers should provide water under the other categories only if they can

provide reasonable evidence that the species in question will likely be extirpated from the region otherwise.

Trout Stocking

Stocking of nonnative trout has long been recognized as a manipulative activity that produces nonpristine conditions (Panek 1994). USFS administrators should develop policies to lessen the number of wilderness areas and wilderness water bodies in which trout are stocked.

Burro Control

The presence of burros in wilderness is nonpristine and manipulative in effect. By law, burros may be an "integral part of the natural system of the public lands," but within that system of public lands, wilderness is a subset in which burros are clearly unnatural. In areas where burro populations are contained exclusively in wilderness, burros should be eradicated.

Using Vehicles for Big Game Surveys

The reluctance of managers to abandon vehicle use for surveys is understandable when wilderness characteristics are geographically and historically compromised. Nevertheless, the use of motorized vehicles in wilderness is clearly unnatural. Therefore, vehicular surveys should be phased out in favor of foot and horseback surveys. Managers should increasingly employ other efforts to obtain population data, including hunter check stations, mandatory hunter questionnaires and tooth submittal, and indexing methods like track and pellet counts.

Modification, Revocation, or Buyout of Grazing Permits

Livestock activities may be detrimental to virtually all wilderness values. While it is easy to recommend that Congress amend The Wilderness Act to remove the provision for livestock, it is probably innocuous (McClaran 1990). Perhaps the most productive things that wildlife and wilderness professionals can do are to establish good working relationships with range personnel, participate continually in grazing management planning, and support range personnel in any efforts they make toward reducing wilderness livestock impacts.

Introduction of Nonnative Birds or Mammals

The antiwilderness properties of this activity are virtually identical to those of nonnative trout stocking. Unlike trout stocking, however, introduction of nonnative birds and mammals is not well entrenched politically and should be halted entirely. Each agency should establish chronological criteria for determining native status; the relevance of early Holocene distributions is highly questionable.

Other Activities

Generally, managers should minimize animal capture, construction of mechanized research facilities, and target shooting. They should liberalize hunting seasons for nonnative species and for native species that are clearly at unnaturally high densities, especially when these species are not dependent on the wilderness for their regional existence. In addition, they should enjoin activities designed to maintain nonnative populations. They should reintroduce clearly native species, eliminate maverick cattle, and restrict recreational activities to protect wildlife.

Proposal for a New Emphasis

There will always be gaps in knowledge about ecological composition, structure, and function in and of wilderness. And from a political science perspective, conflicting agency missions and cultures will always be problematic (Clark et al. 1994; Clarke and McCool 1996). However, a great deal is already known about these ecological and institutional issues, and in many cases where little is known (e.g., pristine ungulate densities), there is little hope that much more can be known.

Perhaps the ecological and institutional problems facing wilderness managers are more symptoms than causes of the conflicts between wilderness and wildlife objectives. The pressures placed on wilderness to produce wildlife, livestock forage, recreation opportunity, and other goods and amenities indicate that the source of conflicts is the economic growth that usurps resources outside of wilderness. This suggests that research on macroeconomic expansion outside of wilderness may be more important to wilderness values and wildlife conservation than wilderness-based ecological or institutional research. It follows that wildlife and wilderness academicians should develop interdisciplinary curricula and research programs that

Desert bighorn sheep habitat, southwestern United States. Photo by John C. Hendee

Wilderness wildlife habitat in Death Valley National Park. National Park Service photo.

integrate ecological principles with economic growth theory, as in the nascent transdiscipline of ecological economics (Krishnan et al. 1995). **IJW**

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Waiting: On a Desert Vision Quest

BY ROBERT ELMORE

I uncovered something about myself sitting all alone in the desert.
I spend so much of my life waiting.
Waiting for the rain to stop.
Waiting for the sun to set.
Waiting for the wind to die down and become gentle again.
Waiting for the sun to rise.
Waiting for the afternoon heat to cool.
Waiting for the Big Dipper to just move one more inch in the night sky.
And what I wait for finally comes (as all things in nature eventually come ... and go.)
And I look at the minutes, the hours, the passing of time that seemed an eternity.
And I ask myself a startling question, "What did I miss?"

Risk Management in Wilderness Experience Programs

BY JIM TANGEN-FOSTER AND CHAD P. DAWSON

Abstract: Risk management is a vital and growing concern for wilderness experience program managers because they need to conduct periodic risk assessments of their activities and develop comprehensive safety management plans. Our national survey of such programs indicates that most operate in accordance with the key elements of contemporary safety practices. Most programs have written safety management plans and report having emergency plans and policies in place. Program liability insurance, pretrip orientation of participants, and periodic safety inspections were reported by more than 80% of the respondents. Most programs require cardiopulmonary resuscitation (CPR) and first aid training.

Article coauthor Chad P. Dawson.

Increased attention to risk/safety management in the last two decades has paralleled a rise in professionalism in the wilderness experience program (WEP) industry (i.e., organizations in which wilderness use is a defining characteristic of the program). Training and certification of instructors and accountability of programs are linked to ensuring the health and welfare of participants and, ultimately, the viability and continuance of the WEP industry. Risk management has become an essential means for WEPs to systematically address instructor competence, activity standards and guidelines, safety-related communication with clients, and many other safety concerns.

A growing body of information and research on safety has been incorporated into WEP risk management planning. Throughout the 1980s, the National Safety Network and, subsequently, the International Outdoor Safety Network collected and disseminated information on accidents and risk in adventure activities. In 1992, the National Outdoor Leadership School (NOLS) organized and facilitated a meeting of wilderness professionals that led to the establishment of the Wilderness Risk Managers Committee (WRMC). This consortium collects incident data primarily on wilderness-based and facility-based (e.g., rope challenge courses) activities to identify trends and establish directions for improvement in outdoor programming (Liddle and Storck 1995).

Article coauthor Jim Tangen-Foster.

Since 1995, the WRMC has hosted an annual conference on issues such as accident review processes, student

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College students participate in a Wilderness Quest retreat at Boulder Lake in the Salmon River Mountains on the Payette National Forest, north central Idaho. Photo by Jeff Vogt-Schaller.

medical screening, staff screening, crisis management, emergency procedures, insurance, and the use of cell phones and radios (Gookin 1995). Several professional associations, including the Association for Experiential Education (AEE) (Priest and Dixon 1990; AEE 1995), Project Adventure (Webster 1989), and the National Intramural and Recreational Sports Association (McGregor and MacDonald 1992) developed manuals that outlined standards and practices pertaining to safety management. The Internet has recently become another source of information on safety management, such as the NOLS Website (www.nols.edu).

Since there is a need for more information about WEPs to help guide wilderness management decisions, our national survey assessed their risk management practices (Krumpe 1990). This assessment data may be helpful to managers as well as to WEP administrators and leaders. Practitioners "in the field" perhaps best understand the importance of safety assurances and management.

The National WEP Study

Of the 330 WEP organizations that were sent mail questionnaires in 1996, 179 (54%) were returned and used in this analysis (Dawson et al. 1998). The respondents reported that, on average, about 50% of their program time was spent in designated wilderness or other public or private roadless areas. The size of the organizations varied widely, as indicated by the number of trip leaders, with a mean of 20, and as many as 550 trip leaders in one organization.

The risk management data addressed in this article comprised only a portion of the 1996 survey. The content and findings related to other aspects of the survey are described elsewhere (Dawson et al. 1998). Risk items for the survey were developed in large measure from review of professional manuals and information required on liability insurance applications for recreational outfitters and guides.

What Is Comprehensive Risk Management?

Comprehensive risk management is the systematic analysis of potential risk exposures (e.g., injury, death, or other loss) within a WEP and the development and implementation of a plan to minimize the frequency and severity of such exposures (van der Smissen 1997). Risk assessment must be thorough and should span all aspects of a business, including risks related to property, personnel, disclosure of information, documentation, equipment use and maintenance, and other issues. We developed a checklist of risk management/safety policies and procedures through a literature review (e.g., McGregor and MacDonald 1992), that should be addressed by all WEPs for comprehensive risk management (Table 1). Due to the space limitations of our national survey, only some of these items were included in our survey.

Organizational Planning and Structure

Most experts agree that a written risk management plan that details safety policies and procedures is an essential document for WEPs. Two important components are (1) a description of the mission and goals for the WEP program in relation to safety; and (2) the organizational structure showing who is responsible for the various levels of risk management, including development and implementation of safety policies and procedures and monitoring and evaluation of performance at all levels. Our survey found that two-thirds of the programs reported having a written wilderness risk management plan (see Table 2). Examples include the risk management organizational structure of Outward Bound and NOLS as described in Gookin (1995).

Once risks have been identified, policies and procedures for reducing the participant risks are detailed in a written plan or policy/procedure manual that includes (a) participant supervision, including the rules and regulations for activities and how dangerous activities, conditions, and emergencies will be handled; (b) conduct of activities, including adequacy of instruction, transportation, and the flow of information between participants and leaders; and (c) situational conditions related to health, equipment, facilities, and the natural environment (van der Smissen 1997). Our survey found that 84% of the programs reported having a written emergency evacuation plan and 77% had a motor vehicle policy related to safety (see Table 2).

Implementing the Risk Management Plan

Systematic implementation of the risk management plan includes (a) in-service training for designated staff and developing and updating a risk management manual; (b) managing the information system of releases/waivers, accident forms, equipment inspections, and other documentation; and (c) initiating programmatic revisions as circumstances, staff, or financial status changes (van der Smissen 1997). Regular external evaluations by a consultant or professional from another program are vital for providing a new and fresh perspective to safety procedures.

Most programs in the national survey conduct periodic safety inspections (93%). A considerably smaller percentage (42%) reported maintaining a written record of program equipment use, although some of the WEPs surveyed included programs where participants provide their own equipment or include activities that do not require specialized safety equipment. Less than half of the WEPs surveyed had been evaluated for safety by an external source (43%). The majority of programs (86%) reported having a written accident report form.

Table 1—Checklist for risk management/safety policies and procedures for wilderness experience programs.

Organizational planning and structure
- Written comprehensive safety plan
- Policy/procedure manual for safety
- Risk management committee
- Safety manager
- Subscription(s) to publication(s) which cover safety issues related to WEPs

Managing program financial risk
- Insurance policy which covers negligence liability for all activities and personnel
- Participants required to sign waiver/consent forms
- Waiver/consent forms reviewed by legal counsel

Participant supervision, activities, and environmental conditions
- Instructors inform participants of safety issues
- Policy concerning inclement weather and conditions for safe activity
- Participants furnished with a list of personal equipment to bring to the course
- All personal equipment furnished by participants checked by instructors prior to participation
- Activities planned and conducted according to recognized safety standards and instructional methods
- Travel policy that addresses safety
- Participants required or advised to have medical exams prior to participation
- Policy for use of cell phones, radios, and other forms of electronic communication during courses

Accidents and emergencies
- Detailed emergency plan
- Accident follow-up procedures
- Emergency evacuation plan
- Conduct periodic emergency drills
- Procedures for reporting and correcting unsafe conditions, practices, and "near misses"
- Written accident report form available to instructors at all times
- Adequately stocked first aid kits readily available

Inspections, evaluation, and documentation
- Periodic safety inspections of all areas and facility/equipment
- Policy for regularly evaluating natural hazards
- Comprehensive checklists for safety inspections
- Program and equipment evaluated for safety by an external source
- Written record maintained of all program equipment use
- Written record maintained of all use of program safety equipment

Training and certification
- Policy governing the minimum qualification levels required for all instructors
- Program personnel attend professional conferences which address related safety issues
- All instructors trained in first aid and CPR
- Safety clinics conducted periodically for all personnel
- Safety included in instructor performance evaluations
- Staff training sessions include safety
- Instructors periodically updated regarding new activity hazards and safeguards

Managing Program Financial Risk

Risk management typically addresses two types of risk: (a) personal injury to participants; and (b) financial loss to the wilderness program and its owners resulting from a participant's injury, death, or loss. Participants benefit because professionally run programs with comprehensive risk management plans are safer than programs that lack sound safety practices. Catherine Hansen-Stamp (1997), an attorney who specializes in recreational legal issues, notes that individuals frequently fail to accept responsibility for themselves. Organizations must seek financial protection through liability insurance and risk management. Our national survey found that most WEP programs carry liability insurance (83%), but more than half (54%) reported that obtaining such insurance was, to some degree, a problem.

Two essential tools for informing participants of the nature of the activity and how they can function more safely in that environment are pretrip

Table 2—Risk/safety management policies and procedures reported by wilderness experience programs (N = 179).

Policies and Procedures	Percentage
Safety Planning	
Emergency evacuation plan	84
Written wilderness risk management safety plan	67
Provide pre-trip orientations for customers	95
Liability and Insurance	
Participant health history form required	88
Written accident report form	86
Participant waiver of liability required	84
Liability insurance	83
Equipment and Vehicular Safety	
Periodic safety inspections of program equipment	93
Motor vehicle travel policy that addresses safety	77
Evaluation of program and equipment for safety by external source	43
Maintain written record of all program equipment use pertaining to safety	42
Trip leaders carry two-way radios or cellular phones	29

orientations and liability release forms. "The more a participant knows about the activity in which they are about to engage," says insurance claims consultant Will Leverette (1997), "the less likely they are to do something that will contribute to their own demise." In the national survey of WEPs, 95% indicated that their organization provides pretrip orientations, and 84% indicated that their programs require participants to sign a waiver of liability.

The participant is a partner in the risk management effort and must accept the responsibility for advising the organization of special issues affecting his or her participation (Gregg 1997). Orientations, participant health forms, and other pretrip communications may facilitate this process. Most programs (88%) in the national survey of WEPs required participants to provide information on health history prior to participation.

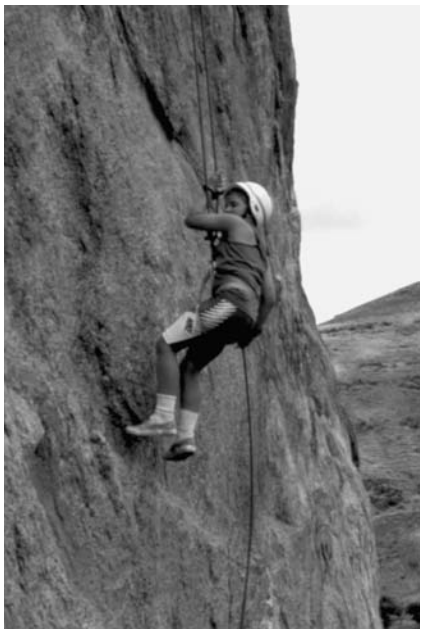
Training and Certification

In 1962, Paul Petzoldt (1974), then chief instructor for the Outward Bound school, noted the lack of "trained outdoorsmen" in the United States who were competent in all the varied skills needed of wilderness leaders. Training and certification of leaders was needed, Petzoldt noted, not only to ensure the safety of individuals on wilderness expeditions but to prevent wilderness "destruction." Petzoldt's urgings to train and certify outdoor leaders gave rise to NOLS and, later, to the Wilderness Education Association.

Certification and accreditation are ongoing processes for affirming whether individuals and programs are conducting themselves and their activities in a manner that meets accepted standards. The AEE (1995) offers accreditation as a voluntary method of self-regulation, a process of standardization and "self-policing." The national survey of WEPs asked organizations to identity the certificates and licenses that were the minimum requirements of leaders, but few WEPs require leaders to be licensed or certified (see Table 3). Some of the certifications listed on our survey were not applicable to certain programs, such as lifeguard training for programs without water-based activities.

When asked what amount and kinds of training were required of trip leaders, most organizations reported "in-house" (67%) or "on-the-job-training" (56%). Required training ranged from 0 to 72 days (mean = 6.7 days). Twelve percent of the organizations provide no specific training but instead, expect leaders to be fully qualified before working for their program. The diversity of the required types of training reflects the variety in the WEP programs surveyed.

Wilderness first aid and medicine is a recent development that grew out of the limitations of conventional first aid and EMT training. Wilderness conditions can mean delayed rescue and transport in remote areas, prolonged exposure to severe environments, and the limited availability of medical equipment. When asked in the national survey about the "unavailability of medical services," 42% of WEPs reported it to be a problem to some degree. Most WEP programs require CPR (86%) and first aid training (60%). Specialized training for many wilderness leaders may include Wilderness First Responder



A 12-year-old youth participating in the Adventure Bound program rapels down Granite Point on Lower Granite Lake near the Snake River in southeastern Washington. Photo by Laurel Tangen-Foster.

(WFR), Wilderness Emergency Medical Technician (WEMT), or Wilderness Advanced First Aid (WAFA) courses. In the national survey of WEPs, slightly more than a fourth of the programs require WFR or Emergency Responder certification in order to lead trips, while only a handful of the programs surveyed require WEMT certification (4%).

Cell phones, radios, and other forms of electronic communication have recently become part of wilderness risk management. Although some have advocated that such technology undermines the traditional wilderness experience, many programs, including NOLS, have adopted their prudent utilization during wilderness program trips as consistent with a concern for safety and the use of other recent technological advances, such as avalanche transceivers (Schimelpfenig 1995). In our national survey, 29% of WEPs reported the use of two-way radios or cellular telephones.

Who Benefits From Risk Management?

"Programs, users, and land management agencies all benefit from professionally run programs with sound risk management," according to Mike Beiser, program director and member of the risk management committee for the Association of Outdoor Recreation and Education. Risk management "protects and perpetuates our programs. It is pivotal to the access issue. Agencies will provide access if they are confident that the program is going to meet the risk management standards of the industry that are being set in programs like Outward Bound and NOLS" (Beiser 1999, personal communication).

Although comprehensive risk management can be costly to WEPs, the financial loss to programs because of accidents can be much greater. These financial risks can be managed and minimized through the purchase of insurance, waivers or use contracts, lease arrangements with indemnification, employment of independent contractors, and other legal agreements that shift liability away from the program (van der Smissen 1997). At the very least, accidents interrupt business directly in the field and indirectly through bad publicity. On the other hand, a lawsuit can threaten the viability and, ultimately, the survival of a program. Accidents may impact others not directly involved with the WEP, such as having rescuers at risk of harm.

Youth from Adventures Cross-Country learn important social and outdoor skills in Colorado's Pike National Forest along the Continental Divide. Photo by Jeremy Miller.

Safety—A Serious Issue

Many organizations view safety as integral to their mission and have integrated a process of risk management into many or all aspects of their programs (e.g., program development, staff selection and training, student screening and admissions, instructional techniques, equipment maintenance). While the reduction of injuries may be the most important priority, many programs enact risk management from a desire to run a professional operation in which the priority is fair, honest, and ethical treatment of clients and staff (Gregg 1997).

Many WEPs have a proven record of safety. Statistics on accidents, illnesses, and other related information for NOLS and Outward Bound have

Table 3—Certifications or licenses that were minimum requirements of WEP trip leaders (N = 179).

Certifications/licenses	Percentage
MEDICAL	
CPR	86
Red Cross Standard First Aid	60
Wilderness First Responder	29
Emergency Responder (Advanced First Aid)	26
Emergency Medical Technician	7
Wilderness Emergency Medical Technician	4
PROFESSIONAL	
Lifeguard training	25
Outfitter and guide license	10
Professional license	9
American Canoeing Assoc. rating/certification	7
American Mountain Guides Assoc. rating/certification	2
Leave No Trace training certification	2

The wilderness experience programs led by Adventures Cross-Country teaches youth at risk how to work as a team to solve problems. Pictured here in the Pike National Forest in Colorado. Photo by Jeremy Miller.

been published in medical journals (Gentile et al. 1992; Patton 1992). These results conclude that accident rates can be managed and that programs can be delivered with a level of safety. Participants need to know about the risks of the activity in which they are about to engage, and providers need to know about participants' medical history, experience, and expectations (Gookin 1995). Programs can provide for an accurate and honest exchange of information through pretrip meetings, health history forms, liability waivers, and other forms of screening and informing participants, enabling programs to minimize the frequency and severity of risk exposures.

Many programs are continuously engaged in a process of internal and external safety review and evaluation. For example, accurate and detailed information about accidents and treatments, as well as near misses, is vital to initiating programmatic revisions. Some WEPs invite outside experts to evaluate their programs and to help attain recognized standards of accreditation and certification.

It is imperative that program administrators and leaders be well versed in current standards and practices related to risk management. Some programs specializing in adventure experiences may differ from wilderness experience programs in their emphasis on risk and danger (Ewert and Hollenhorst 1997), but comprehensive safety assessment and management should be a part of both types. Risk management affects everyone involved with wilderness and its use for the development of human potential. Existing accreditation standards for the WEP industry suggest that every organization should do a risk assessment and develop a comprehensive safety plan.

Acknowledgments

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International Wilderness Provides Ecological Services for Sustainable Living

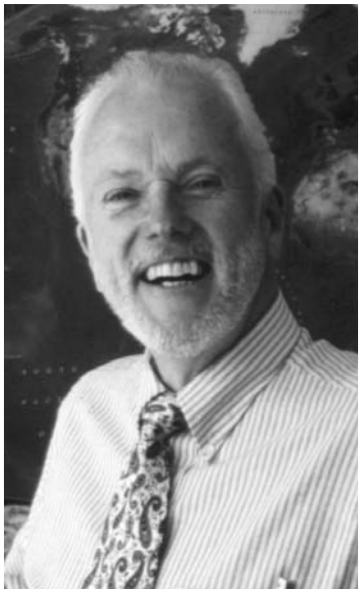
BY KENTON R. MILLER

Editor's Note: This is a revision of Dr. Miller's keynote address to the 6th World Wilderness Congress, October 1998, Bangalore, India.

—Vance Martin

The designation of wilderness and other special places and sacred areas is not a new idea. Ancient cultures have protected certain places from people-caused change since the earliest of human times. They sought to protect their freshwater springs, their supplies of firewood and building materials, their sources of medicinal plants, and their special hunting and gathering grounds. Sites of historic, religious, spiritual, and cultural significance have been assigned special places in the landscape within a mosaic of farms, hunting areas, harvested forests, and settlements. Some of these ancient protected areas are still found, having survived centuries of time and change. Many hinterland sites continue to be used for pilgrimages and rest, and for communion with nature and the human spirit.

Modern and industrial societies also give special status to the places they consider to possess outstanding values, and these places serve many purposes. Examples from around the world illustrate the diverse reasons for which different communities establish and manage these areas. In Bali centuries-old irrigation systems provide for today's needs for rice, drawing water for irrigation from Lake Batur that is considered to be a holy site by the local Hindu culture. In Brazil the Dos Orgoes National Park provides potable water to Rio de Janeiro. The Cibodas Reserve on Java offers firewood to local communities, while in Botswana, safari hunting is an economically important use of wildlife. At the most southern tip of the Andes in the Torres del Paine National Park of Chile, rugged hikers enter wilderness to pit their mountaineering skills against the dynamic and challenging elements of nature. Ecuador's Galapagos Islands National Park provides facilities to support research into that unique environment, while in Russia, the Cernozem Biosphere Reserve offers research opportunities on one of the world's most productive soils, and maintains one of the last unplowed areas of steppe. Tigers have been restored in Rathambore Reserve in Rajastan, while the buffer zone of Baluran National Park in Eastern Java protects fishing services for local communities. Deep in the forest of Ujung Kulon National Park in far Western Java, some of the last Banteng, an ancient form of wild cattle, still survive. Environmental education is a main theme of the Poas Volcano National Park in Costa Rica.



Article author Kenton R. Miller.

Wildland Protection Is Not New

The concept of protected wildland areas is neither an invention of this century nor an import from any one particular culture or region of the world. Presently, more than 33,000 places are being accorded special legal status as national parks and other types of protected areas by 252

Figure 1—Categories of Protected Area

The starting point must be a *definition of a protected area*. The definition adopted is derived from that of the workshop on categories held at the IVth World Congress on National Parks and Protected Areas:

> *An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.*

This definition embraces the "universe" of protected areas. All categories must fall within this definition. But although all protected areas meet the general purposes contained in this definition, in practice the precise purposes for which protected areas are managed differ greatly. The following are the main purposes of management:

- Scientific research
- Wilderness protection
- Preservation of species and genetic diversity
- Maintenance of environmental services
- Protection of specific natural and cultural features
- Tourism and recreation
- Education
- Sustainable use of resources from natural ecosystems
- Maintenance of cultural and traditional attributes

Having regard to the different mix and priorities accorded to these main management objectives, the following emerge clearly as distinct categories of protected areas:

Areas managed mainly for:

I Strict protection (i.e., Strict Nature Reserve/Wilderness Area)
II Ecosystems conservation and recreation (i.e., National Park)
III Conservation of natural features (i.e., Natural Monument)
IV Conservation through active management (i.e., Habitat/Species Management Area)
V Landscape/seascape conservation and recreation (i.e., Protected Landscape/Seascape)
VI Sustainable use of natural ecosystems (i.e., Managed Resource Protected Area)

However, most protected areas also serve a range of secondary management objectives.

The relationship between management objectives and the categories is illustrated in matrix form in the table below. It is developed further in Part II, where each category is described, and through a range of examples presented in Part III.

This analysis is the foundation upon which the international system for categorizing protected areas was developed by IUCN and which is presented in these guidelines. There are several important features to note:

- The basis of categorization is by primary management objective
- Assignment to a category is not a commentary on management effectiveness
- The categories system is international

Source: IUCN, 1994. ***Guidelines for Protected Management Categories,*** *Gland, Switzerland*

countries (WCMC 1997). This represents almost 9% of the Earth's terrestrial surface. The World Commission on Protected Areas and the World Conservation Monitoring Centre have classified these areas according to the objectives for which individual countries manage them, as shown in Figure 1. Not included in this tally are the thousands of smaller sacred forests, community forests and wildlife reserves, and local government managed wildlands.

Nature and natural processes dominate most of these sites. Here, in the ideal case, streams flow unimpeded by waterworks. The sounds are of birds, mammals, insects, and flowing waters. There is limited development of roads, buildings, agriculture, and human settlements. While most have felt the hand of human cultures as people have molded and shaped nature over the centuries in their search for sustenance and living space, nature's processes still dominate the landscape.

These sites are special for three important reasons:

1. The species and their genetic variations found at each site are unique forms of life. Should they become extinct, people have no capacity to recreate them.

2. The ecological functions that take place at each site, like pollination and detritus cycling, cannot be replaced by human-

made technological inventions, nor could the economic cost be afforded.

3. These communities of life forms and their myriad inter-connections and inorganic environments cannot be picked up and relocated geographically to accommodate human preferences.

The Convention for the Conservation of Biological Diversity (CBD) in its Article 8(a) features protected area management as a central strategy for the maintenance of species, their genetic variation, and habitats around the world. Most ratifying nations have included their protected area programs as a component of their national biodiversity strategies and action plans.

Change and the 21st Century

As we look to the future, communities and their governments are challenged by the rapidly disappearing wildlands and the imperative to achieve sustainable livelihoods. Namely, in the face of global change in the 21st century, how can ecosystem services continue to meet the needs of people and other life forms? Scenarios drawn by scientists suggest major forces at work, including rising trends in world population, a fall in world fish catch, an increase in atmospheric carbon dioxide, rapid soil degeneration in many regions of the world, deforestation, and fragmentation of landscapes. This latter scenario is one of the most powerful forces responsible for the loss of biodiversity and ecosystem services, such as has occurred at sites in the United Kingdom and Western Australia. All of these phenomena, and other factors in terms of the "domestication" of landscapes, had and will continue to have a tremendous impact.

Wilderness, Ecosystem Services, and Sustainable Living

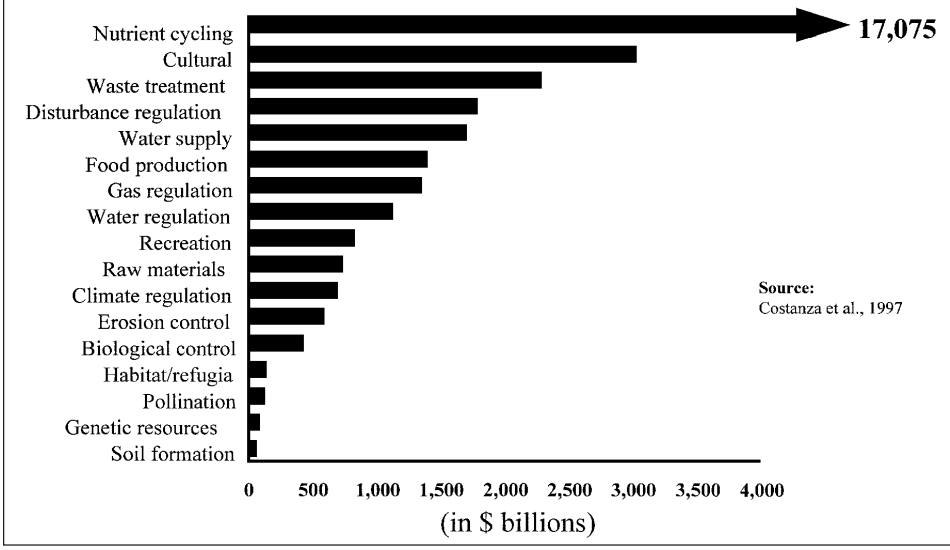
Natural ecosystems support nature and human communities in myriad ways. Figure 2 is adapted from the work of Costanza et al. (1997). The full array of goods and services derived from ecosystems are listed along the left-hand axis. A financial value is proposed for each good and service which enables the authors to rank the relative importance of each. While this work is still very much open to discussion among ecologists and economists, the study provides a useful framework to orient our understanding of the role of ecosystems in sustainable living. For example, food security is dependent upon the cycling of nutrients and wastes in the soil and water. These services are suggested to be among the most valuable of all. The supply of fresh water and purification of air are similarly dependent upon well-functioning ecosystems. These services are not exchanged in the economy.

Cultural values rank high on the list. Sites like Peru's Machu Pichu National Reserve and the Kagar Alam in Bali illustrate how those societies have chosen to protect these sites to retain their cultural heritage and also employ these sites to generate tourism income. In the Kakadu National Park in Australia the Aboriginal community retains control over and administers access to their sacred sites within the area. Those goods and services that we most commonly associate with natural ecosystems, including wood products, recreation, tourism, and genetic resources, appear to rank much lower in value. They are exchanged in the marketplace and carry monetary values.

Perhaps the most striking observation to be drawn from this analysis is that many of the services (ecological services) that governments and local communities appear to value most are not directly managed in our economies. They are taken for granted as "free" from nature. We do not generally invest in and nurture these lands and waters to protect, restore, and enhance their capacity to produce these valued services. But they are natural by-products of wilderness and wildland reserve protection.

As can be seen, wild and natural ecosystems are directly linked to the support of life itself. On ethical and moral grounds alone, we would conclude that

Figure 2—Our Understanding of Ecosystem Value is Increasing



The concept of protected wildland areas is neither an invention of this century nor an import from any one particular culture or region of the world.

our nations and our communities must take steps to establish and maintain natural ecosystems throughout our landscapes. On more utilitarian grounds, natural ecosystems underpin the productivity of our soils and waters, the quality of our air, and our supplies of building materials and energy. They provide for solace and the regeneration of our spirit. And, they harbor a panoply of genetic secrets hidden in plants, molds, bacteria, and other living organisms that provide us with medicines and future services yet undiscovered.

Strategies for the 21st Century

If society wants to work toward sustainable livelihoods, we will need to invest in wildlands and wilderness. We will need to manage them actively to provide the full gamut of ecosystem goods and services. Investment decisions are generally guided by economic criteria. As has been shown, many of the values most critical for human wants and needs are not quantified in monetary terms. Thus investment and management decisions will need to be guided by a combination of economic tools, ecological knowledge, and cultural know-how. In general, this means that community leaders, government officials responsible for natural resources, and wilderness activists should:

Rethink the goal: In addition to the traditional values of wilderness that remain valid and singularly important to people everywhere, wilderness management should be credited for the provision of ecosystem services upon which human survival and quality of life depend.

Reorient the approach: Beyond simply establishing isolated wildland reserves as geographic islands apart from people, the approach must incorporate wilderness areas as components of regional landscapes where people live, work, and earn their livelihoods.

Respond to global concerns: The factors of global change (e.g., climate, population, pollution, agrotechnology, urbanization, etc.) will have impact upon hinterlands. Biological corridors provide one mechanism to support migration among wilderness areas and adaptation of nature to the forces of change.

Reach out to potential partners: Neighbors and other stakeholders can become partners in voluntary cooperative programs to help manage and protect ecosystem services, sacred sites, and biodiversity in their bioregions. The facilitation and promotion of stewardship, participation, policy consistency, positive incentives, and appropriate arrangements of authority and responsibility between community and the state are key components of a facilitating environment (WCPA/IUCN 1997).

In an ideal world ecologists suggest that up to 40% of each bioregion should consist of wildlands (Soule 1998). In the Indian subcontinent and other regions where human settlement per hectare is already high, this goal will appear impractical. But we're talking about the need for ecological services to sustain life; obviously, building sustainable landscapes and livelihoods will be the labor of a century. With understanding and commitment, steps can be taken over time to establish a landscape rich in biodiversity and flowing in ecosystem services (Miller 1995). For example:

- Remaining areas of wild nature can be maintained.
- Over time, the variety of habitats in each bioregion can be managed to mimic nature's mosaic of patches to intersperse natural areas with agricultural and harvested forest areas, as well as settlements. (Some of these protected habitats could be wilderness—so defined as to fit the prevalent cultural context).
- These patches can be managed to feature among them a variety of successional stages from old growth through the natural sequences of ecological development.
- Allow drought, wind, storm, and fire to influence the natural patches and foster dynamic change and diversity.
- Give particular attention to maintaining upstream catchment areas, wetlands, estuaries, mangroves, coral reefs, and forested areas.
- Where species have been extirpated, take steps to reintroduce them.
- Where exotics have been introduced, take steps to remove them.
- Restore those habitat types that have been excessively altered.
- Avoid driving species and their genetic variations to extinction.
- Avoid interrupting ecological functions, such as dams on rivers and jetties on coastal areas.

- Avoid locating major human interventions in areas critical to ecosystem service production, such as draining and filling wetlands, and infrastructure development.
- Link key wildland patches and protected areas by corridors to facilitate adaptation to global change.
- Incorporate biodiversity-friendly practices into farming, fishing, and forestry.
- Establish social, institutional, and economic arrangements that foster stewardship, equity in the sharing of costs and benefits, and voluntary cooperation.
- Focus simultaneously on the actions needed at local, bioregional, national, and global levels.

Employing Bioregional Approaches to Land Use Planning

- Identify, select, and establish core wildland areas that will be retained in the landscape.
- Establish buffer zones around wildland core areas to provide a transition from wild to domestic land uses and space for between them managing negative impacts.
- Link core areas and buffer zones by corridors of nature-friendly land- or seascape to provide for migration and for adaptation to global change.
- Manage core areas, buffer zones, and corridors as elements of greater ecosystems or bioregions, the matrix of which features farms, harvested forests and fishing areas, and human settlements and infrastructure.

Bioregional planning can be most successful when accompanied by steps to create an appropriate social and political environment because it's people who will make it happen. This includes:

- Participatory democracy among stakeholders.
- Appropriate levels of decentralization and devolution.
- Strengthened role of the central, state, and local governments to help communities and stakeholders gain new skills, exercise newly devolved authority and responsibility, and establish the incentive structure to foster stewardship.
- Information and access to education for all stakeholders.
- Application of science and local knowledge.
- Removal of negative policies and incentives and establishment of a positive living and working environment.

Toward a Goal of Sustainable Living

Sustainable living will depend upon a secure flow of ecosystem services, and their source is often linked with wild and semiwild places. These natural and protected areas must be diverse and will need to include patches of forest and other natural habitats, including wilderness, appropriately defined to fit the local context. Some of these protected areas can serve society's needs for material, solace, cultural identity, and spiritual uplift. Others will need to be as large and as wild as possible (wilderness and nearly wilderness) to fulfill their ecological functions. They can be managed through different mechanisms of governance, but the continuity in their management as key ecosystems must be long term. For long-term survival, and therefore service to people and nature, these key sites need to be established and managed within a network of reserves connected by biodiversity-friendly corridors. Each society will need to seek its own approach to participatory democracy and governance to make this vision possible. **IJW**

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Announcements & Wilderness Calendar

Upcoming Conference

The U.S./Mexico Border States Conference on Recreation, Parks, and Wildlife will be held March 14–17, 2000, in Monterrey, Mexico. The theme of this 10th annual event is "The Challenge of Mitigating Human Impacts." Topics will include ecosystem management, protected areas, wildlife, rural development and ecology, and parks and recreation. This conference is an international forum to exchange information on existing and potential cooperative projects, agency functions and programs, and common issues concerning natural and cultural resource management in the states of the U.S./Mexican Border. For more information, contact: Maria Araujo, International Affairs Coordinator, Texas Parks and Wildlife, 4200 Smith School Road, Austin, Texas 78744, USA. Telephone: (512) 389-4901. E-mail: maria.araujo@tpwd.state.tx.us.

IJW Salutes U.S.A. Wilderness Act's 35th Anniversary

The National Wilderness Preservation System (NWPS) was born 35 years ago, September 3, 1964. The wilderness bill, first introduced in Congress in 1956, was intensely debated and rewritten several times before its enactment. Since that time the NWPS has grown from 9.1 million acres to 104 million acres, encompassing 635 wilderness areas, about half in Alaska. Wilderness now makes up 4% of the U.S. land base, but only 2% of the lower 48 states.

Consistent with the impressive accomplishments of the past 35 years under The Wilderness Act, support for wilderness remains high among the public and with wilderness preservation groups. A recent poll found that 88% of Americans believe we need to protect our most special places now, before they are lost. The Wilderness Society and its new National Wilderness Support Center in Durango, Colorado, USA, have called for a tripling of wilderness acreage to 300 million acres. Citizen-led wilderness designation

campaigns are underway in 20 states, with new technology and training available to help make these wilderness activists more effective than ever.

In addition to the 35th anniversary of The Wilderness Act, 1999 marked the 75th anniversary of the administrative designation of the Gila Wilderness in New Mexico by the U.S. Forest Service (see Chief Mike Dombeck's article, p. 4).

IJW congratulates all the people and organizations whose hard work helped make the anniversary celebrations possible.

St Lucia Wetland World Heritage Site—Application Pending

UNESCO announced that the South African application to have the Greater St Lucia Wetland Park declared a World Heritage Site has been received. Ratification is expected, as St Lucia meets all four criteria. The Greater St Lucia Wetland Park includes the largest estuarine lake system in Africa, which is declared a Ramsar site under the Convention on Wetlands of International Importance. The St Lucia area also includes wilderness zones both in the lake itself (motors forbidden) and on the eastern shores bordering the Indian Ocean, which contain some of the highest forested sand dunes in the world, grasslands, and fabulous wetlands.

People are not likely to forget the long struggle to save St Lucia from destructive strip and dredge dune mining and the two petitions that collected half a million signatures—the biggest public campaign to protect a natural area on the African continent. Former President Mandela will no doubt also be delighted to hear the news. He was one of those half a million signatories.

Bill Hendricks Wins 1st Place in Wilderness Research Awards

At the National Wilderness Science Conference in Missoula, Montana, USA, May 1999, the editorial board of the *IJW,* acting as referees for the U.S. Forest Service Wilderness Awards Program, named the 1999 Wilderness Research Award winner from four finalists. John Hendee, *IJW* editor in chief, presented the award to Bill Hendricks of California Polytechnic State University, and also praised the quality of all the finalists. The award-winning study as well as the three finalists for the award are highlighted below.

Award Winner—"Evaluation of the Wilderness Impact Monster Education Program." By Bill Hendricks, assistant professor of recreation administration, California Polytechnic State University, San Luis Obispo, California 93407, USA. Telephone: (805) 756-1246.

Dr. Hendricks' research compiled useful information for wilderness educators about the most effective approaches and school grade-level appropriateness of various versions of the "Impact Monster" wilderness education program, and he developed an attribute assessment method for evaluating wilderness education programs in an experimental setting (see Hendricks, *IJW* 5 (2): and William W. Hendricks and Alan E. Watson. 1999. *Wilderness Educators' Evaluation of the Impact Monster Program, RMRS-RP-15.* USDA Forest Service, Rocky Mountain Research Station.) Ogden: Utah.

Finalist—"Visibility in Hercules Glades Wilderness, Missouri: Baseline Conditions." By Jennifer S. Johnson-Peterson, Department of Geography and Planning, Southwest Missouri State University, Springfield, Missouri 65804-0089, USA. Telephone: (417) 836-5800.

From 1991 to 1996, slide photography images were taken three times a day, year-round, to establish baseline visibility within the Hercules Glades Wilderness. Target/sky contrast measured by micro-densiometry of 35 mm color slides, and human perception of visibility and visual air quality were analyzed to develop thresholds of acceptable/unacceptable conditions.

Finalist—"Impacts of Fish Stocking in High Elevation Lakes of the Sierra Nevada." By Kathleen R. Matthews, USDA Forest Service, PSW Research Station, Berkeley, California 94701, USA (telephone 510-559-6454) and Roland Knapp, University of California, Sierra Nevada Aquatic Research Lab, Mammoth Lakes, California 93546, USA, (telephone 760-647-0034).

Between 1995 and 1997, data were collected and analyzed from 2,162 lakes (1,079 in the John Muir Wilderness and 1,083 in the Kings Canyon National Park) on fish, amphibians, invertebrates, and lake physical attributes to determine effects of fish stocking on aquatic life.

Finalist—"An Archaeological Inventory of Montana's Anaconda-Pintler Wilderness." By Sandi Morris, north zone archaeologist and Ben Munger, south zone archaeologist, Beaverhead-Deerlodge National Forest, 1820 Meadowlark Lane, Butte, Montana 59701, USA (telephone 406-494-0200).

This first comprehensive, long-term study of cultural resources in a U.S. Forest Service northern region wilderness involved five years' fieldwork by these two scientists with assistance from volunteer work crews. They identified archaeological and historic sites in the Anaconda-Pintler Wilderness. They determined the relative density of prehistoric and historic sites, their formation processes, and their preservation and disturbance potential.

New Outdoor Behavioral Healthcare Research Cooperative Founded at the University of Idaho

The Outdoor Behavioral Healthcare Industry Council (OBHIC), a group of outdoor behavior health-care treatment programs (outdoor-based mental health programs and court programs for troubled youth) have announced the creation of a research cooperative at the University of Idaho Wilderness Research Center to conduct studies and develop new information.

"The purpose of this new cooperative is to carry out a comprehensive research program to advance the industry," stated Mike Merchant, vice president of Anasazi Wilderness Therapy in Mesa, Arizona, and OBHIC chair. "Wilderness and outdoor treatment programs are emerging as a very successful alternative for youth with addictions and behavioral issues. We need the benefit of continued research by the University of Idaho-Wilderness Research Center, an established leader in research on wilderness programs for youth, so we're forming the research cooperative to support their continuing work."

About a dozen outdoor behavior health-care programs belonging to OBHIC will contribute financially to support the research cooperative. Initial plans call for studies to document the impact of the wilderness and outdoor treatment industry in terms of the number of programs and clients, assessment of client outcomes, analysis of risk to physical and emotional safety of clients (very low based on preliminary findings), and the social and economic importance of the industry. The cooperative will be led by Keith Russell, who just completed a doctoral dissertation on the processes employed and outcomes experienced in four OBHIC member programs.

Mark Hobbins, senior vice president for Aspen Health Services headquartered in Cerritos, California, USA, stated that "Current, objective information is a key to advancing the industry. We need objective and credible studies that document the positive outcomes we see in outdoor treatment. This is the evidence that medical insurance companies, social service agencies, adjudication authorities, school officials and parents want to see, and we know it's there—we see it every day. But its got to be documented in an objective and credible way. That is why we're going to a proven university source of such studies to launch this effort." Contributing members of the research cooperative also hope that the research will help set industry standards and benchmarks to improve quality of care of the outdoor behavior health care industry.

For more information, contact Keith Russell, Leader, Outdoor Behavioral Healthcare Research Cooperative, University of Idaho-Wilderness Research Center, CFWR 18A, Moscow, Idaho 83844-1144, USA. Telephone (208) 885-2269. E-mail: keithr@uidaho.edu.

National Conservation Group Welcomes New Canadian National Park

The Canadian Nature Federation (CNF) welcomes an agreement between the governments of Canada and Nunavut that has produced a new national park called Sirmilik on northern Baffin Island. The agreement also elevates two existing parks—Auyuittuq and Ellesmere Island—from national park reserves to full-fledged national parks.

Sirmilik National Park has been the subject of negotiations since 1987. "We congratulate and thank Inuit leaders for working for over a decade to preserve and share a part of their homeland with Canadians as part of our national park system," said Kevin McNamee, wildlands campaign director with the CNF. "Today's agreement demonstrates that government and Aboriginal people can cooperate to preserve lands that are vital to sustaining traditional ways of life while ensuring that they bring much needed economic and social benefits to northern communities."

The addition of this park brings to 39 the number of national parks. Twenty-five of Parks Canada's 39 natural regions are now represented in the national terrestrial park system. At over 22,500 sq. km., Sirmilik National Park is the third largest in the park system, which now protects 2.5% of Canada from industrial development.

The CNF is a national conservation group. With 40,000 members, it is Canada's national voice for naturalists. Kevin McNamee is a signatory to the 1986 agreement that first created Ellesmere Island National Park Reserve, now called Quttinirtaaq National Park. For more infomation contact him via phone at (613) 562-8208, ext. 234.

Citizen Leaders Meet to Discuss Wilderness Inventory

The Wilderness Support Center and the Southern Utah Wilderness Alliance hosted a workshop in Salt Lake City, Utah, USA, for wilderness inventory leaders from 10 western states. Wilderness inventories are an essential part of wilderness campaigns. Simply put, they determine the future of the National Wilderness Preservation System. Currently, citizen wilderness inventories are underway in every western state, reviewing millions of acres of land managed by the Bureau

of Land Management and the U.S. Forest Service.

There are a few good trends to report: (1) Lands being included in current citizens wilderness proposals are generally more biologically diverse than previous wilderness proposals, including lower elevation areas, which tend to provide habitat to a wider array of species than higher elevations; (2) current citizens wilderness proposals are more technically advanced than ever before—the use of digital cameras, GIS, and aerial photos have all made the inventories more accurate; and (3) strong citizens inventories are leading to on-the-ground changes.

This workshop helped participants share concerns and history in determining which lands, should be included in their proposals. As human impacts continue to scar lands more wilderness is needed to protect biodiversity. For further information contact Brian O'Donnell at the Wilderness Support Center. Telephone: (970) 247-8788. E-mail: wsc@tws.org. *(Excerpted from WildAlert of The Wilderness Society)*

University of Idaho Hires Wilderness Expert as New Department Head

The University of Idaho has hired Steve Hollenhorst as the new head of their Resource Recreation and Tourism Department, replacing John Hunt, who retired. Hollenhorst comes to Idaho from West Virginia University where he was professor and coordinator of the Recreation, Parks and Tourism Resources Program and taught several wilderness related courses over the past decade. An expert in adventure education, Hollenhorst took 30 students on a course to Nepal this summer where they trekked to the base camp from which ascents of Mt. Everest are launched at 18,000 feet. Students studied cultural and ecological change in the Khumbu Valley, the ancestral homeland of the Sherpa people.

Stated Hollenhorst, "I am excited to be going to a state and university department with strong traditions in wilderness research and education. I'm looking forward to helping further strengthen and integrate these programs with Idaho's strong ecotourism, public involvement, and environmental education efforts, and their Wilderness Research Center." Steve Hollenhorst is an associate editor of *IJW* and is known for his research on solitude, adventure education, and international protected area policy.

Arctic Centre, University of Lapland; University of Montana; and the Leopold Institute: A Partnership Sponsored by the Finland Fulbright Commission

Alan Watson, *IJW* executive editor for science and a research scientist with the Aldo Leopold Wilderness Research Institute in Missoula, Montana, USA, received a Fulbright award to the Arctic Centre at the University of Lapland in Finland. Alan will deliver a lecture series entitled "International and Intercultural Analysis of Threats and Benefits Related to Wilderness Protection." He will also cooperate with scientists at the Finnish Forest Research Institute to develop research methods studying the economic and cultural values of wilderness to both U.S. and Finnish people.

The lecture series will include discussions of wilderness and protected area issues of the world, sustainable financing of parks and protected areas, social and cultural benefits and costs of protecting biodiversity values, cultural and economic benefits of community-based conservation programs, resolving conflicts between competing wilderness demands, and the evolving relationship between people and wildlands of the world.

Conference Proceedings on Sale

Proceedings from the Wilderness and Natural Areas in Eastern North America Conference held in Gatlinburg, Tennessee, USA, in 1996 are

Wanted—IJW Field Correspondents

The *IJW* needs two new field correspondents. The first will be someone currently engaged in federal agency wilderness stewardship. The second will be someone to cover issues of international interest to our readers. Duties will include gathering information on events, issues, policies, and personnel changes to be reported in the Wilderness Digest section of the *IJW.* The successful candidate should be on e-mail and able to draft short news items for submission. Apply by e-mail letter to John Hendee, editor in chief (hendeejo@uidaho.edu).

available. Hardbound, 321 pages, US $20.00 plus $5.00 shipping. Contact Mike Legg, Arthur Temple College of Forestry, P.O. Box 6109 SFA, Nacogdoches, Texas 75962, USA. Telephone (409) 468-3301, fax (409) 468-2489, e-mail: mlegg@sfasu.edu. Make checks payable to Arthur Temple College of Forestry.

TWS Sounds Alarm over Possible Weakening of BLM Wilderness Study Area Protection

The U.S. Bureau of Land Management (BLM) is responsible for protecting 17 million acres of wilderness study areas (WSAs) in the West. These places qualify for addition to the National Wilderness Preservation System but have yet to be made part of it. The Interim Management Policy requires that BLM act as a careful steward of this acreage until Congress decides on final status. There is now a move underway to weaken WSA protection, and the public may be deprived of an opportunity to voice opinions. For more information, contact Fran Hunt at The Wilderness Society, (202) 429-2657.

Continued on page 47

Letter to the Editor

Dear *IJW* Editor,

I found the article by Jerry Stokes (*IJW,* April 1999) interesting and valuable. He made it clear that he was dealing with only three key wilderness management issues and that a host of others exist.

In that context an important issue struck me. In the same issue of IJW in which his article appeared was another dealing with the adverse effects of continued nonnative fish stocking in high mountain wilderness lakes. The U.S. Forest Service (USFS) continues to sound off on ecosystem management, landscape analysis, and a host of other neat sounding models but refuses to apply them to nonindigenous, wildlife/fisheries-related wilderness management issues. Their policy of bowing to state wildlife agencies seems now to be set in concrete despite the clear knowledge that nonnative fisheries and terrestrial wildlife (mountain goats in Utah, for example) represent meaningful ecological threats and a true anathema to the wilderness idea. It is sad that the U.S. Forest Service won't step out on this issue, preferring to curtsy to what is clearly recognized as an outdated wilderness management context.

I concur with Stokes when he calls for the wilderness preservation community to come to the aide of the National Wilderness Preservation System (NWPS). Far too many conservationists still judge the value of the system by its gross acres and recreational values rather than by a broader ecological view of wilderness. But what is also needed and is still sorely lacking, as evidenced by their timid approach to nonnative fisheries and wildlife management, is an honest and deep commitment by the USFS to the ecological integrity and values of the NWPS. It is simply too easy to suggest the wilderness system is under attack by forces "out there"—if there are still problems deep within the agency. The USFS needs to earn the wilderness support they call for.

Sincerely,

Dick Carter
High Uintas Preservation Council
P.O. Box 72, Hyrum, Utah 84319, USA.
Telephone: (435) 245-6747.
E-mail: carterpettis@mtwest.net.

Book Reviews

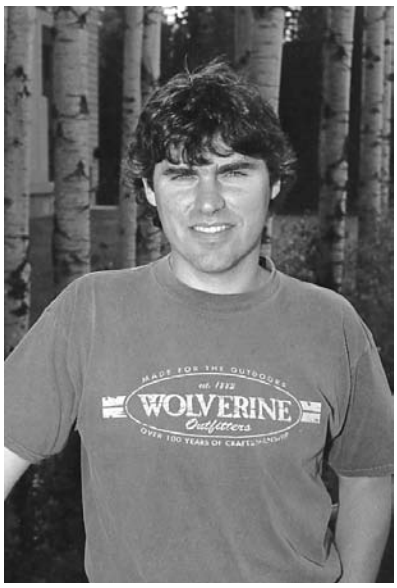
BY JOHN SHULTIS, BOOK REVIEW EDITOR (shultis@unbc.ca)

The Great New Wilderness Debate by J. Baird Callicott and Michael P. Nelson, eds. 1998. University of Georgia Press, Athens, Georgia. 697 pp., $30.00 (paperback), USA.

To believe the editors of this book is to believe that there is a great storm raging in the wilderness world—a storm that has already rocked the idea of wilderness irreparably from its foundation. In *The Great New Wilderness Debate,* editors J. Baird Callicott and Michael P. Nelson have compiled approximately 40 essays, mostly previously published works, along with a few excerpts and original essays. The editors call their topic "the received wilderness idea," the concept of wilderness "received" from our forefathers and "crystallized" in The Wilderness Act of 1964. The editors contend that wilderness, as it is understood in western civilization, has been "mortally wounded" by its current withering critique. They make their case in a 20-page introduction, and then walk the reader through the debate from idea through critique and rebuttal, and end with a section titled "Beyond the Wilderness Idea," in which they present some alternative notions they believe would move us past the debate toward common goals. I believe, however, that *The Great New Wilderness Debate* does more to promote the debate than to resolve it.

According to Callicott and Nelson, the received wilderness idea derives from the minds and pens of Euro-American males, such as Thoreau, Muir, Leopold, and Marshall. Wilderness is presented as vast, unpopulated nature as God created it, pure and unsullied by man. In Parts II and III, the editors present literature from around the world that argues that the "received" characterization of wilderness perpetuates a self-destructive separation of man from nature, ignores or subjugates Aboriginal people, and assumes stasis in natural ecosystems. Along with these critiques, the editors present rebuttals defending the idea of wilderness from several well-known wilderness advocates. The volume concludes with a set of essays exploring biodiversity conservation and sustainable development as alternatives to wilderness that satisfy the objections leveled by the critics.

In the end, I was far from satisfied. Callicott and Nelson (and many of their coconspirators) have executed a classic academic trick. From the established literature on wilderness, they constructed a "straw man" caricature of wilderness, "the received wilderness idea," by poaching on dead authors and unfairly characterizing their work. A careful reading of the original source material, made possible by this anthology, showed that the early writers were well aware of many of the points raised by the "new" critics.



Book review editor John Shultis.

For example, John Muir, whom Callicott calls "perhaps the most ardent advocate ever of wilderness preservation," saw humans and the natural world not as separate, but as intimately linked. Both Muir and Robert Marshall recognized the rightful place of Aboriginal people in wilderness, and both wrote eloquently about the dynamic nature of ecosystems. Muir described the actions of "creative glaciers" and "new-born rivers … making new lands." Marshall wrote of forests that "grew and moldered and grew again precisely as they had for undeterminable centuries."

Conspicuously absent from the anthology is Wallace Stegner's "Wilderness Letter," surely as influential a piece of wilderness literature as was ever written. The letter was first published in 1962, before the passage of The Wilderness Act, and would have to qualify as one of the wellsprings of the received wilderness idea, as Callicott and

Nelson would have it. Why was it not included? Perhaps because Stegner articulated a notion of wilderness that does not fit the "received" idea. Stegner did not value wilderness as apart from humanity—rugged country to be conquered by virile recreationists. Instead, he looked beyond that utilitarian value toward wilderness as a necessary part of our culture. Stegner saw wilderness as something that allows us to see ourselves as "part of the environment of trees and rocks and soil, brother to the other animals, part of the natural world and competent to belong in it." True, Stegner neglected Native American history by ascribing too much significance to the frontier experience, but he valued wilderness not as a place without humans, but as a place for humans, "even if we never do more than drive to its edge and look in." That this beautiful piece of wilderness literature is missing from the anthology is telling. In developing the character of the received wilderness idea, the editors appear to have selected their supporting literature carefully—in order to feed the fires of debate, rather than to illuminate common threads through the history of the idea.

In the end I was most struck not by the disagreement, but by the amount of common ground. Critics of the received wilderness idea revere the places we call wilderness, just as defenders understand that wilderness protection is not sufficient to achieving what contributor Bill Cronon calls "an ethical, sustainable, honorable place in nature." In the final analysis, all authors acknowledge that some lands are more wild than others and that those lands that are most wild we value as wilderness. Through that common understanding, we have been able to build a National Wilderness Preservation System (NWPS) that stands at over 104 million acres in the United States. We now also understand that wilderness comes in many forms other than the NWPS, and that can and should be linked into a sustainable national network of wildlands.

Indispensable as a desk reference, *The Great New Wilderness Debate* may eventually help each side better understand the other's position, thereby strengthening the wilderness movement overall. Its significance is best captured for me, however, by the first line of Robert Marshall's essay "The Problem of the Wilderness," included in this volume: "It is appalling to reflect how much useless energy has been expended in arguments which would have been inconceivable had the terminology been defined."

—Reviewed by Greg Aplet, The Wilderness Society, Denver, Colorado. E-mail: greg_aplet@tws.org.

Shouting at the Sky: Troubled Teens, and the Promise of the Wild, by Gary Ferguson. 1999, St. Martin's Press, New York. 249 pp., $24.95 (hardcover), USA.

Gary Ferguson has done a superb job in communicating the experiential essence of a wilderness treatment program for disturbed youth. *Shouting at the Sky* communicates through the words of the clients and staff at Aspen Achievement Academy, an eight-week, wilderness treatment program for youth labeled as having serious psychological problems. The book reads like a good novel.

Ferguson played the role of participant-observer and adjunct staff member as he collected experiences for this book on troubled teens. Around the campfire he became the storyteller for the treatment program, relying on material collected for his previous book, *Spirits of the Wild: the World's Greatest Nature Myths.* Ferguson understands what is happening at Aspen through the prism of his study of rites of passage around the world. In accord with the rites of passage model, Aspen staff see kids not as "problems to be fixed, but rather as 'people with gifts they haven't yet realized.'"

Ferguson does a good job of describing the enormous contrast between before and after for these young people, whose problems include multisubstance abuse, sexual abuse, manic-depressive illness, attention deficit-hyperactivity and oppositional-defiant disorders. The reader watches as kids arrive after plane trips and a long ride from the Salt Lake City airport. Early in the program, Brenda, to whom an entire chapter is devoted, sits down and refuses to go on, proclaiming, "Just leave me here to die. Just blow my head off. I'd rather be dead than be here." Seven months after graduation Susan reports, "It can be difficult to fit what I learned out there into daily life. I guess that's because we placed emphasis on such different things than modern society does—introspection, values, teamwork and acceptance, instead of money, greed and power."

In between, the reader is taken through the day-to-day and hour-by-hour struggles, learning, and transformation of clients—and of staff whose profiles comprise a significant part of

the narrative. We see how staff deal with anger, defiance, suicide risk, runaways, and taking care of their own needs, lest they burn out after a few months of intense devotion to taking care of the kids. Wilderness staff must be frontline role models and mentors in self-care as well as in wilderness and communication skills.

Particularly interesting are the recurrent reports from the young program clients on why standard psychotherapy hadn't helped them and, conversely, on the growth and healing they gained at Aspen. In essence Ferguson summed up the results of wilderness treatment at Aspen as follows: The youth learn natural consequences from nature; they learn the necessity of cooperation for survival and relative comfort; they learn the joy of community and a positive sense of group identity; they learn that their actions make a difference; they help each other. For the average reader and many psychotherapists Ferguson provides an easy and understandable entree into the worth of all this wilderness stuff. He also clearly distinguishes wilderness treatment from the so-called boot camp models and beautifully describes the care and skill exerted by staff toward the clientele. His narrative raises many questions about society's treatment of all of our youth, not just the problem kids.

Probably Ferguson's greatest achievement is to have taken the reader on a colorful and well-written healing journey such that the feeling of being a kid sentenced to the opportunity of wilderness treatment truly comes to life. From being awakened at five in the morning by two travel specialists and placed on an airplane bound for Utah, to the difficulties of trying to integrate the health of wilderness treatment into other less healthy environments, the reader joins hand-in-hand with the young people of Aspen—some of America's future men and women—whose stories unfold on the pages of *Shouting at the Sky.* In the end we know that we have been compelled to listen.

—Reviewed by Keith Kilburn, marital and family therapist in Petaluma, California, and a wilderness guide. E-mail: Khowchi@aol.com.

Announcements & Wilderness Calendar continued from page 44

New Airport Near Mojave

There would be an international airport just 10 miles east of Mojave National Preserve if Congress passes legislation expected to be introduced by U.S. Rep. Gibbons (R-NV). The land in question now belongs to the American people. The resulting noise would detract enormously from visitors' national park experience and disturb bighorn sheep, desert tortoises, and other wildlife that depend on the area. The Mojave faces threats on virtually all sides, including resort and golf course development, military exercises, and mining. More information is available from Nobby Riedy, (415) 561-5541.

New Partnership Backs Suriname's Forest Protection Efforts

Less than a year after Suriname created one of the world's largest tropical forest wilderness reserves, the South American country was recognized by the Global Environment Facility (GEF) through the approval of a US $18.33 million project to support the nation's long-term development and conservation goals. The project represents major new funding for the Suriname Conservation Foundation, a trust fund initially endowed by Conservation International (CI) with a private contribution of $1 million. The fund will support the management of the 4 million acre (1.6 million hectare) Central Suriname Wilderness Nature Reserve and create conservation-based economic opportunities.

CI is working with the United Nations Development Program (UNDP) and local and international nongovernmental organizations (which have also provided cofinancing for the project) to undertake a biological assessment of the forest reserve that will help establish a management and monitoring system. Under this project CI also will continue its work to develop ecotourism as a major conservation enterprise in Suriname. GEF funding will ensure protection of the reserve for the long term and enable the country to generate income through nondestructive uses of the forest, such as ecotourism and research. Part of the forest area now protected within the reserve was formerly targeted by international logging companies, which sought concessions in some 11 million acres.

Suriname harbors more rain forest than all of Central America combined. The Central Suriname Wilderness Nature Reserve is part of the Guayana Shield, one of the world's most undisturbed tropical wilderness areas extending across the southern Guianas, southern Venezuela, and adjacent parts of Brazil. These forests have at least 75% of their original forest cover and many, like Suriname's, are still in pristine condition, virtually uninhabited and in some places, unexplored. Other tropical wilderness areas are today found mainly in Africa's Congo Basin and on the island of New Guinea.

EXTRA

News from the Aldo Leopold Wilderness Research Institute Missoula, Montana, U.S.A.

BY VITA WRIGHT

"Wilderness to the people of America is a spiritual necessity, an antidote to the high pressure of modern life, a means of regaining serenity and equilibrium."
—Sigurd Olson

Recreation Fee Research Website

Due to increasing interest in public land recreation and efforts to control federal government spending, recreation services on public lands may not be adequate to meet future demands. Rather than continue to rely entirely on appropriated funding, the U.S. Congress authorized a Recreation Fee Demonstration Program in 1996 to examine the feasibility of generating funds from users for the operation, maintenance, and improvement of public recreation areas, including wilderness areas. Under this program, federal land managers around the country have initiated fee projects such as charges for permit reservations, use of campsites and trails, and vehicle parking.

The effectiveness of the program, including public response to user fees is currently under analysis. After three years of analysis, the Demonstration Program will conclude and Congress will determine whether to establish long-term user-fee legislation.

Researchers studying the effects of the Fee Demonstration Program presented preliminary results at a session called the "Societal Response to Recreation Fees on Public Lands," at the 7th International Symposium on Society and Resource Management, May 1998. Brief manuscripts from this session have been published on an Internet site (http://www.fs.fed.us/research/rvur/wilderness/recreation_fees.html) form will remain active until July 1999.

The following Leopold Institute manuscripts are on this website: (1) "Providing science input to management issues: defining and answering researchable questions—introduction to a case study of the Desolation Wilderness Fee Pilot Program" by Alan Watson, Daniel Williams, Christine Vogt et al.; (2) "Wilderness visitor perceptions and their attitudes toward the agency in predicting recreation fee level support" by Alan Watson and Christine Vogt; (3) "Support for recreation fees as a function of purpose of appeal" by Alan Watson, Annette Puttkammer, and Neal Christensen; (4) "The impact of place meaning and attachment on attitudes towards fees for wilderness use" by Daniel Williams and Alan Watson; (5) "Acceptability of fees for various recreation activities as a function of activity orientation and past fee behavior" by Annette Puttkammer and Alan Watson; (6) Appropriateness to pay: is wilderness a unique recreation experience?" by Neal Christensen, Bill Borrie, and Daniel Williams; and (7) "Maximum and appropriate price for day use in the Desolation Wilderness" by Neal Christensen and Jerrell Ross Richer.

High-use wilderness destinations recreation impacts at high-use destinations are often severe and widespread, and visitors to these places frequently encounter other visitors. Thus, managers often struggle with decisions about when and how to regulate use at high-use destinations. Authors of a recent publication, *High-Use Destinations in Wilderness: Social and Biophysical Impacts, Visitor Responses, and Management Options* (Cole et al. 1997), analyzed six high-use destinations in three of Oregon and Washington's National Forest Wilderness areas as case studies. Their objectives were to describe visitors to high-use areas, document current physical and social conditions, and discuss the likely costs and benefits of alternative management approaches. Authors quantified current recreation impacts on maintained trails, social trails, campsites, and lakeshores. They also conducted exit interviews with visitors to describe visitors and to quantify visitor encounter rates, responses to encounters, and management preferences.

Although resource impacts were substantial, they were highly localized and less pronounced than impacts reported for many wildernesses with lower use levels. Encounter rates during this study were high, exceeding those preferred by most visitors. However, most visitors reported the number of people encountered did not detract from their enjoyment as much as physical impacts, such as litter, vegetation loss, horse manure, and human waste. While 10 to 23% of those interviewed supported reducing current use levels, most supported site management approaches such as trail/site closures, revegetation programs, and visitor education to control impacts.

Although visitors were diverse, the typical visitor interviewed was an experienced wilderness user who received greater satisfaction from visiting wilderness than other recreation areas, expressed commitment to wilderness, and was exploring this area because she or he lived in a local urban area. Authors of this publication explored the costs and benefits of using visitor education, use reduction, and intensive site management programs to reduce recreation use impacts. They emphasized the need for managers considering use-reduction programs to address the impacts of displacing visitors to other wilderness and nonwilderness lands. This publication, Research Paper INT-RP-496, can be obtained from the Leopold Institute, P.O. Box 8089, Missoula, Montana 59807, USA. Telephone: (406) 542-4190. Fax: (406) 542-4196. E-mail: leopold_institute/rmrs_missoula@fs.fed.us.

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