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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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Denali National Park and Preserve

A Different Kind of Wilderness

BY ALAN E. WATSON

Once again, the *IJW* has ventured into new territory. In previous issues, the *Journal* has featured various countries (such as Finland, Canada, and South Africa), continents (such as Antarctica and South America), and topics (such as wild rivers and monitoring). One issue even had a focus on the state of Alaska in the United States, but this is the first issue concentrated on one place. Denali National Park and Preserve is that place. Whereas one issue of the *IJW* could never communicate all of the information of interest about this place, several articles were developed specifically to provide readers with some understanding of Denali's wilderness character. We suspect that most people coming to the 8th World Wilderness Congress in Alaska in the fall of 2005 know something about the park and the mountain officially called Mt. McKinley, but known by the local name, Denali, to many. We hope these articles increase readers' awareness of some of the park's wilderness characteristics.

At three times the size of Yellowstone National Park, its 6 million acres (2.4 million ha) make it a giant among giants. Our national parks in Alaska include the largest U.S. park, Wrangell-St. Elias, at 13 million acres (5.2 million ha), Gates of the Arctic National Park and Preserve at over 8 million acres (3.2 million ha), and several parks over 2 million acres (0.8 million ha) (e.g., Katmai, Glacier Bay). It is not its size that distinguishes Denali, however, but the mountain. Among mountains in North America, Denali is

the highest. With increasing numbers of people attempting to summit its 20,320-foot (6,193-m) peak each year during a limited climbing season, the park faces many complex management issues, including human waste, air traffic, safety, and competition for space.

We hope, however, that after reading these articles readers will think about more than the mountain when they hear "Denali." About 500 people make it to the summit of Mt. McKinley each year, and they each have a story to tell. They often dream of this trip for years, and they come from all over the world. There are people who make their living flying these climbers in to a base camp at 7,200 feet (2,195 m), and flying other people in just to look at the many glaciers and mountains in the Alaska Range. These pilots have a unique relationship with the visitors and the park. There are also people who hunt, fish, trap, pick berries, and live in sight of the mountain, and visitors come from around the world to backpack and see the wildlife from buses that carry visitors along the single road that extends nearly 90 miles (145 km) into the park. Schoolchildren in Alaska also have tremendous opportunities to study vegetation and wildlife in the park, and modern technology allows them to share this place with others around the world.

Denali is a special place in this world. Get to know it a little.

Voices from Denali

"It's Bigger Than Wilderness"

BY ALAN E. WATSON, KATIE KNOTEK, and NEAL CHRISTENSEN

"Is the mountain out?" Someone on the right side of the plane wanted to know. In so many mountains, there was one mountain. The mountain was a megahedron—its high white facets doming in the air. Long snow banners, extending eastward, were pluming from the ridges above twenty thousand feet."

—John McPhee's voice, in McPhee, 1979, p. 97

Denali National Park and Preserve, at over 6 million acres (2.5 million ha) contains the highest point in North America. Mount McKinley, at more than 20,000 feet (more than 6,000 m) above sea level, watches over thousands of caribou, moose, packs of wolves, grizzly bears, and Dall sheep, as well as many other mountains and a vast amount of rare plant life. Research was conducted at Denali in 2004 as a way to understand the experiences people have when they either fly into the park to climb Mt. McKinley or the surrounding peaks, or just to see the glaciers and mountains within the park. Here is a glimpse of this place from the perspectives of the people who travel great distances to experience it and the pilots from Talkeetna, Alaska, who make their living flying visitors to the mountain (see figure 1).

What Do Visitors Expect?

The cold is extreme on that mountain. When we fly in the first week of May, it's minus forty every night. And then in June it warms up to about minus twenty-five."

—Peter Hackett's voice, in Strickland, 1992, p. 73

I expected a very cold mountain. (A climber's voice)

You know, it's hard to tell. A lot of them come up here with absolutely no real idea what they're going to see. (An air-taxi voice)

For the most part, people don't really come here to be up there alone...in some cases the climbers, they'll want to go some-

where where they cannot see other people. But, I mean, 90% of the people that go up there, especially on Denali, realize it's a pretty social route. (An air-taxi voice)

[It's] unlike anything they've ever done before, and there's no way you can describe what you're going to see. You can show pictures...show videos, but until you're actually there and experience it, it's unlike anything that you've ever done. (An air-taxi voice)



Alan E. Watson

I didn't really have too many expectations. I guess I just kind of knew I was going to the Alaska Range and it was the big wilderness...I haven't been to Alaska before. So I didn't really expect too much. I mean, I know that Denali base camp's a bit of a circus and there's a lot of people there, but I kind of didn't figure there'd be too many people in the rest of the range. (A climber's voice)

On the scenic tour, people aren't there for a wilderness experience...we'll take two or three planes up at a time and land, and people get together and talk and sometimes they meet people from their hometown on the Ruth Glacier, 4,000 or 5,000 miles away from their home. (An air-taxi voice)

Climbers, they're only there for one reason, to climb the mountain. (An air-taxi voice)

How Do Visitors Describe It?

One of our team members had refused to climb higher than 14,300 feet because he had seen himself dying in a dream...I admired him for being more in touch with his feelings, more willing to express his fears and his respect for the mountain than any of the rest of us.

—Jonathan Waterman's voice,
in Waterman, 1998, p. 37

My husband said, even though he's over there sick in the car, he said, that was a once in a lifetime...it was sort of like, even though I'm sick I'm really glad we did that. (A flightseer's voice)

Denali National Park's gorgeous. It was really interesting to see it from the south side as opposed to the north side. I think when you take the bus in from the north side you get a much different perspective of the park because it's green, it's tundra, there's flowers everywhere, there's animals everywhere. But on the south side, on the mountain, you know, there's not a stitch of green, there's not an animal to be had. It's just such a different landscape. (A climber's voice)

The thing they most often say is that they couldn't believe that it was so big...they could just not believe the vastness of it. For most people it's a very humbling experience because they've never been around or near anything that big. (An air-taxi voice)

It's awesome. Like you look at it in a whole view and then you look at the same thing again and zoom in and then you'll look at that thing you zoomed in on and zoom in again. (A climber's voice)

They've just gone and seen something that's way bigger than they could ever think of being, which really knocks them kind of on their ass. It really knocks their



Figure 1—“You zoom in and then you’ll look at that thing you zoomed in on and zoom in again.” A climber’s voice in Denali National Park and Preserve. Photo by Neal Christensen.

ego down a bit when they see that because they just couldn't believe it's so big. (An air-taxi voice)

It's like being on the moon; you've never seen it before. (A climber's voice)

It's kind of like flying into a whole other world. And I've had people describe it as going into orbit around another planet, and I've described it as flying indoors. I mean it's huge. (An air-taxi voice)

Maybe one of the most beautiful experiences in my life. It was very, very emotive for me to fly in the plane and watch those glaciers and very, very beautiful landing, the surrounding mountains, Hunter, Foraker, Huntington, and, of course, Denali. One of the most beautiful experiences I ever had, and also the hardest one I ever had. (A climber's voice)

I cried. I cried on the way in and on the way out because...that experience of flying is just fantastic, just fantastic. I love it. (A climber's voice)

People see the glaciers and the ground stuff a lot more when they can't see the mountains. ... They don't really see what you're flying over on a clear day when you can see everything because they're busy looking at McKinley and the other mountains and forget to look down and see all the other stuff (An air-taxi voice)

It's the beginning of everything. It's where everything stops. All animals. You know...it's like looking at a galaxy in the universe. You're looking back in time and looking at the glaciers. You're looking back, you know, those glaciers have been there millions of years and you're looking back into the Stone Age, and it's right now. (A climber's voice)

Most of the time the weather was pretty bad in terms of the wind. It was blowing too hard, 50-to-80-mile-an-hour average winds. So that never allowed us the opportunity to try and summit. (A climber's voice)



Figure 2—“You see a spot, you think, oh that’s 20 minutes’ walk and you’re there in four hours, so the scale’s just absolutely astonishing.” A climber’s voice in Denali National Park and Preserve. Photo by Fernando Ferrer.

In Alaska you have to wait for the good weather. You have to stay in the tent for four, five, six days...be strong in your mind...it’s really boring to wait. (A climber’s voice)

The cold, the wind, the vast nothingness, you know, just, sort of isolation from everything and then the physical effect of only getting about half as much air with a breath that you normally do down here at sea level make you wonder whether you’re going to actually be able to get out of there or not. (A climber’s voice)

It’s really subtle in a lot of ways and really powerful in a lot of other ways and you really have to think about who you are, why you’re there, and what you need to do in order to exist in that place and

just be safe, in order to be there and to witness a 20,000-foot mountain and what that entails. All the glaciers, all the rocks. It’s a dynamic environment. It’s changing all the time. It’s moving, it’s breathing, it’s falling apart, it’s avalanching. I think it just, it’s good for people to step out of their little safe zone and to go to these places so it helps them realize who they are and what it means to be alive in this place. (A climber’s voice)

It’s actually one-dimensional when you’re flying. But when you land and get out and actually the engine stops and you hear the silence and the occasional avalanche rumbling in the background...having your feet in the snow and just looking around at the vast scale...it will be the only time in most people’s lives that they ever are able to get into a mountain scene like that. (An air-taxi voice)

What Makes Denali Unique?

So I started off the next morning, short of dog feed and with only a vague notion of where I was going. But over on my right, far away, rose lofty Mount McKinley, called by the Indians Denali (“The Highest One”), and Mount Foraker beside it. These would guide me. By going eastward, I hoped to reach the Kantishna River by the end of March. I had good fortune. I came upon an occasional Indian camp and moved along steadily.

—Olaus Murie’s voice, in Hedin and Holthaus, 1989, p. 95

There’s only one mountain that looks like that. . . .It’s unique. (A flightseer’s voice)

One morning...we got up really early and we could see the light was just coming off, just coming onto Foraker and Hunter and the shades of different colors of blue and white and red coming off sides of the mountain. It was quite spectacular. A camera wouldn’t have done justice, but I’ve seen it and I can always imagine it. (A climber’s voice)

It’s such an extreme place, you know. I can’t really think of anywhere in the States that’s actually that intense of a place to go to. Usually there’s trails and off-glacier terrain. There’s nowhere in the Alaska Range that’s off glacier. The whole experience is kind of a step above anything else. (A climber’s voice)

It is huge...just the immensity and the scale is just really blowing me away. You see a spot, you think, oh that’s 20 minutes’ walk and you’re there in four hours, so the scale’s really just absolutely astonishing. (A climber’s voice)

You use your lower-48 scale and it just doesn’t quite pan out...it’s always twice as high or twice as far or twice as whatever. It’s one of the most amazing places in the world really, that I’ve ever been. It’s definitely the biggest place I’ve ever been. (A climber’s voice)

There’s no other place like this. . . .Standing at 5,600 feet and you’re showing them a mountain that’s three vertical miles above them, now tell me where else you’re going to do that. (An air-taxi voice)

Research was conducted at Denali in 2004 as a way to understand the experiences people have when they either fly into the park to climb Mt. McKinley or the surrounding peaks, or just to see the glaciers and mountains within the park.

On the Wilderness Character of Denali

If I go to the range and there’s a little turbulence, I can feel it as I go in and see little signs in the sky. I may see a little bit of snow drifting across one of the ridges

and be able to anticipate which way the wind is blowing and whether it is sinking or rising. I try to anticipate the flow of the air around the peaks and through the passes just like you'd watch water flowing in a brook."

—Doug Geeting's voice, air-taxi operator, in Strickland, 1992, p. 66

Wilderness beyond what most people consider wilderness, I guess, if that makes any sense. It's bigger than wilderness. ... There's, like, really no life other than yourself there... you can make shelter, but you can't make warmth, you can't make food. (A climber's voice)

It was 21 days without seeing or speaking to anyone other than in our group, so that was to me a rather rare experience. (A climber's voice)

It's like walking on the moon. There's nothing there but ice. So I guess it's a wilderness. It's just a different kind of wilderness than I'm used to. (A climber's voice)

It's a noninhabited area. You can't live there... it is the back of beyond. You get out there by flying and you take in with you what you need to survive and when that runs out you're pretty much game over. You've got to get out. (A climber's voice)

Wilderness to me means you can't just walk out of there. That's kind of my definition. It's going to be a major, major effort to try to walk out of someplace. So to me wilderness means remoteness, and that certainly qualifies out there. (A climber's voice)

Even beyond wilderness. I don't think much about the park aspect of it... it's one of the great mountains. So I think of it in

terms of the mountains of the world. And Denali is one of the mountains of the world rather than a park. So it's sort of, it's more rugged and cold and scarier than a wilderness area. (A climber's voice)

There's nothing there, other than the mountain house and then the climbers' tents. Definitely wilderness. And it's wilderness that's really unlike any other wilderness that most people have been exposed to. (An air-taxi voice)

People often ask, you know, they see what the glaciers have done up there and often ask whether man has piled the gravel up there or whether it's natural. ... It does look like it's been contrived in a sense, that man could have possibly done a few things up there. ... Once they get a handle on where they are and just the immensity of the type of work that's been up there over millions of years, then you realize, well, nobody could ever do that. (An air-taxi voice)

By the time I unloaded and whoever I was taking in there, and loaded up the people that were wanting to go home, why the fog builds up on the runway or something and you just can't go, and there you are. And so, it is, in fact, wilderness and you figure that out pretty quick if you have to spend any time there. (An air-taxi voice)

Well, by definition I think wilderness is certainly devoid of mankind. There's no presence, or the presence of human life is confined, you know, to a dot here and a dot here that'll get pointed out to you. But the rest is just, I mean, it's owned by nature. It's not owned by, owned or controlled by anything but nature working its course. That's wilderness. (A flightseer's voice)



Figure 3—“It’s like walking on the moon.” A climber’s voice in Denali National Park & Preserve. Photo by Fernando Ferrer.

Conclusion

These Denali voices are not the only ones that can describe human experiences there (see figures 2 and 3). Besides the climbers and flightseers, there are backpackers, skiers, campers, dog mushers, people viewing wildlife, scientists, educators, managers, and people engaged in subsistence activities in this large, remote area. Denali has many meanings to many different people. We have only glimpsed a few of these meanings here. **IJW**

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Denali has many meanings to many different people.

Legislative Direction for a Conservation System Unit in Alaska

The Case of Denali National Park and Preserve

BY ADRIENNE A. LINDHOLM and MICHAEL J. TRANEL



Article co-authors Adrienne J. Lindholm and Mike Tranel, both of the National Park Service. National Park Service photo.

Two-thirds of National Park System acreage and over half of the U.S. National Wilderness Preservation System is located in Alaska. In some units, such as Denali National Park and Preserve, history spans many decades. Federal legislation enacted from 1916 to 1980 describes the purposes and values that guide management at Denali National Park and Preserve.

The 1916 National Park Service Organic Act outlines the purposes of national parks and the National Park Service and the range of values to be protected for the American people:

To conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations. (U.S.C., Title 16, sec. 1)

In 1917 Congress established Mount McKinley National Park as a “game refuge” (see figure 1) to be “set apart as a public park for the benefit and enjoyment of the people...for

recreation purposes by the public and for the preservation of animals, birds, and fish and for the preservation of the natural curiosities and scenic beauties thereof” (39 Stat. 938).

The Alaska National Interest Lands Conservation Act (ANILCA) (Public Law 96-487) in 1980 established 104 million acres (42.1 million ha) of federal conservation system units (CSUs) in Alaska and more than doubled the acreage of the U.S. National Park System (NPS 1991; Williss 1985; Landres and

Meyer 1998). This act nearly tripled the size of the original park and redesignated it Denali National Park and Preserve. Of the new 6-million-acre (2.4 million ha) Denali unit, nearly two million acres (0.8 million ha) (most of the old park) was designated wilderness. According to the Wilderness Act (Public Law 88-577), designated wilderness lands are to be

administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness.

One of ANILCA’s purposes of the park additions and preserves is to “preserve for the benefit, use, education, and inspiration of present and future generations” (ANILCA 1980).

Conflicting Interpretations of ANILCA

Congress debated over ANILCA for several years, and the final version in 1980 included a mix of preservation and utilitarian purposes, leaving value-laden choices to the administrative process (Ross 2000). Many conflicts over Alaska national park management decisions hinge on interpretation of ANILCA Section 1110. This section provides for special access and access to inholdings. Of particular interest are the guarantees for special access—including motorized access—across public lands that are not generally allowed in national parks or wilderness areas outside of Alaska. Subsection (a) reads in part:

Notwithstanding any other provision of this Act or other law, the Secretary shall permit...the use of snow-machines (during periods of adequate snow cover, or frozen river conditions in the case of wild and scenic rivers), motor-boats, airplanes, and non-motorized surface transportation methods for traditional activities (where such activities are permitted by this Act or other law) and for travel to and from villages and homesites. Such use shall be subject to reasonable regulations by the Secretary to protect the natural and other values of the conservation system units...and shall not be prohibited unless, after notice and hearing in the vicinity of the affected unit or area, the Secretary finds such uses would be detrimental to the resource values of the unit or area.

The debate over what types of activities are “traditional” and thus subject to Section 1110(a) is ongoing. Some stakeholders believe “traditional activities” refers to activities mentioned in the Senate Report on ANILCA,

which states that the Committee amendment guarantees access subject to reasonable regulation by the Secretary “...for traditional or customary activities, such as subsistence and sport hunting, fishing, berrypicking, and travel between villages.” Other stakeholders believe that varying types of recreational activities should also be considered traditional. Since no statutory definition for “traditional activities” exists, and only the unique Old Park area of Denali National Park and Preserve has a definition in regulation, federal land managers grapple with appropriate ways to manage motorized access to national parks under ANILCA.

Competing Values on Federal Lands in Alaska

Managing federal lands in Alaska is challenging because state residents and visitors often value areas for different and sometimes competing reasons. Many of the protected values of Denali National Park and Preserve are described in Title I and II of ANILCA and in the park’s enabling legislation. Section 101 of ANILCA describes the broad purposes of the new conservation system units throughout Alaska, including enlarged national parks and preserves such as Denali. These purposes and associated values include benefit, use, education, inspiration, scenic and geological values associated with natural landscapes, wildlife populations and



Figure 1—Mount McKinley National Park was established in 1917 as a game refuge. Photo courtesy National Park Service.

habitat, unaltered ecosystems, historic and archaeological sites, wilderness resource values, wilderness recreational opportunities, scientific research, and opportunities for rural residents to engage in a subsistence way of life.

Planning processes at Denali have brought out advocates for a wide range of values that include tangible resources such as scenery and wildlife, and intangible resources such as inspiration and opportunities for challenge and self-reliance (Tranel 2000). The National Park Service is committed to protection of this full range of values.

Fran P. Mainella, 16th director of the National Park Service, wrote for the *Seattle Post-Intelligencer* on January 20, 2005:

Americans long have recognized that history endows certain places with special

Planning processes at Denali have brought out advocates for a wide range of values that include tangible resources such as scenery and wildlife, and intangible resources such as inspiration and opportunities for challenge and self-reliance.

Managing federal lands in Alaska is challenging because state residents and visitors often value areas for different and sometimes competing reasons.

meaning. Our national parks shelter some of our most rich natural and cultural resources, sites that help shape us as a people and define us as a nation. These special places provide a home for wildlife, a playground for outdoor enthusiasts, a place to reflect upon our greatest battles and a venue for historic moments. Our national park system is the key to protecting our nation's heritage.

As is common in other protected areas (Tranel and Hall 2003), challenges at Denali arise when some of these intangible values compete with economic and other "use" values. For example, some people find aesthetic, artistic, educational,

recreational, humanitarian, intellectual, mystical, scientific, and spiritual value in wilderness, whereas other advocates ascribe value to the place only if it can be used for economic benefit. Others see opportunities to merge economic development and the continuation of a self-reliant way of life in remote, aesthetically pleasing frontier settings. **IJW**

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a sense of humility is better than manipulating wilderness with a heavy hand and a mind full of hubris, but it still defiles wilderness and leaves me with a heavy heart. **IJW**

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Denali National Park and Preserve

A Federal Conservation System Unit in an Owner State

BY ADRIENNE A. LINDHOLM and MICHAEL J. TRANEL

Out of a statewide total of approximately 365 million acres (147.7 million ha), the state of Alaska will soon own more than 100 million acres (40.5 million ha) of land, not counting land beneath navigable waterbodies and extensive tidal and submerged lands. Alaska is the only state in the union that can be described as an Owner State; that is, the state retains most state-owned land and waters for the benefit of all citizens of Alaska. Unlike most states where a large percentage of land within the state's boundaries is privately owned, only 13% of land in Alaska is under private ownership. Native corporations, however, own 44 million acres (17.8 million ha), which constitutes most of the private land in Alaska (Anchorage Alaska Public Lands Information Center 2001). As stated in the Alaska Constitution, Article 8, "The legislature shall provide for the utilization, development, and conservation of all natural resources belonging to the State, including land and waters, for the maximum benefit of its people." No other state has comparable language in its constitution.

According to former Alaska governor Walter Hickel (2002), champion of the Owner State concept, a locally oriented, democratic government can harness the natural resources it owns and the efficiency of the private sector to provide its citizens opportunity and an enviable quality of life. The government of Alaska holds Alaska's fish, wildlife, waters, and minerals in common ownership for the benefit of the people of Alaska. Alaska's government and citizens are then tasked with the care of its natural resources in a manner that benefits all Alaskans. If managed and developed responsibly, Hickel believes that all Alaskans will have an opportunity to prosper, and the state can provide government services without taxing its residents.

Managing a Federal Conservation System Unit

Managing a federal CSU in Alaska does not elegantly fit into the Owner State model, and the relationship between the federal government and the state of Alaska since passage of the Alaska National Interest Lands Conservation Act (ANILCA) in 1980 remains challenging, even while communications have steadily improved over the years. Since statehood in 1959, Alaska has focused on resource development, improving the state economy, and preserving its self-reliant, rural way of life. It has, however, been reluctant to embrace the federal obligation to the American people to protect the more intrinsic, or nonuse, values of their parks and wilderness, especially to the extent they are perceived to thwart the mission of the owner state.

One reason the state is reluctant to protect nonuse values is because it does not currently receive the same level of economic benefit from resource protection as it does from resource development. This situation is changing however, as tourism is the only industry in Alaska that has grown continuously since statehood (Colt 2005). Preservation of wilderness and its related values is part of the foundation on which the tourism industry will continue to grow.

Federal land managers are often challenged when they engage the Alaskan public in their planning processes. They find the public is relatively unaware of the legal obligations

Most federal management actions are based on some level of involvement with affected publics.



Figure 1—Federal land managers grapple with appropriate ways to manage motorized and nonmotorized access to national parks. Photo courtesy National Park Service.

federal land managers have when managing federal CSUs. It is often difficult to understand that just as the governor of Alaska is tasked with managing the Alaska commons (state-owned land, waters, fish, and wildlife) for maximum benefit for the people of Alaska, federal land managers are tasked with ensuring that a range of values important to the American people are accommodated in federally designated CSUs. At the same time, national constituencies often have difficulty understanding all of the provisions within ANILCA, especially those related to traditional activities. This dual challenge requires new understandings by both Alaskans and federal land managers.

Most federal management actions are based on some level of involvement with affected publics. Alaskans sometimes have a difficult time with the federal public involvement process for two reasons.

1. Alaska residents most affected by rules that govern access to, and use of, federal lands have a diluted role in the process by which the rules can be changed. When advocating for a particular position on an issue, local Alaskans must voice their opinions in a forum that includes opinions from the entire country, not just from Alaska. Alaskans are accustomed to having access to managers and politicians due to the state's small population, but they may sometimes feel like their voice is lost in a public arena that includes the entire nation. This view can lead to feelings of powerlessness and sometimes a distrust for and unwillingness to work with federal land managers.
2. Active management (for example, monitoring programs, enforcement of park rules by field personnel) is often perceived as an intrusion by outside interests. Because the federal

land management agencies are headquartered in Washington, DC, federal employees have been viewed as coming in from outside the state to impose inappropriate policy on local people. This concern persists, even though an increasing number of managers and park employees are knowledgeable members of their respective local communities. At times, federal land managers have attempted to make long-term decisions without a full understanding of Alaska's unique characteristics.

Principles to Guide Federal Land Management

From experience in dealing with many of these issues in backcountry management planning at Denali National Park and Preserve, we suggest these nine principles to guide federal land management in an Owner State.

1. Increase communication with all constituents to exchange ideas about the legislated purposes and values of the unit. It is imperative that the public understand the purposes of the park unit, which are described in ANILCA and the enabling legislation for the individual unit. Federal land managers must clarify for the public the framework within which management decisions must be made. Planners at Denali National Park hold regular informational meetings in local communities and begin the discussion by outlining the purposes of the park and legal responsibilities for management. In this way, the public gains an understanding of what aspects of management are nonnegotiable so they can more effectively contribute to the decision-making process,

and managers continue to improve their understanding of local values and needs.

2. Acknowledge the full range of values in management decisions. It is important that land managers acknowledge all values that fit within the legal framework for which the unit was established (see figure 1). In Denali's Draft Backcountry Management Plan, the goal is to provide a range of opportunities for all Americans, with the understanding that every use can't happen everywhere. Management zoning ensures that all appropriate values will be protected somewhere within the park and preserve. Managers can provide opportunities for visitors who are very self-reliant and have a desire for extended expeditions in extremely remote locations. In other regions of the park, managers can provide for a greater intensity and variety of appropriate recreational activities and can provide more services and facilities.
3. Improve understanding of incentives for Alaskans to participate. Many Alaskans do not see direct economic incentives in managing parklands to protect intrinsic values. Managing parklands to protect wilderness resource values often involves self-restraint and sacrifice on the part of individuals. Unless Alaskans value its protection, they will be reluctant to make those sacrifices. Parks contribute to an enviable quality of life for local communities. It is difficult to measure the value of clean air, clean water, and the good feeling that many residents have from living next to a place that some visitors spend their entire lives dreaming

about. It is easier to quantify the revenue generated by the increased value of homes that are located near parklands; food, lodging, gas, and retail purchases associated with tourism to parklands; expanded infrastructure in local communities that results from being located next to a national park; and increases in jobs that are provided by the park or park-related tourism. National parks provide long-term and short-term economic benefits to local Alaskans; land managers must take a more active role in helping local communities capitalize on tourism opportunities and plan for long-term growth of their community.

4. Demonstrate support for the people and communities most affected by the park. Federal land managers must recognize that national parks impact local communities. Land managers can

look for opportunities to facilitate funding for local communities to plan for their futures (see figure 2). Denali National Park and Preserve has provided funding and facilitation for local communities to undertake comprehensive planning in Talkeetna, Trapper Creek, and the Y Area. These planning efforts empower local residents to manage traffic, crowding, economic growth, and seasonal population fluctuations that are associated with gateway communities. The National Park Service also sponsored a Gateway Community Workshop in April 2005 to help local leaders make decisions that will support sustainable community growth and development while retaining the community qualities that made the area desirable in the first place.

5. Make sure local voices are heard. It is important that Alaskans feel



Figure 2—Regular informational meetings give agencies and constituents an opportunity to exchange ideas about the future of Denali National Park. Photo courtesy National Park Service.

Alaska's tradition as an Owner State, and federal land management in which the final say in decision making comes from Washington, DC, add a level of complexity that is not the case in National Park Service units in other parts of the country.

invested in the planning process. Managers and residents should take advantage of the low population of the state, which affords residents easy access to land managers. Local residents have the opportunity to be more engaged in management decisions than in areas with high populations. At Denali National Park and Preserve, managers hold regular informational workshops in local communities, attend meetings in local communities to stay abreast of community issues that affect the park and its relationship with the community, respond to all comments received, and incorporate local ideas into planning efforts wherever possible.

6. When necessary, take decisive action to protect the full range of values. To protect the values for which the conservation system unit was originally established, managers must be prepared to take decisive action, especially in the face of conflict. Hardin (1968) warns that the values that visitors seek in the parks are steadily being eroded, and this change threatens parks as commons, for they will be of no value to anyone. Managing national parks demands an approach that errs on the side of conservation because once a resource such as wilderness character is damaged, it cannot easily be rehabilitated to a level

where it holds the same values. Recent experiences in U.S. national parks outside Alaska show that ecosystem restoration is extremely expensive. Wilderness character holds symbolic value—even if fish populations are restored or a stream bank rehabilitated, in the minds of many Americans the character of the area has been permanently scarred. Some values cannot be restored.

Managers must realize that some uses are incompatible with park purposes and must not be afraid to restrict that use. Clem Tillion, a perennial spokesperson for commercial fishing interests and a former state legislator, stated, "If you're afraid to put pressure on people, you shouldn't be managing a resource. The living resource is most important. If you have to inflict pain [on people] to take care of the resource, inflict pain."

Management of the Old Park area of Denali (the former Mount McKinley National Park, most of which was designated as the Denali Wilderness in ANILCA) uses a quota and permit system, which is generally accepted as reasonable. And, as the National Park Service heard in 2004 during scoping for the South Denali Implementation Plan, "Some kind of land management restrictions should be implemented to keep the area's natural values for the future...without some conscious control we will forever lose this."

In a study of environmental values and ethics, Manning, Valliere, and Minter (1996) measured support for intrinsic values in addition to several values associated with public use. They concluded that visitors value parks for many different reasons, and that intrinsic values are not only rated as important, but may comprise a majority of total park value.

7. Work closely with state and local governments on a regional solution. It is important to maintain good communication with state and local governments and look at recreational and development opportunities for Alaskans in a regional context. Federal managers must question whether an activity is compatible with the purposes for which the unit was established. As part of the backcountry planning process at Denali National Park and Preserve, the National Park Service consulted regularly with the state of Alaska. These discussions have been fruitful and led to a Revised Draft Plan that broadens the range of alternatives. In addition, the National Park Service provides partial funding for a position in the state's ANILCA Coordination office to facilitate state review of park planning initiatives throughout Alaska.
8. Support the local labor force. The critique of the federal government as outsiders can be partially alleviated by hiring more local people for federal positions. A majority of employees at Denali National Park and Preserve are longtime Alaskans and have lived in local Denali communities for many years. This connection to community helps the National Park Service make

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Customary and Traditional

A Continuing Way of Life at Denali

BY MIKI COLLINS and JULIE COLLINS

During the summer, the sun rises over our home country from the faraway northeast, its golden light illuminating a glorious mosaic of flatlands that extends from our remote cabin south through Denali National Park and Preserve to the rugged foothills and soaring mountains of the Alaska Range. Intricate systems of gold and green swamps and azure lakes segue into a broad expanse of black spruce, muskeg, and taiga broken intermittently by lakes, glacial rivers, old burns, and the vegetated ridges of ancient sand dunes.

In midwinter, this wilderness lies in the shadow of the range until late morning, when the sun finally rolls along the rim of Denali or Mt. Foraker to make a brief, diluted appearance. Moose, caribou, wolves, bears, and smaller game move freely through the land, for there are no significant human-made structures to divert them. Even the boundaries demarcating the park are invisible, figments of the human mind except where they follow rivers.

This is where we live. The area wedged between the McKinley and Foraker Rivers provides the two of us with our vocation, our groceries and supplies, and our emotional and spiritual well-being.

The Life We Choose

“August 6, 1984. Picked raspberries on spit—1 & 1/3 gal. Caught salmon—3rd King, 1 dog so far.”

Although entered in Miki’s diary more than 20 years ago, she might have made this same report in 1974 or 2004. Throughout this vast untrammled wilderness, from Hult Creek to Spencer Creek to the Twelve-Mile, we move quietly, year-round, searching to fulfill our needs. Unlike those who visit a wilderness seeking diversion and rejuvenation, our requirements are more complex and diverse, for we are a permanent part of the land, dependent on it for basic survival as well as needs of the heart and soul.

The subsistence life flows with the seasons and the harvest varies yearly, but the goals remain the same: to live in



Article authors: Miki Collins (left) and Julie Collins (right) in Denali National Park and Preserve. Photo courtesy of Miki and Julie Collins.

the wilderness as independently as possible, touching the land lightly while preserving a way of life that has grown increasingly rare. It’s a life that has fulfilled and sustained us for decades. Our parents lived it to a lesser extent, and we completely devoted ourselves to it after graduation from the University of Alaska in Fairbanks in 1981.

In addition to harvesting wild provisions, we range widely for other resources: cabin logs, moss, and bark; birch and spruce for lumber and firewood; peat for garden soil enrichment, and wildflowers, sand, stones, and willow twigs for numerous projects. Our water comes from untreated local sources, and much of our electricity is provided by wind and solar systems. Furbearers provide materials for warm clothing and cash income from sales of raw fur and value-added handcrafts; they also furnish meat for human or sled-dog consumption. Nets produce fish for dog and human consumption, garden fertilizer, and trapline bait. The subsistence lifestyle requires ranging and harvesting over extensive areas. Even a few newcomers could greatly impact certain resources.

“September 12, 1994. Pulled half the potatoes, some carrots. To P.O. with Daddy. Hauled freight w. pack horses... 9:30 too dark to shoot [cloudy].”

The harvest culminates by early winter, when the freezer, meat shed, root cellar, and larder are packed with moose meat, canned fish, garden vegetables, and five-gallon buckets of wild berries; stacks of firewood and frozen whitefish for dog food fill nearby sheds (see figure 1). The gratification and independence gained from providing for one's self in such a fundamental way gives us a strong sense of identity, self-worth, and pride as well as a powerful connection to the wilderness.

We live this way by choice. Some subsistence users find the life too difficult or isolating; some wish to escape but cannot; some love the life but must abandon it because the Alaskan bush gets too expensive. You literally cannot afford to take the time required to live off the land if you have medical or education bills to pay.

The Importance of Conservation

“December 18, 2000. To WX (trapline tent camp), wolves scratched bait out of almost every set & ate 2 marten. p.m.—split wood, tied tent up better, put damper in stove; sewed on baby hat [a fur item for sale].”

Although we are not native—our parents came to Alaska in the 1940s and we inherited our trapline from a Swede who arrived in the early 1900s—much of the Native culture has filtered naturally into our life, from skin-sewing to a spiritual respect for the wilderness. One of the important indigenous principles we adhere to is avoiding waste. Fish guts go to the dogs, moose viscera and hooves make trapline bait, animal skulls can be marketed, and even tiny fur scraps are utilized for small handcrafts that sell smartly. The tops of trees cut for cabin logs can be used for other projects. Composted garden refuse and manure produces fertilizer.

This conservative approach includes recognizing the stewardship we feel for the thousand square miles that we range across. The wilderness is our garden, our supply store, our place of worship. Although the home cabin is outside Denali Park, the whole area is our home on a very personal level. This wilderness has provided human sustenance for millennia, but in the modern context human impacts are potentially so great that the delicate ecological dynamics can be easily and permanently unbalanced. We must therefore tread more cautiously than those before us. In a way, this is easier than in the past: If a resource may be jeopardized by harvesting it, we can back off and turn to commercial goods, whereas in the past, “backing off” might have been synonymous with starvation.

If we were to damage this land, we would be damaging our own way of

life. This knowledge motivates us to keep our impact as light as possible. In this regard our motives directly align with those of the National Park Service. When the Park Service was mandated to permit customary and traditional subsistence in the Alaska National Interest Lands Conservation Act (ANILCA) additions of Denali Park in 1980, it allowed us to continue preserving an ancient and fundamental way of life, while ANILCA helped to protect this landscape from the encroaching civilization that can destroy wilderness and hence a lifestyle.

From our aspect, conservation means more than using and recycling every scrap of a resource (see figure 2). We select large mature birch trees for firewood but leave some of the more ancient ones for bird habitat. We take care not to damage berry bushes to ensure future production.

When trapping marten, our main catch, we run 60 to 80 miles of the 120 miles of trail that we maintain, leaving the rest fallow to ensure vigorous populations of this abundant but vulnerable furbearer. Carefully recording each animal's sex and age tracks the health of local populations: a high ratio of old females indicates that we're impacting the breeding population and need to move or pull out to ensure a sustainable yield. In this inaccessible area, animal populations fluctuate far more in response to environmental pressures—weather, predation, starvation, disease—than to human impacts. A consistent sustained yield is unachievable in most animals, especially those such as lynx that swing through extreme natural cycles.

The subsistence life is highly opportunistic; the time and work invested must yield a payback or it would not be worthwhile, resulting in a naturally conservative approach. If the net isn't catching enough fish to be worth



Figure 1—Using the windspeed of the moving boat, Miki winnows leaves from her blueberry harvest. Photo courtesy of Miki and Julie Collins.

checking, we pull it, reducing pressure on the population. If grouse numbers decline, we don't invest much time hunting them. When blueberries are scarce, we shift our efforts to cranberries, but pursue blueberries seriously during productive years. If the wolf population skyrockets, an increase in trapping effort yields a greater number of pelts, with the added benefit of reducing predation on moose. This ultimately enriches the wolves, as more moose become available.

Evolving Relationships with the National Park Service

When our subsistence harvest areas were engulfed by the park expansion, we found ourselves increasingly connected to the Park Service and its employees. Information and assistance flows in both directions. The Park Service clarifies regulations and helps us through permitting processes. They provide study and survey results so we better understand animal movements and population cycles. The sled dogs from their kennel inject fresh blood into our aging team, and their airplanes provide glorious overflights en route to meetings and programs.

Conversely, we have participated in studies ranging from traditional cabin use to subsistence harvest. We comment orally and in writing on Park Service proposals that affect us or the Northern additions. We have helped with wolf studies, provided marten-trapping records, and have donated biological specimens ranging from body tissues to whole animals and prepared skulls.

Perhaps most importantly, we help educate park employees, both managers and interpreters, explaining the responsible harvest of wild resources, the importance of our relationship with the wilderness, and how we are



Figure 2—Moss makes good insulation on cabin roofs. Miki uses her Icelandic horses to pack moss to an old trapping cabin whose roof is being repaired. Photo courtesy of Miki and Julie Collins.

cognizant of the consequences when outside perceptions of our activities do not reflect reality. People who feel that every individual animal life must be protected at all costs will never sympathize with our activities, but those who understand that habitat protection and population dynamics holistically are environmentally more important on a global scale usually appreciate our small efforts to work and live in synchrony with our wilderness environment.

Being intimately and intrinsically dependent on the land has given our familiarity with it a depth unachievable by seasonal park employees and non-resident scientists who rarely see the backcountry. When an anthropologist wondered why prehistoric aboriginals chose a particular winter site, we knew that location provided year-round open water. When a botanist initiating a climate study marched deep into a birch forest and wondered whether his chosen site had been altered by human activity, we pointed to a scarred tree beside him whose bark had been harvested decades ago.

This rapport with the Park Service has proved enlightening and mutually beneficial. The effort we invest in the relationship has been well worthwhile, especially when confusion or conflicts arise, because trust has been built over decades of cooperation.

A Changing Place

“May 24, 1985. [Paddled canoe] down Old Channel, up Igloo Cr. to cabin [and back] home. 7 moose. Water up 5 ft. in 1 wk.”

Over the 45 years we've lived in this wilderness, some facets of our life have been subject to change, both natural and human induced. Flexibility, adaptability, tenacity, and optimism are important in maintaining our way of life.

Weather often dictates our schedule. Warmer weather, whether due to global warming or natural cyclic variations, affects us significantly. Since the late 1980s, late freeze-ups have delayed hunting success and impeded trapping. Highly variable snow conditions slow our dog team (see figure 3), affecting fur catches as much as furbearer populations. The increased rate of permafrost melt makes trails rough and has the potential to



Figure 3—Although travel sometimes occurs on skis, on snowshoes, and on a snowmachine, the dog team is the primary form of transportation on the trapline. Photo courtesy of Miki and Julie Collins.

completely change local habitats and population dynamics. The garden can be planted earlier, but fish move less in warmer water.

Global events impact our small lives to a surprising degree. The world economy dictates fur prices, thus we have been personally touched by the disintegration of the Soviet Union, the September 11 crisis, and the rapid expansion of the Asian economy. The value of our furs varies greatly; over the years a prime marten has ranged from under \$30 to more than \$100 per pelt. Fluctuating values combined with unpredictable weather makes our pursuit of this cash crop speculative at best.

Increasingly, high-altitude air pollution drifting in from distant countries exacerbates springtime arctic haze that obliterates the uplifting views we normally enjoy. Only recently have studies been initiated to determine if persistent organic pollutants from distant areas are contaminating our wild foods.

On a more local scale, increasing tourism has impacted our lives as well. After a life of solitude it is shocking to see tourists on an isolated trapline trail. During our rambles when we dip into the Wilderness Area of Denali Park, the persistent drone of flightseeing traffic and Park Service aircraft makes us appreciate heavy-weather days that ground the planes.

Wilderness Lifestyle as a Legacy

“February 25, 2005. -5/+5° early/late. Ran dogs to GCC, snsh [snowshoed] about 4 miles HTT (trapline trails) pulling traps. 2 marten GC, poor sign; 7 on HTT, good sign. Bear & MiteyMan [dogs] loose up HTT to teach them the trail. Snsh 5 _ hours. Dogs fast—45 GCC-SCC, Clarence in single lead (1st time) but 3 loose leaders [set the pace]. 7:50 total. Beautiful sunny day.”

We hope this lifestyle perseveres and people in congested localities value that some wilderness areas sustain small numbers of people who immerse themselves in natural cycles. Although we fear that writing about the life might encourage an influx of imitators that overwhelms the delicate ecology, we do want to preserve local traditions through our writing. We wish to share

the knowledge that a lifetime in the wilderness brings: Banking a cabin with snow insulates it against -50° weather; the heat of decomposition can rot ice in swamps; shaking a small tree might intimidate a bear when noisemakers do not; wolves travel a frozen stream point to point, otters hug the bank, lynx cross perpendicularly.

Then, too, we wish to share something of the life and the wilderness itself, the daily sense of enjoyment and accomplishment. A day’s work in the bush can yield three gallons of berries, a repaired sod roof, or a three-week supply of firewood.

Our lifestyle provides an intimate knowledge of many hundreds of square miles. On a bend of a river where the scent of silt mingles with the rich boggy smell of the swamp, we once lured a bull moose across a hip-deep marsh to the riverbank near our boat where we harvested him. Thirty miles distant, Shell Creek emerges from the frozen muskeg, flowing year-round with bright spring water, harboring water ouzels throughout the winter. In another location an ice lens created giant permafrost banks, great scalloped cliffs that slowly melt and slump into the river. Over one lake, a wolf trailed the dog sled. On a stream 20 miles south, a winter grizzly charged the dog team. Cranberries produce prolifically in one spot during hot years, and another spot in wet years.

It is important to us that distant people understand this subsistence way of life and appreciate the value of its protection. **IJW**

The area wedged between the McKinley and Foraker Rivers provides the two of us with our vocation, our groceries and supplies, and our emotional and spiritual well-being.

MIKI and JULIE COLLINS, twin sisters, studied biology and journalism before graduating from the University of Alaska-Fairbanks to continue life at their bush home. They have authored several books and numerous articles depicting the subsistence way of life. They can be reached by U.S. mail at Lake Minchumina, Alaska 99757, USA.

Native People and Wilderness Values at Denali

BY HOLLIS TWITCHELL

Gudgel-Holmes (1999), summarizes early Native occupation of the Denali area, stating that for more than 12,000 years the resources of what is now Denali National Park and Preserve have supported human occupation (see figure 1). The earliest evidence of human occupation is found in the surviving stone tools that were used to kill large mammals on the steppe tundra. More complex technologies appearing in the archaeological record about 6,000 years ago heralded the advance of the boreal forest and post-ice age animal populations. The appearance of forest, however, required adaptation. People developed new ways of living based on large game hunting, but with fewer species than before. Survival was the reward for making appropriate responses to environmental or resource fluctuations. Distinctive archaeological artifacts suggest that the ancestors of current interior Alaskan Native people were present in the Denali Park region at least 1,000 years ago. The cultures were never static, but always in the process of changing, just as they are today.

Athabaskan Culture

Collins (1998) suggests that the mountainous areas of Denali National Park and Preserve were often used by more than one band of Athabaskans. The Athabaskan people adapted to this country by organizing themselves into small bands of 25 to 100 people who maintained kinship ties with surrounding bands. Each band had the exclusive use of an area that often stretched along major rivers to the distant mountains. In order to survive, they had to have an extensive knowledge of large areas of land, knowledge of the seasonal presence of fish and wildlife, and the skills to make the necessary tools to harvest them.

Athabaskan people moved frequently to locate and harvest seasonally available resources as a matter of survival. Over time, people identified dependable food sources and

their locations in the upper Kuskokwim and upper Kantishna River areas and they returned to those places repeatedly. The Alaska Range played a key role in the yearly cycle. The mountainous regions were inhabited by Dall sheep, and the foothills were occupied by caribou and grizzly bears in the summer and fall, and more recently have become important habitat for moose. There were other advantages to hunting in the mountains of what is now Denali National Park and Preserve. The firm ground of the

Athabaskan understanding of the wilderness and its fellow inhabitants often runs counter to Western ways of thinking about the world.

mountains and foothills made traveling cross-country less challenging than in the lowlands and boreal forested areas where numerous swamps and bogs drain into small streams that flow into creeks and major rivers. The rivers are the main highways for travel both in summer and winter.

A yearly cycle for these people might begin with relocating to a fishing site in the late spring to take advantage of the fish runs that began moving upriver at breakup (Collins 2004). Chinook (king salmon) was one of the prime fish sought because of its large size and nutritional value. The original method for catching these fish was by constructing a fence and weir in a shallow side stream that was utilized for spawning. Nets were made of babiche or willow bark and required substantial maintenance. If left in the water for very long they would rot and fall apart, so they had to be taken out and dried frequently.



Figure 1—More than 10,000 years ago people followed caribou trails through what is now Denali National Park and Preserve. Aldo Leopold Wilderness Research Institute photo.

After a good supply of fish was cut, dried, and stored for the winter, the men, women without small children, and children old enough for the walk headed for the park area to hunt. After upstream travel by canoe was constrained, each person would proceed with just what they could carry in a pack, walking the river bars of the then-braided stream toward the mountains. There they would hunt and dry meat until they had enough hides to make a skin boat and enough meat to fill it up, then rejoin those who had remained in other camps downriver. After freeze-up the young men would be sent back out to the foothills to hunt for meat for the entire village (Collins 2004).

At times there were periods of starvation in the late winter when resources were depleted. Some food was obtained by snaring rabbits around the camp and hunting grouse and ptarmigan. In spring, when the fish and other meat supplies ran low,

beaver and muskrat provided some food as well as fur. By midspring, the rivers would begin to thaw and ducks and geese returned, fat from a winter of feeding in the south. The Athabaskan people knew the lands intimately. Their total dependence on the land and its resources gave them a powerful bond to it that was both physical and spiritual. Traditionally, they are taught respect for all living things, taking only what is needed and sharing with family and friends.

Athabaskan cultures of Denali underwent a period of immense change after Western contact, with the arrival of explorers; missionaries; traders and trade goods such as firearms; trappers and the fur industry; prospectors and gold rush boomtowns; new permanent settlements and mandatory attendance at schools; development of the Alaska railroad; establishment of Mt. McKinley National Park; and experiencing firsthand the ravages of epidemic disease in their homeland.

Haynes, Andersen, and Simeone (2001) describe the Native cultural changes that have taken place since Western contact:

Amazingly, survivors [Native peoples] of this era coped with these challenges by concentrating at or near settlement locations, integrating into the market economy by participating in wage employment opportunities, and utilizing technological innovations such as the fishwheel and outboard motors to maintain resource harvesting activities and traditional ties to the land. What emerged from these decades of remarkable change is the village-based framework of contemporary Athabaskan culture and society in Interior Alaska is still present today.

Athabaskan Views on Nature

Changing economic and social opportunities in some communities have influenced the level of use and dependence on subsistence resources. Still, for many Native residents these natural resources ensure more than survival, they sustain a traditional way of life. Athabaskan understanding of the wilderness and its fellow inhabitants often runs counter to Western ways of thinking about the world. Father Oleska (2002) gives us an interesting Native cultural perspective regarding wilderness. He writes:

Most of us learned in grade school about the hunting techniques and prowess of Native Americans. We were told that Indians could move silently and stealthily through the forest, and I'm sure they assumed that was necessary for them to succeed in surprising and overpowering their prey. Noisy hunters would scare all the game away.

But Father Oleska (2002) quickly learned in rural Alaska that this is not why traditional tribal peoples tried to move silently into the wilderness.

Traditional hunters believe that the animals are smart. They see things humans can't see. They hear things humans can't hear. They smell things humans can't smell. They therefore know things humans don't know. And besides this, they are in cahoots. They understand one another's languages, so that if the moose with his huge nose and ears did not somehow detect the presence of a human predator, the sparrows or squirrels warned him. Nowadays, hunters make no pretense of sneaking up on animals. They drive four-wheelers and snowmachines. In summer their outboard motors can be heard miles away. Only deaf animals could be surprised when encountering a hunter in this century. But in the traditional perspective, deceiving them was never an option.

According to Father Oleska, Native American hunters enter the wilderness silently not because they are trying to trick their prey but because they are aware that they are entering their home. The forest and tundra are their birthplace, and humans come only as closely watched guests—who all too often misbehave. Ungrateful, wasteful humans cannot succeed in locating or harvesting game. The animals will withhold themselves from such disrespectful creatures. And hunters believed that without the cooperation, the self-offering and sacrifice of the animals, they had no chance of success.

Father Oleska also describes the European view of animals as inferior life-forms, of lesser sensitivity and intelligence than humans. To be turned into an animal is often described as a

curse from which the victim can escape only with the magic of true love. But in Native American stories, being able to change into an animal is often viewed as a positive transformation. To become an animal is a promotion. For Europeans, conquering the wilderness and putting it to human use is a God-given right, but for traditional tribal peoples, trying to subdue or control the earth constitutes the height of arrogance. The appropriate human relationship to the ecosystem, in their view, is not one of dominance but of cooperation and mutual respect.

So what about roads into the Alaskan wilderness? Oleska (2002) relates,

To Europeans, a road is a social and economic path way established by humans for their convenience, prosperity and pleasure. They have every right to carve a road anytime, anywhere, as their needs and desires dictate. But for Native peoples, a road is a threat to the ecosystem that has nourished and sustained them for millennia. A road brings humans into an area they otherwise would not have had access to, and therefore noise, disruption and, potentially, the destruction of the plant and animal species. A road scatters the game, drives animals from their natural home, and destroys their habitat. And if the animals leave, those who depend on their self-offering cannot survive there any longer either.

Oleska concludes:

To city residents, roads may be a great blessing, the means by which you are linked to the rest of the world and to the frontier up to which the roads extend. But, if you live in a village, the idea of connecting your community to a city frightens and torments you. A road could

mean the end of your culture and possibly your life. Not only outside culture, but many of its least desirable products—specifically cheaper alcohol and illicit drugs—will flow into your town like poison into blood along that highway.

National Park Service and Subsistence Use

With the passage of the Alaska National Interest Lands Conservation Act (ANILCA) in 1980, the American people made a promise that is imperative to keep: to preserve and protect some of our nation's most splendid natural ecosystems and treasured landscapes while providing the opportunity for those engaged in a traditional subsistence way of life to continue to do so. ANILCA also directed the establishment of Subsistence Resource Commissions for most national parks and monuments in Alaska to provide meaningful participation and involvement of local subsistence users in planning and management decisions affecting subsistence.



Figure 2—The Alaska National Interest Lands Conservation Act (ANILCA) created new additions to the park and designated 2 million acres (0.8 million ha) of wilderness.

In spite of use by traditional Athabaskans for the last few thousand years, the natural landscapes and ecosystems of the park have remained much the same, showing little trace of their presence.

Denali's National Park Subsistence Resource Commission, made up of both Native and non-Native subsistence users, have addressed their concerns about new roads or railroads in Denali National Park and Preserve (see figure 2) and have stated their concerns in a letter to the secretary of the interior of the United States. The commission met on February 21, 2003, and once again discussed North Access proposals to build either a railroad or a road from the George Parks Highway near Healy to Kantishna within Denali National Park. The commission has expressed strong opposition to any new roads within Denali National Park and Preserve through a formal Hunting Plan recommendation passed in 1986. The commission reviewed North Access issues in 1993 and 1995 and passed motions to oppose any new access roads or railroads through Denali National Park.

The commission is concerned that developing new access routes and roads into areas traditionally used for subsistence purposes would alter the character of traditional use patterns and could negatively impact important subsistence resources. Specifically, the commission members are concerned about moose, caribou, furbearers, and chum salmon populations and habitats in the North Access area. Increased access could open areas, presently used by local subsistence

users, to resource impacts or vandalism, which could result in hardship to subsistence users.

The commission is also concerned about impacts to Denali's natural landscapes. Even if such an access route were open only seasonally, it would bring such an increase in the human population that the object of the visit—to see wildlife and experience wild landscapes for which the park was established—would be diminished. Development of a North Access route would be extremely expensive, not only to construct, but to maintain, and would require additional management responsibilities on the part of the National Park Service. Members of the commission believe that a new road is not necessary and would be a permanent, irreversible feature of the landscape, with a potential to impact customary and traditional subsistence uses.

Collins (1998, 2004) sums up the Native land use ethic. The Athabaskans were able to live here for thousands of years with minimal impact on their environment. Both their tools and the items they made with them were from local materials, and the harvest was very selective. In spite of use by traditional Athabaskans for the last few thousand years, the natural landscapes and ecosystems of the park have remained much the same, showing little trace of their presence.

One of the aspects of Denali National Park and Preserve that should be remembered and honored by those who currently use and appreciate the park is that it is part of the heritage of the Interior Athabaskan people. Their recent relatives and their ancestors used these lands for hundreds, if not thousands, of years but left a very light footprint. The park retains much of its original wilderness character, not because it has been protected from human use, but because the people who used it for thousands of years did not attempt to change its basic nature. **IJW**

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Symbolic Values

The Overlooked Values That Make Wilderness Unique

BY DAVID N. COLE

Introduction

The symbolic values of wilderness have been largely overlooked, compared with the ecological and experiential values of wilderness. The prominence of the word *untrammelled* as a descriptor of the wilderness ideal suggests that the primary general symbolic value of wilderness is as a symbol of a human–environment relationship characterized by restraint and humility. This value is compromised when wilderness is manipulated for human purposes. This article notes several ways in which the symbolic values of wilderness are mischaracterized and trivialized as being a matter of philosophy (as opposed to science), as being merely aesthetic, and as being only a temporary concern. Symbolic values need to be legitimized and better articulated so their importance can be fairly considered in attempts to prioritize management and to resolve discord between conflicting wilderness values.

Wilderness has many different values. Some of the values of wilderness are readily apparent and easy to describe; others are not. Some values were prominent reasons for creating the National Wilderness Preservation System in the United States (and are reflected in the language of the Wilderness Act); other values (e.g., economic values and biodiversity values) are ancillary benefits of wilderness designation. The most commonly recognized values that are clearly articulated in the Wilderness Act are the ecological and experiential values of wilderness. Ecological values derive from the preservation of natural conditions and lack of interference with the free play of natural processes. The Wilderness Act states that wilderness is “land retaining its primeval character and influence” and is “protected and managed so as to preserve its natural conditions.” To maximize the ecological values of wilderness, anthropogenic influences on wilderness ecosystems must be minimized. To the extent possible, natural fires should not be suppressed, invasive species should be eliminated, pollutants should be kept from the wilderness, and the impacts of allowed wilderness uses, such as recreation

and grazing, should be kept to a minimum (Cole and Landres 1996).

The experiential values of wilderness stem from the provision that wilderness “shall be administered for the use and enjoyment of the American people,” subject to the constraint that these lands remain “unimpaired for future use and enjoyment as wilderness” (The Wilderness ACT, P.L. 88-577). Wilderness experiences are most commonly conceived as being recreational, but for many the experience is better described by other terms, including *spiritual*, *educational*, and *transcendental*.

Few words in the act are devoted to the nature of wilderness experiences, and those few words are not well defined. The type of recreation that should be available in wilderness is to be “primitive and unconfined.” This suggests a minimum of development to make access and recreational use easy and convenient. It also suggests that, to the extent possible, regulations and restrictions on behavior should be kept to a minimum (Hendee and Dawson 2002). The only descriptor of experience contained in the act is the word *solitude*, and the act merely says that wilderness is an area that “has outstanding opportunities for solitude.”

Symbolic Values

Most management attention has been devoted to protecting the ecological and experiential values of wilderness.

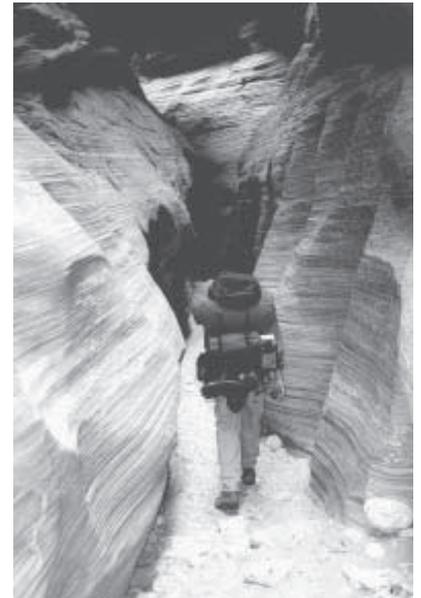


Figure 1—Backpacking in the Buckskin Gulch of the Paria Canyon-Vermilion Cliffs Wilderness managed by the Bureau of Land Management in Arizona and Utah. Photo by Peter Druschke.

Much less attention has been devoted to protection of the less commonly articulated symbolic values of wilderness. A symbol is something that has meaning and value far beyond what is physical and tangible. The Statue of Liberty, for example, is a symbol of freedom in the United States. Its symbolic value—as an expression of freedom—greatly exceeds the value of the metal and concrete from which it is constructed. Through time and across cultures, societies have often set lands aside for symbolic purposes. The designation of wilderness in the United States follows in this tradition (Harvey 1994). Such places embody (are symbolic of) significant intangible values. Among their other qualities, symbols allow humans to connect with times and places they may never be able to physically experience.

My intent in this article is not to provide a definitive treatment of what the symbolic values of wilderness are. My less ambitious goal is to argue for the importance of better understanding and articulating these values and for giving them more consideration

than they currently receive. To narrow the scope of discussion further, I differentiate between the symbolic values of wilderness in general and the symbolic values of individual wildernesses. Each individual wilderness has varied idiosyncratic meanings to different groups and individuals. Symbolic values vary among cultural and religious groups, as well as among individuals. For example, wilderness lands in the southwestern United States have symbolic meaning for aboriginal populations as well as for “New Age” groups. Kaye (2000) describes a number of symbolic meanings that various people ascribe to the Arctic National Wildlife Refuge. My interest in this article is with the symbolic values and meanings that can be generally ascribed to all wilderness lands.

Much of this general symbolic value stems from the idealized definition of wilderness in the Wilderness Act as “an area where the earth and its community of life are untrammelled by man.” *Untrammelled* is among the most important and the most misunderstood words in the Wilderness Act.

“Too often, this word has been misread as untrampled, or misinterpreted as some synonymous variation of untrampled, with the erroneous connotation that it describes the...ecological condition of the land” (Scott 2001, p. 74). When drafting the language of the Wilderness Act, Howard Zahniser purposely rejected the word *undisturbed*, choosing the word *untrammelled* instead. “Synonymous with unconfined, unfettered and unrestrained,” *untrammelled* suggests “freedom from human control rather than lack of human influence” (Cole 2000, p. 78). Understood in this way, keeping wilderness “untrammelled” is seen to be a very different notion from keeping wilderness “natural.” There is some overlap. But wilderness as untrammelled is about means more than ends—about how humans interact with wilderness ecosystems more than the effect of that interaction. That is why the extent to which wilderness is untrammelled has more to do with the symbolic value of wilderness than either the ecological or experiential values of wilderness.

By choosing the word *untrammelled* as the primary descriptor of ideal wilderness, Zahniser makes it clear that, above all else, wilderness designation is a symbol of human restraint and humility. Wilderness lands are the only lands where humans refrain from saying that they know best. To maintain the symbolic value of wilderness as untrammelled, wilderness should not be intentionally manipulated for human purposes. Manipulation of lands for human economic gain is ubiquitous, and wilderness is commonly recognized as a contrast to that. But the notion of untrammelled goes beyond this difference. Manipulation for any human purpose—even to mimic a natural fire regime or to compensate for the effects of acid precipitation—



Figure 2—The Arregetch Peaks in the Gates of the Arctic Wilderness managed by the National Park Service in Alaska. Photo by George Wuerthner.

trammels wilderness and compromises its symbolic value. The arrogance of science, the belief that we know enough to correct problems created by earlier managers, or to compensate for environmental impacts, is often considered to be a hallmark of modern society (Ehrenfeld 1981). Wilderness can only be a contrast to the arrogance of modern society if we refrain from manipulating wilderness—even to enhance its ecological or experiential values.

Symbolic Values Are Ignored

The symbolic value of wilderness as untrammled increasingly conflicts with the ecological value of wilderness as natural. This conflict is emerging as perhaps the primary dilemma of wilderness management (Cole 2000, 2003). Inadequate appreciation of the importance of symbolic values and the difficulty of articulating them makes it difficult to give this conflict the deliberative attention that it deserves. Only by fairly articulating the values in conflict and weighing the costs of compromise for all legitimate wilderness values can we move toward meaningful resolution of this dilemma. Let's look at an example.

Wilderness fire managers and scientists often promote intentionally igniting fires in order to bring more fire back into the wilderness landscape (Brown 1992; Graber 2003). This would increase the ecological value of wilderness (assuming natural conditions have been compromised by fire suppression), but it would decrease the symbolic value of wilderness. Admittedly, fire suppression interferes with natural processes, and the result can be considered a trammeling of the wilderness. However, the purpose of suppression usually has more to do with reducing fire risk outside of wil-

derness than with attempting to manipulate conditions within wilderness toward a desired state. The purpose of igniting fires in wilderness, in contrast, is usually to intentionally mold wilderness conditions to be more in line with the way humans think wilderness ought to be. This represents a much more severe degree of trammeling, taming, and engineering the wilderness than fire suppression—actions that are clearly opposed to the notions of humility and restraint from human control. It may be the appropriate action to take. Please don't

wilderness. Whichever course of action is taken—allowing management ignitions or not—something will be lost. Similar dilemmas abound in wilderness, with ecologists promoting the addition of lime to streams to raise pH that has been lowered by acid deposition, and promoting the breeding and planting of rust-resistant whitebark pine to replace populations decimated by the alien pathogen, white pine blister rust.

Another unfortunate assertion that some have made about this dilemma is that trammeling wilderness from

Efforts to protect ecological values are compromising the symbolic value of untrammled wilderness and vice versa.

misunderstand me here. I am not arguing that igniting fires is inappropriate. What I am arguing is that such an action should only be taken following a fair accounting of what would be gained and what would be lost.

It is not uncommon, when talking about this dilemma, to hear people say that igniting fires provides substantial ecological benefits, but that it conflicts with “wilderness philosophy.” This position tends to portray the choice as being between science and philosophy. It detracts attention from what would be lost with a program of management ignitions—the symbolic values of untrammled and untamed wilderness. The choice before wilderness managers is not a choice between science and philosophy. The choice is between two different sets of values, both of which relate to somewhat conflicting views of what wilderness should be and the appropriate relationship between humans and

intentional manipulation can be temporary; it “need not represent permanent loss” of wilderness character (Graber 2003, p. 39). Continuing with the fire example, this argument holds that fires can be intentionally lit until the system gets back to a natural state, after which natural fire can take over again—and nothing is permanently lost. This argument is a good example of failing to appreciate the symbolic values at play and merely focusing on the more tangible ecological values that many ecologists personally hold most dear. This argument is similar to suggesting that loss of virginity is not permanent because the condition of being pregnant is only temporary. Much as the condition of not being pregnant is not equivalent to the symbol of virginity, the condition of not currently being in an altered state is not equivalent to the symbol of untrammled wilderness.

I have also heard intangible symbolic values referred to as being “merely” aes-



Figure 3—Salmon Glacier in the Misty Fjords National Monument Wilderness managed by the U.S. Forest Service in Alaska. Photo by Lynn Kolund.

thetic or experiential in nature. Wilderness wildlife biologists recognize that it is controversial to place radio collars on wolves in order to obtain information that will enhance the restoration of natural wolf populations. Some of them ascribe the source of controversy to people not liking to see collars on the wolves—suggesting there would not be a problem if the collars were invisible. Again, there is a widespread lack of appreciation that the more serious problem may be the loss of symbolic value that comes when a wilderness's wolves have been captured, fitted with tracking devices, and remotely observed. Wolves that have been captured and handled inevitably lose some of their wildness. Wolves that can be tracked—so we know where they are and what they are doing—lose some of their mystery. It is loss of wildness and mystery—symbols of untrammled wilderness—that must be weighed against the benefits of enhanced ecological understanding and the restoration of natural wolf populations.

Wilderness is symbolic of much more than uncontrolled and self-willed places. Naturalness is another symbolic value of wilderness. Although this symbol is much less in conflict with other values, such as the ecological values of wilderness, concern for symbolic naturalness can influence wilderness management decisions. For example, given a goal of reducing vegetation density and fuels that have built up from decades of fire suppression, some wilderness advocates are comfortable with using saws and rakes to cut trees and remove fuels; others are not. This choice seems to turn largely on the importance of naturalness as a symbolic value. Supporters of saws and rakes assert that the end of eliminating the effects of fire suppression in wilderness is most important and that saws and rakes are the most effective way to do that. Adherents of the opposing position are willing to compromise this end to some degree for the symbolism of letting nature find its own way to reduce vegetation and fuels. In another ex-

ample, some managers have proposed that fires suppressed in wilderness be reignited in the same places, during conditions when the fires could be allowed to burn. Choosing to ignite a fire where it was suppressed by humans, rather than where it would most compensate for fire suppression effects, suggests that the symbolic value of naturalness is given precedence over broad ecological values.

Symbolic Values Make Wilderness Unique

Lack of appreciation of the symbolic values of wilderness is particularly troubling because they are so central to the wilderness idea. The ecological and experiential values that can be found on wilderness lands—while highly significant—can also be found on lands outside wilderness. Many large roadless areas, in particular, also have largely natural ecosystems and provide opportunities for wilderness-like experiences. What is most unique about wilderness are the symbolic values, particularly wilderness as untrammled—lack of intentional manipulation, humility, and restraint. Read the writings of Howard Zahniser and you will find that he wrote relatively little about the natural ecosystems of wilderness and the recreational opportunities they provide. These were clearly important values of wilderness, but not the ones Zahniser went to the most trouble articulating. In 1955, in “The Need for Wilderness Areas,” Howard Zahniser (in Zahniser 1992) wrote that “the *distinctive* ministrations of wilderness [emphasis his]” is “to know a profound humility, to recognize one’s littleness, to sense dependence and interdependence.”

The symbolic values of wilderness are the most radical elements of the wilderness idea. They are the values that contrast most with modern society—with its faith in scientific

knowledge and reliance on technological solutions to problems. This can be clearly seen in the difficulty that many wilderness ecologists have in grasping the importance of symbolic values in contrast to the ecological values they hold most dear. It can also be seen in the difficulty that wilderness access groups have in grasping the importance of these values in contrast to the experiential values that they hold most dear.

Conclusions

Of the diverse values of wilderness, symbolic values are among the most overlooked and misunderstood. Some symbols are unique to each individual wilderness, whereas others are generally shared across wilderness areas. The most important general symbolic values reflect a unique human relationship with the natural world. They stem from the notion of wilderness as untrammelled—as places where humans exercise humility and refrain from molding the land into their image of what they think it should be. Although they are less tangible and more difficult to describe than ecological and experiential values, symbolic values are what make wilderness most unique. Given this, it is ironic that symbolic values are often trivialized as being temporary or of merely aesthetic or philosophical (as opposed to scientific) interest.

Inadequate understanding of and attention to symbolic values is problematic because society needs to dialogue and deliberate about the relative importance of different wilderness values. Protection of wilderness demands resources, and the resources currently available for protection are inadequate. Consequently, we must focus available resources on protecting those values that are most dear. When debating management priorities it is not uncommon to hear the senti-

ment, “Why do we focus wilderness management on recreation impacts, mere scabs on the land, when we should focus resources on more significant threats to ecosystem health?” This view makes complete sense if we all agree that the ecological values of wilderness are more important than the experiential or symbolic values of wilderness. But are they? And who gets to decide?

More critically, different wilderness values increasingly conflict with each other. In particular, efforts to protect ecological values are compromising the symbolic value of untrammelled wilderness and vice versa. Some people don't want to recognize this conflict—perhaps because they fear the consequences of conflict within the community of wilderness advocates, but often because we tend to be blind to values other than our own. However, the wisdom of decisions about how and when to compromise different values (e.g., decisions about the appropriateness of ecological restoration) will depend on a comprehensive

experiential values of wilderness. But such a decision should turn on the relative importance of different values and not on mischaracterizations of some values as being less scientific or more temporary than others.

Let me close with a personal note, so my intent in writing this article is not misunderstood. My hope is not to convince anyone that the wilderness values I personally hold most dear are the most important values of wilderness. Rather my hope is that this piece will help people pause to think about their own values and how they may differ from the values of others who are concerned about wilderness and its future. I believe we will make wiser decisions about wilderness if we recognize and legitimize all wilderness values (including the hard-to-articulate symbolic values) before attempting to identify a course of action that minimizes costs to the most important of those values. Among other things, I am a trained ecologist with a profound love of natural environments. The ecological values of

The symbolic values of wilderness have been largely overlooked, compared with the ecological and experiential values of wilderness.

accounting of the costs and benefits of each course of action (or inaction) to all wilderness values. This accounting should inform a deliberative process in which the symbolic values of wilderness are given as much legitimacy as the more commonly recognized ecological and experiential values of wilderness. Ultimately, society may decide that it is better to compromise the symbolic values of wilderness than the ecological and

wilderness are extremely important to me, causing me to believe that active manipulation of wilderness ecosystems will often be necessary to offset serious human insults to those systems. However, I also care about the symbolic values that will be lost in doing so and recognize that these costs are not trivial. Manipulating wilderness with the minimum tool and with

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Social Science Research and Planning in the Bob Marshall Wilderness Complex

BY STEPHEN F. McCOOL



Steve McCool in the Bob Marshall Wilderness.

I first heard of the Bob Marshall Wilderness in the mid-1960s as a graduate student at the University of Minnesota. My major professor, Larry Merriam, had just completed his dissertation research concerning the costs and benefits of managing the Bob Marshall Wilderness—one of the first social science studies of wilderness stewardship in the country. Nearly 20 years later, I began my direct association with the “Bob”—the complex including the Bob Marshall, Great Bear, and Scapegoat wildernesses juxtaposed into one massive roadless area encompassing more than 1.5 million acres (600,000 ha) of stunning rivers, forests, mountains, and valleys.

This association came on two fronts beginning in the early 1980s. First, Rocky Mountain Research Station wilderness scientist Bob Lucas and I collaborated on replicating his 1970 study of visitor use patterns, attitudes, and motivations in the year 1982. Second, the extant wilderness staff officer for the Flathead National Forest, Jerry Stokes, asked me to join him in designing and facilitating a new planning process for management of the wilderness complex. This new planning process would combine the pioneering Limits of Acceptable Change (LAC) planning system being designed by my colleagues

George Stankey, David Cole, Bob Lucas, Margaret Peterson, and Sid Frissell, with the notion of transactive planning, a theoretically radical approach (for the times) to planning put forth by urban planner John Friedmann. The combination of the research on visitors (in both the social domain and the biophysical domain—led by David Cole), the use of transactive planning (which had translated itself in our application to a “task force” made up of citizens, managers and scientists), and LAC ultimately led to the development of a new recreation management direction for the complex.

This was a large and continuing collaborative effort involving wilderness managers, members of the public representing a variety of interests—backpackers, outfitters, backcountry horse people, pilots, activists—and scientists. This group met two or three times a year for about five years, applying research, suggesting solutions, collaborating and negotiating on management, suggesting monitoring protocols, and so on. It still meets once a year to discuss management issues, review research, and provide feedback on proposed management actions.

The plan was innovative in a number of ways, including its broad citizen involvement (which continues today and

presaged the current interest in collaborative planning), annual meetings with the public, scientist and manager participation, use of indicators and standards, a defined monitoring protocol, and its call for decadal visitor experience monitoring. Through the financial support of the National Forest System, the Aldo Leopold Wilderness Research Institute (ALWRI) and The University of Montana, we have been able to conduct this monitoring to the point where we now have a better understanding of changes and constants in wilderness visitor characteristics, motivations, attitudes, and behaviors. This information has helped contemporary managers consider the continuing validity of the original plan, build greater confidence in the usefulness of the data in informing decisions, and generally have a better understanding of the consequences of management decisions.

One of the important aspects of the findings over time has been the constancy in the dimensions of wilderness experiences that visitors seek: achievement and adventure, learning about and appreciating scenery, solitude and stress release, strengthening family and friendship ties, and physical exercise. These dimensions

have remained relatively stable, but what has changed has been the pattern of use, generally from longer to shorter trips; larger to smaller group sizes; some changes in types of users, generally from younger to older visitors; and to visitors that have much higher levels of formal education.

The 2003 visitor study was interrupted by an intense fire season: Trails and trailheads were closed to use, often for lengthy and uncertain periods. But through the generous support of the ALWRI, a modest replication of the 2003 study was conducted in 2004. That study, led by scientists Bill Borrie of The University of Montana and ALWRI social scientist Alan Watson, provided an opportunity to assess the consequences of the fires on wilderness visitors and their attitudes and behaviors. Although this research documented substantial changes in visitor behavior (as they shifted itineraries to avoid the fires), nearly every other aspect studied did not change.

We've learned a great deal from the research process in the "Bob"—not only about visitors, but also about the process of wilderness and natural resource planning, about the fundamental questions and trade-offs involving recreational access and protection of wilderness values

and conditions, about integrating different forms of knowledge into planning, about the practical realities of monitoring and adaptive management, and about how scientists, managers, and the public can work together to achieve a common vision. It's been an honor that I have been able to participate in this process—as scientist, facilitator, educator, wilderness visitor—for nearly 25 years.

The Bob Marshall Wilderness Complex is a spectacular setting, the "flagship" of the National Wilderness Preservation System in many people's minds. From my perspective, it has served as an ideal scientific laboratory—science has contributed to its continuing stewardship, while the stewardship has contributed to the science of wilderness visitors and planning. The research experience and the planning process there has laid a foundation for many other similar efforts in other wildernesses, backcountry areas, and reserves, not only here in the United States but elsewhere as well. **IJW**

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Chief's Excellence in Wilderness Stewardship Research Award

Dr. Stephen F. McCool has been selected as the 2004 recipient of the research award to recognize his long-term development of and accomplishment with studying wilderness visitors and using the Limits of Acceptable Change (LAC) planning framework in the Bob Marshall Wilderness Area and elsewhere. Dr. McCool is a professor in the Department of Society and Conservation at The University of Montana in Missoula. He has been a leading researcher, author, and educator on the use of wilderness planning processes that originally focused on the Bob Marshall Wilderness Area in Montana and then were extended for use in many wilderness areas

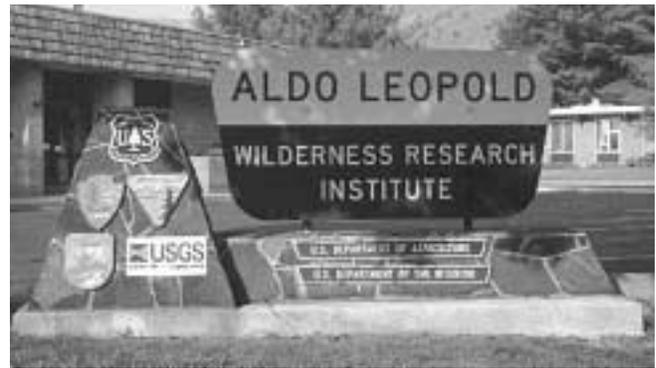
within the National Wilderness Preservation System. One colleague noted his appreciation for Dr. McCool's willingness to stay engaged in the Bob Marshall project over many decades and to use that research and insight to further develop the application of planning for sound wilderness stewardship management in numerous areas. Another colleague expressed admiration for Dr. McCool's career-long commitment to wilderness research and his excellence in conducting managerially useful research. The *IJW* editorial board is pleased to jointly recognize Dr. Stephen McCool for this award and a lifetime of achievement for wilderness stewardship.

Research on the Relationship between Humans and Wilderness in Alaska

BY ALAN E. WATSON

At the 2005 Biennial George Wright Society Conference on Parks, Protected Areas, and Cultural Sites in Philadelphia, March 14 to 18, there were many sessions relevant to wilderness. One session provided focus on a priority research area of the Leopold Institute: understanding the effects of management actions on relationships between people and wilderness. A great majority of wilderness social science has historically focused on understanding recreation visitors' responses to on-site conditions encountered during wilderness visits. These responses are often at the core of Limits of Acceptable Change and other indicator-based planning models used to select indicators, establish standards, and monitor conditions in wilderness. A new line of research at the Leopold Institute, strongly illustrated by several examples in Alaska, demonstrates the need to understand how these on-site management actions influence the range of relationships people have with wilderness.

Brian Glaspell (U.S. Fish and Wildlife Service) and Katie Knotek (Leopold Institute) presented findings from research at Gates of the Arctic National Park and Preserve and Wrangell St.-Elias National Park and Preserve. Their principle message was that wilderness visits enable lifelong relationships with wild places in Alaska, and those relationships in turn influence use and stewardship of Alaska's wilderness. Historical examples include John Muir, Bob Marshall, and Mardy Murie, all with significant influences on wilderness protection in Alaska today. Following their trips, many current visitors also describe new and potentially lasting relationships with Alaska wilderness places based on experiencing challenging travel conditions, vast wildlife habitats, and traditional rural lifestyles and related use-values—much as those historic visitors once described.



Ralph Tingey, of the National Park Service's regional office in Anchorage, responded to findings from research conducted by Alex Whiting in the Native village of Kotzebue in the western Arctic of Alaska. Ralph pointed out the importance of understanding local, rural connections with federal protected lands. Although some of the values the native Inupiaq of Kotzebue attach to the wilderness of the Western Arctic Parklands—such as identity, humility and survival—are not clearly specified among the purposes of the Wilderness Act, these values are at the root of much of the interaction between managers and local people. Ralph acknowledged that local, rural people can be threatened by the perception that outsiders desire locals to evolve a relationship with wilderness more like the one described in the Wilderness Act: “a place where man is a visitor who does not remain.”

Joan Kluwe of URS Corporation, a consulting firm in Anchorage, spoke of the importance of understanding relationships

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Humility in the Alaskan Wilderness

BY DARYL R. MILLER

“There are no heroes in the wilderness, just wisemen and men who aren’t so wise,” said Grant Pearson, a ranger in the early days of Denali National Park. He was referring to the simple and harsh rule of the remote north: Survival was your responsibility and no one else’s. A lot has changed since Ranger Pearson conducted solo snowshoe patrols in the backcountry in 1925, but the simple idea of personal responsibility in the wilderness is still a timely rule to live by.

Alaska has long been regarded as the “last frontier,” with some of the most remote and rugged wilderness terrain on earth. The quest for solitude and adventure lures thousands of enthusiasts from around the world into the Alaska backcountry each year. These wilderness journeys offer stimulation, natural quiet, and a place to appreciate our small but important place in this world.

A hundred years ago wilderness survival skills were a way of life in the United States. We have grown socially and culturally forgetful that people not too long ago simply learned or died. Today most people live in metropolitan environments and grow up in an urban culture where wilderness travel and survival skills are rarely learned. The result is that many wilderness-bound travelers have unrealistic expectations about their knowledge and abilities and about the responsibility of society to come to their aid in remote settings.

Each year in Alaska, agencies and volunteer rescue groups conduct backcountry searches and rescues that should never have been needed. Unfortunately, some of these incidents result in fatalities. Many of these accidents occur as a result of people forgetting, or refusing to acknowledge, that the most important trip objective and their first priority is a safe journey out and back. An assessment of numerous mishaps in the Alaskan wilderness shows that a great number of rescues and deaths involve people who have underestimated the consequences of their decisions. They didn’t intention-

ally set out to get rescued or die but because of mistakes made about their own safety, that’s where they ended up. There are a variety of reasons for accidents in the backcountry and wilderness, and there are many adventurers who unnecessarily end up in harm’s way.

A Spectrum of User Safety Problems

On one end of a spectrum of safety problems are people who enter into the backcountry unaware of the dangers because of their inexperience. Outdoor proficiency should come from a long, mentored apprenticeship that presents opportunities to deal safely with precarious situations. But there are fewer and fewer opportunities for those skills to be learned in wilderness settings today. The journey for the inexperienced typically starts with inadequate equipment preparation or insufficient attention to other planning details, which exposes them immediately to many environmental hazards. In Alaska, this lack of preparation, along with small mistakes, can then be compounded by severe weather, rugged terrain, and remoteness. Inexperienced travelers are often more dependent on equipment and less on their own competence in wilderness settings, and they lack the experience to apply sound judgment to their situation. Compounding the threat to their safety, they choose not to leave a trip itinerary with anyone and consequently no one knows where to look for them when they do not return. Some people feel that the rugged terrain and remoteness of the Alaska wilderness impedes their ability to get back on their own and consequently justifies a rescue.

At the other end of the spectrum is a very skilled and elite group of backcountry users. They are often multitasked and proficient, with many outdoor skills. They are typically



Article author Daryl Miller (photo by Judy Alderson).



Figure 1—Responsibility, education, and accountability are the primary tools for self-sufficiency in Alaska wilderness travel. Article author Daryl Miller crossing the Alaska Range in early March with a -30F° temp and a 30-plus knot wind. Photo courtesy of Daryl Miller.

good athletes attempting intense pursuits that allow for no mistakes. Their quests include a variety of sports, including climbing unforgiving mountain routes or paddling raging rivers with extreme class rapids. These types of risk takers have chosen to embark on adventures that will put them in harm's way with no room for miscalculations. Some of their accidents, however, result from a lack

of fear, which masks the dangers of testing their outdoor skills and abilities. I was once told by a rodeo contractor that courage is “controlled fear,” and when people lack fear they cannot make good decisions about staying alive.

In between these two groups are people who are generally prepared and understand the risks but often succumb to an unplanned medical emergency or experience an unusual act of nature, both of which are difficult to anticipate.

Wilderness users of all types sometimes fail to make the right choices due to an inaccurate assessment of their own capabilities. Unfortunately, our virtual-reality society has some problems in recognizing risk. Some

backcountry users have come to believe that risk is a quest instead of a warning. The “fearless” philosophy also pushes visitors to navigate recklessly in the backcountry regardless of the elements or the possible consequences. This concept operates on a gamble at best, with a faulty understanding of possible injuries and the false premise that help is just a call away. Moreover, this attitude can sometimes create a dangerous and unnecessary situation for the people called upon to save them.

Judging the Risks as a Climbing Ranger at Denali

Working as a rodeo clown in Montana during the 1970s, I was expected to free every cowboy hung up in a rope or save each one from being mauled by a bull. My work decisions were not based on considerations for my own safety but more on saving the cowboy's life regardless of what happened to me. This was a very high-risk and injury-prone job, which never even paid my medical bills. I quit after some significant injuries forced me into retirement, and I took up mountain climbing, which seemed much safer in contrast. I could at least manage the risks I chose in climbing mountains.

As a mountaineering ranger I look at life differently than I did during my rodeo days. My first attempt to climb Denali in 1981 ended up as a humbling experience for me. I suffered

from altitude sickness, physical exhaustion, and depression. Our expedition endured a brutal nine-day storm at 17,000 feet in which we lost tents and some of our equipment. I also had my ego checkmated at 19,000 feet and left Alaska demoralized because I didn't summit. It was not until years later that I understood how valuable that lesson in humility would be.

After that trip I came back time and time again, learning more about Denali and understanding why I needed patience to climb big mountains. I witnessed many tragic climbing accidents during those years. They were mostly caused by human error, beginning with impaired judgment and then compounded by extreme altitude, relentless winds, and severe cold. I know now, after numerous body recoveries, that many mistakes in judgment are never fully realized until it's too late.

My responsibility now is to oversee search-and-rescue operations in Denali National Park and Preserve. My primary job is to minimize the risks during missions to ensure that all our staff return safely after each incident. That duty is very clear to me after two of my volunteers tragically died on mountaineering patrols while climbing Denali. It is a personal nightmare, especially if you are in charge. It was also emotionally overwhelming to even attempt to understand the families' grief when I tried to explain what happened. The lives of these two families stopped in time and will never be the same. These two tragic incidents have forever changed my life and particularly how I look at wilderness rescue. It reinforces the fact that not everyone will get rescued on my watch, especially when the risk is too great for our staff.

Technology has made it possible to call for rescue from almost anywhere, making backcountry travel seem sim-

Our expedition endured a brutal nine-day storm at 17,000 feet in which we lost tents and some of our equipment. ... It was not until years later that I understood how valuable that lesson in humility would be.

pler and less risky. However, in today's world most rescue attempts are screened before they are launched with a careful risk assessment for the rescuers' safety. Safety factors alone could determine whether or not the rescue is launched or a victim is rescued. Backcountry users starting a trip should firmly understand that rescuer safety is the first priority and the victim a distant second. Rescue inside wilderness areas is not always assured and by no means automatic.

Through the years I have heard some climbers and backpackers complain that rangers or other rescue groups were not needed and were even an infringement on their outdoor experience. Some of the same people that complained ended up being rescued and were of a different mind afterward. Most of us will never need a rescue, but if we do we all want the fastest and best rescue possible. Rescue is an act of caring and valor. Most victims feel extremely grateful, and in hindsight they never imagined it would happen to them.

Controlling the Risks of Wilderness Travel and Rescue in Alaska

The wilderness environment in Alaska is some of the most challenging and committing terrain in the world. Barriers include icy cold glacial rivers, huge snow-covered glaciers with deep hidden crevasses, and vast mountain ranges up to 20,000 feet that create their own extreme weather patterns. This environment is extremely unfriendly to humans who ignore basic warning signs about impending weather events. It is indifferent and unforgiving, caring nothing about your résumé, how long you have lived in Alaska, or previous backcountry experience. It provides harsh penalties for the unprepared attempting

river crossings or alder bashing during backcountry treks. On top of that, the Alaskan scale is easily underestimated. Many people set unrealistic expectations. Ten miles cross-country in the trailless wilderness is not equivalent to 10 miles on trail systems—it is more like 30 or 40 trail miles. There are some additional fundamental rules of the wilderness, especially here in Alaska. For example, bears have the stream rights, berry rights, fishing rights, and the complete right-of-way whenever encountered. Simple but unforgiving rules in the Alaskan backcountry demand total respect; when they are ignored, we can be subjected to nature's wrath.

Given that, trips into the Alaskan wilderness are some of the most rewarding on earth. My experience tells me you are much safer in the wilderness with sound and prudent judgment than on Alaska's winter highways with the increased darkness, slick roads, unpredictable moose, and drivers who travel too fast for conditions. In the wilderness you consistently have control of your own destiny if you understand your risk and make timely and prudent decisions where your personal safety is involved.

In my job I have focused on educating backcountry visitors through written materials and verbal briefings on potential backcountry hazards, self-sufficiency, and resource protection. Our own personal backcountry experience is important because we can convey firsthand information and the self-sufficiency message with credibility. I believe responsibility, education, and accountability are the primary tools for self-sufficiency in wilderness travel. A humble approach to the wilderness gives us a far-reaching awareness of our surroundings. This attitude creates a pattern of be-



Figure 2—Everyone has responsibility to maintain self-sufficiency in the wilderness and should always base decisions on getting back on their own. Denali climbers pack up for an extended stay on the mountain. Aldo Leopold Wilderness Research Institute photo.

havior that will be more effective in making sound decisions about your own safety. Adventures in the wilderness come with a personal and a moral responsibility to make all decisions based on returning unaided and safely on your own. Only friends and family will know when you do things right and get home safe, but thousands of *Anchorage Daily News* readers will know if you are rescued.

The definitive wilderness experience for me in Alaska is a remote setting, untamed and full of unsafe experiences in a trailless landscape. It is a place where I can be away from the luxuries of civilization and traveling on foot without the aid of motorized transportation. It is where the forests and animals have unconditional rights and are greatly protected from human-caused destruction. Encounters with other people are low to none, and there is no expectation of immediate help for any emergencies from anyone for any reason. It's a place where rescue is not automatic or guaranteed, and where words are stamped in bold letters on the educational brochures or on a backcountry permit "YOUR emergency may not be OUR emergency" and made plain before you embark. It

is a place where all of us have a personal responsibility for leaving no visual signs of our visit, allowing for the next adventurers to have the same pristine and isolated experience. And it is where our humility and sound judgment take us on the journey of a lifetime, and return us on our own power to our everyday world.

I have realized through my years that wilderness has given me some of the best and most devastating moments of my life. I now walk in peace in the backcountry knowing that I don't need to search for challenges, as being there is challenge enough. I organize my own backcountry trips and the trips of those who work for me around these basic principles:

- Everyone has responsibility to maintain self-sufficiency in the wilderness and should always base decisions on getting back on his or her own. Failure to recognize your own limitations in the wilderness can put you immediately in harm's way.
- The wilderness scale is easily underestimated in regards to terrain, leaving people unrealistic about trip expectations—especially mileage per day.
- Glaciers and glaciated rivers are significant barriers that always demand respect and planning.

- Your best resource is the ability to think in a controlled manner when a life-threatening crisis is happening.
- Educate yourself on the logistics and current conditions before attempting trips into the wilderness.
- Remoteness compounds problems that otherwise might be manageable.
- Avalanches are regularly underestimated, especially their speed and power.
- A well-thought-out and responsible contingency plan should be established for self-evacuation before your trip.
- Prevention, not treatment, is what ultimately will save your life in the wilderness.
- Failure to leave important information with the right people regarding trip plans has cost numerous lives and resulted in unnecessary searches.
- The ability to improvise and use available resources is often the key to survival in emergency situations in the wilderness.
- Panic and confusion have long been inseparable partners and are your constant adversaries during an emergency.
- There is a notable difference between a gamble and a calculated risk. A calculated risk considers all the odds, justifies the risk, and leads to an intelligent decision

based on conservative judgment. A gamble is something over which you have no control and whose outcome is like a roll of the dice.

- You cannot make intelligent decisions in the wilderness if you do not understand the risks.
- Firsthand knowledge of your mistakes on previous trips into the wilderness is often an invaluable tool when making significant decisions regarding your life.
- Never give up, as the will to live is a valuable asset. People often perish simply because they fall short on perseverance.
- Getting into an accident in the wilderness is like a bad relationship—typically easier to get into than get out of.
- Wilderness rescues are often dangerous to the rescuers, and the ability to accomplish them is always weather dependent.
- People do not realize the devastating impact that their accidents have on friends and loved ones.
- The prerequisite to misadventure is the belief that you are invincible or that the wilderness cares about you.

DARYL R. MILLER is the South District ranger for Denali National Park and Preserve, directing search and rescue on Denali. He was the first American to be awarded the Targa D'argento (the Silver Solidarity Medal), the international alpine community's highest accolade, honoring perilous mountain rescues. He has also received the Valor Award from the U.S. Department of the Interior for his rescue work. He and fellow Alaskan Mark Stasik completed the first winter circumnavigation of Denali and Mount Foraker in 1995 (350 miles/45 days).

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Science and Learning in the Alaska Wilderness

BY INGRID NIXON

An enlightened public is essential in order that there will not exist unfair pressures born of ignorance.

—Adolph Murie et. al. 1948

In the 1930s the Dall sheep population of what is now Denali National Park and Preserve crashed. As was the mood of the time, public officials and public sentiment assumed wolf predation was the cause, and both cried for the immediate implementation of a wolf eradication program. The National Park Service, however, hired a lone biologist to study the situation and ascertain the cause of the sheep's demise. After thousands of hours in the field, biologist Adolph Murie (see figure 1) concluded that a series of harsh winters was to blame for the population crash. Using Murie's scientific conclusion, park officials managed to hold wolf eradication proponents at bay.

As a direct result of Adolph Murie's scientific work, the biological integrity of what is now Denali National Park and Preserve remains intact. The new Science and Learning Center in Denali (see figure 2) bears the Murie name as an acknowledgment of Adolph's work and other members of the Murie family, who served as passionate advocates for the biological integrity of our national parklands.

Although located in Denali National Park and Preserve, the Murie Science and Learning Center is a collaborative effort between Denali National Park and Preserve, seven other Alaska national parks, and several park partners. Its mission is twofold: to promote scientific research in our national parks and to provide science-based education programs and information to students, educational institutions, and the visiting public. The center offers a classroom area, exhibits, and workspace for visiting and resident researchers. It also serves as the winter visitor center for Denali. Other center facilities include a dining facility and a remote field camp.

Working with partners, the Denali Park staff has taken an innovative approach to education and research that employs wireless technology and videoconferencing. For example, a wireless network extends over 40 miles of the park road corridor. Using a specially equipped school bus created by the Denali Borough School District to boost the signal, it is possible to communicate from the field through the Science and Learning Center to anywhere in the world via the Internet. This

makes it possible for researchers in the field in Denali to conduct classes for students anywhere on the planet. The park is also working with the Office of Naval Research to develop radio-tracking collars that will be compatible with this wireless system. Such collars would make it possible to track wildlife 24 hours per day, 7 days a week, which would provide park researchers with movement data never before collected.

The wireless network will be put to the test during the 2005 weeklong Denali Science and Storytelling camp offered for the second year in a row in partnership with the Denali Borough School District. Equipped with digital cameras, GPS units, data recorders, and curious minds, the middle- and high-school stu-



Figure 1—Adolph Murie. Photo courtesy of the National Park Service.



Figure 2—Murie Science and Learning Center, Denali National Park and Preserve, Alaska. Photo courtesy of Fred Bayler and the National Park Service.

dents will explore the wilds of the park and record their impressions on DVD.

Through partner Denali Institute, the center offers a series of short daily programs and multiday educational seminars and teacher trainings throughout the summer months. These popular pro-

grams based out of the center's remote field camp explore a variety of topics from bear research to wildflowers.

To get kids up to their elbows in wilderness, the park has teamed with the Denali Foundation to offer a new Denali Backcountry Adventures program aimed

at high-school students. Piloted in 2005, participants will spend a week in Denali's backcountry collecting impact-monitoring data for park managers.

The Murie Science and Learning Center is one of a growing network of research learning centers in development as one facet of the National Park Service's Natural Resource Challenge initiative. The goal of the Challenge is to promote more and better science in our national parks, to use scientific findings to make sound management decisions, and to share what is learned about these natural areas more effectively with the public. **IJW**

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with the wilderness resource in order to identify the agency's role in resolving conflict between sport anglers and local village residents in the Togiak National Wildlife Refuge in southwest Alaska.

Mike Tranel of Denali National Park and Preserve described the relationship air-taxi operators have with the park and the visitors they shuttle in to climb Mt. McKinley or visit glaciers within the park. As a group, these commercial service providers have a long-standing relationship with portions of the Denali area that predates their addition to the park in 1980. This relationship is key to understanding how current air-taxi operators view their own role as well as that of the Park Service.

Alan Watson and Neal Christensen of the Leopold Institute closed the session by describing research on the Tongass Na-

tional Forest in southeast Alaska. An initial study there concentrated on understanding conditions encountered by sport anglers and how their visits may be changed due to potential changes in management to protect on-site conditions along the Situk River. Local interest by Yakutat village residents, however, led to a second study to understand how they describe their relationships with this river that runs from the Russel Fiord Wilderness to the Gulf of Alaska, and how some of the proposed changes in management of on-site conditions may change those relationships.

These presentations on recent research in Alaska suggest the following:

- Visitor experiences enable individual and societal relationships with an area, and human relationships de-

veloped through these experiences can greatly influence the area.

- Federal agencies need to understand local meanings attached to wild places and how management actions interact with those meanings.
- Conflicts between recreation and subsistence users of public lands in Alaska are complex and deeply related to differences in relationships people have with those places.
- Commercial service providers have relationships with federal lands and are intermediate influences on relationships developed by the public with these places.
- We need holistic research and management approaches that consider how on-site management actions affect relationships between various publics and public lands. **IJW**

Minimizing Mountaineering Impacts in Denali National Park and Preserve

BY WHITNEY C. WARD

John Muir, one of the pioneers of wilderness preservation, knew and understood the benefit of preserving areas as wilderness. He penned these thoughts in a letter he wrote in October 1874: "I am hopelessly and forever a mountaineer. . . . I care to live only to entice people to look at nature's loveliness" (Muir 1915, preface). The U.S. Congress passed the Wilderness Act (P.L. 88-577) and set a precedent for preservation, and thousands of wilderness visitors, taking Muir's wilderness ideology to heart trekking to the mountains "to look at nature's loveliness." Managers are faced with the impact caused by those who are drawn to the wilderness, and Mt. McKinley in Alaska's Denali National Park and Preserve is no exception. Each year, more than a thousand mountaineers attempt to climb to the 20,320-foot (6,194-m) summit of the highest peak in North America (see figure 1). The 2001 climbing season brought a record number of 1,305 climbers, and 84% attempted the West Buttress route (Denali National Park and Preserve 2001b). It is not uncommon to have 700 climbers on the mountain at one time during the height of the climbing season (Rosen 2001). The accumulation of impacts from such a significant number of climbers concentrated on one route over the years—in addition to the fact that mountaineers' attitudes vary in respect to low impact practices (Dyck, Schneider, Thompson, and Virden 2003)—has led to evident degradation of this wilderness. However, in order to combat this human impact, the National Park Service (NPS) has taken a pragmatic approach for managing trash and human waste disposal on Denali.

Garbage and Fuel Can Monitoring

Similar to other wilderness areas, a "pack it in pack it out" philosophy has been in force on Denali since the mid-1970s

(Denali National Park and Preserve 2003a), yet abandoned garbage was still a common problem. Rangers cleaned up 700 pounds (318 kg) of trash from the 14,200-foot (4,328-m) camp alone in 1997 (Denali National Park and Preserve, 2000). According to climbing ranger Roger Robinson, each climber produces between 0.24 to 0.5 pounds (0.1 to 0.2 kg) of garbage each day,

(Denali National Park and Preserve 2001c; Chesak 2002), which adds up to approximately 7,000 pounds (3,175 kg) of garbage that could potentially be left on the mountain each season (Denali National Park and Preserve 2002a). Fortunately, the garbage situation has never reached those proportions; and with current protocol, it never will (Denali National Park and Preserve 2000).

Denali rangers took a proactive approach in 1998 to manage the garbage situation, an approach they continue to utilize today. Expedition numbers are assigned to each group upon registration. This number is then transferred to each of the expedition's fuel cans, as well as the blue garbage bags that are distributed at the ranger station in Talkeetna. Additionally, preprinted cache markers are distributed to each expedition in order to discourage permanent or abandoned caches. Each party is responsible



Whitney Ward on the West Buttress of Denali. Photo by Dallen Ward.



Figure 1—Climbers on the summit ridge of Denali. Photo by Whitney Ward.

for returning the empty fuel cans, blue garbage bags, and removing all caches—the violation of which could result in a citation and/or fine (Denali National Park and Preserve 2003a). Despite the record number of climbers during 2001, many veteran climbers agreed that the mountain was the cleanest it has been in modern history (Denali National Park and Preserve 2001b).

Human Waste Disposal

A more significant problem was human waste disposal. A pit toilet was first created at base camp (7,200 feet;

5,243-m) camp a growing problem (Denali National Park and Preserve 2000). Compounding the disposal problem was the fact that human waste does not readily break down at high altitude. Human waste, especially on the upper mountain, became an increasingly significant health and social concern. In fact, the most frequently reported complaint in climbers' post-trip reports was the improper disposal of human waste on the mountain (Denali National Park and Preserve and Preserve 2001c).

The extensiveness of the human waste on the mountain led climbing

2,195 m) in 1977, an additional pit toilet was added at the 14,200-foot (4,328-m) camp, and in 1989, a box latrine was established at the 17,200 (5,243-m) foot camp (Chesak 2002). Since the 1980s, a common practice in camps that did not have a latrine was to bag the human waste and dispose of it in a crevasse (Chesak). Disposing of waste in crevasses and the latrines helped to alleviate some of the human waste problem; however, it was still a concern. Severe weather conditions, unsuitable crevasses, and climber neglect made proper waste disposal at the 17,200-foot

ranger Robinson to experiment during the 2000 climbing season with a toilet system designed to remove human waste (Denali National Park and Preserve 2000). Robinson's trial prompted the Denali ranger staff to work with Paul Becker of GTS, Inc., in developing Clean Mountain Cans (CMC), a smaller and much lighter version of the common toilet box that river guides and outfitters use (Denali National Park and Preserve 2003a).

Following this initial experiment, the NPS conducted a pilot study with a conservation grant from the American Alpine Club (AAC) and 21 volunteer groups during the 2001 climbing season to see if human waste could be effectively removed from the mountain (Denali National Park and Preserve 2001c). The volunteers responded with generally favorable feedback (Denali National Park and Preserve 2001c). An additional AAC grant was awarded in 2002 to provide 200 more CMCs on the mountain in order to further the study (Outdoor Network 2002). The main focus of the 2002 study was to determine whether or not a large number of climbers could remove their human waste from above the 14,200-foot (4,328-m) camp (Denali National Park and Preserve 2002b). The NPS encouraged mountaineers to use the CMC along the entire West Buttress route in addition to other areas of the park; in return they were awarded the PMI/NPS Denali Pro pin (Denali National Park and Preserve 2002b). The study and trials determined that the CMC was feasible for the average climber (Denali National Park and Preserve 2003a).

The box toilet was removed from the 17,200-foot (5,243m) camp prior to the 2003 climbing season, and all climbing parties who attempted the West Buttress route were required to



Figure 2—Denali National Park and Preserve is managed by the National Park Service. Photo by Chad Dawson.

carry CMCs above the 14,200-foot (4,328-m) camp (Denali National Park and Preserve 2003c). Used CMCs were returned to the 14,200-foot (4,328-m) camp and placed in cargo nets. They were then flown to base camp by helicopter, and then on to Talkeetna by plane for professional cleaning (Denali National Park and Preserve 2002b). The CMC remained optional for other routes on the mountain and below the 14,200-foot (4,328-m) camp; however, of the 1,179 climbers who attempted Denali during the 2003 season, 148 (13%) climbers removed approximately 500 pounds (227 kg) of human waste by opting to utilize a CMC the entire route (Chesak 2002; Denali National Park and Preserve 2003a).

The demand for CMCs was high during the 2004 climbing season, with all 500 CMCs issued at one point in time (Denali National Park and Preserve 2004). The NPS distributed CMCs from the base camp (7,200 feet; 2,195 m) during the 2004 climbing season for climbers on the West Buttress route and from the Talkeetna ranger station for other climbs in the Alaska Range (Denali National Park and Preserve 2004). It was anticipated that the climbers on the West Buttress route would utilize the CMC the entire route with the main focus of use at high camp (Denali National Park and Preserve 2003c). Unfortunately, it was discovered that several expeditions merely cached the CMC lower on the mountain; therefore, the NPS plans once

again to distribute CMCs from the 14,200-foot (4,328-m) camp in the future to help remedy this problem (Denali National Park and Preserve 2004). Even with the unexpected issues of CMCs being cached along the route, they are becoming standard for mountaineering on Denali.

After several design revisions, the CMC offers a lightweight, climber-friendly alternative to traditional methods of human waste disposal. Currently, each canister weighs 1.75 pounds (.8 kg) and is designed to hold 1.86 gallons (7 l) of human waste. It is 8.2 inches (20.8 cm) in diameter and 11.75 inches (30 cm) tall. An integrated harness system, which locks down the lid, allows the CMC to be secured to a sled or pack. The CMC is

sturdy enough to be sat upon and comes with a disposable foam ring (Denali National Park and Preserve 2003a). However, the NPS is currently working with GTS, Inc., to redesign the CMC so that it will be easier to clean and to eliminate the foam ring (Denali National Park and Preserve 2004).

Garbage and fuel can monitoring have proven to significantly reduce the impacts of mountaineers on Mt. McKinley. As such, these simple projects will not only help maintain and restore the pristine quality of the

responsibility, but is everyone's, as "We are all, in some sense, mountaineers, and going to the mountains is going home" (Muir 1992, p. 33). **IJW**

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The Denali National Park and Preserve rangers are setting a high standard of mountaineering Leave No Trace ethics for others to follow.

Denali Wilderness Area, but could easily enhance the wilderness characteristics of other areas. Already, Auyuittuq National Park Reserve in Canada has expressed interest in implementing the use of CMCs (Chesak 2002).

The Denali National Park and Preserve rangers are setting a high standard of mountaineering Leave No Trace ethics for others to follow. The current protocols for garbage and fuel can monitoring and the use of CMCs have already significantly reduced the waste on Mt. McKinley in just a short amount of time. However, minimizing impact in wilderness areas is not just the NPS's

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Transfrontier Land Use Planning in Southern Africa

BY WILLEM VAN RIET JR. and NADIA VAN DER MERWE

Peace Parks Foundation, as facilitator of Transfrontier Conservation Area (TFCA) development in southern Africa, coordinates and participates in a wide range of activities, offering support on multiple levels. On one such level, spatial information in the form of hard-copy maps or digital interactive websites (see www.peaceparks.org) is distributed to all the stakeholders involved, such as scientists, park managers, and staff, as well as community members. The disseminated information ranges from being detailed for small areas to coarse for large areas and varies from three-dimensional views to patterns of landscape ecology, infrastructure, and land use (see *Africa Geographic*, February 2004). Over time, the foundation's spatial information products have proven to be an indispensable part of multinational stakeholder forums and community workshops where executive decisions are made regarding TFCA development.

Recently, scientists have started to encourage the use of spatial information frameworks as strategic decision-making tools in the management of conservation areas, that is, frameworks through which one can generate objective, unbiased information based on transparent and repeatable methods. Scientists argue that by adopting strategic frameworks in decision-making activities, it becomes possible to combine a host of factors (e.g., natural, cultural, political, economic, and institutional) in an objective, unbiased manner. This is especially important in the management of TFCAs where decision makers are compelled to balance development and conservation mandates. As pressures on natural resources and biodiversity increase, the long-term survival (as well as economic sustainability) of protected areas in southern Africa ultimately depends on such strategic conservation planning initiatives.

Accordingly, the foundation has been working closely with South African National Parks (SANParks) to develop

a set of strategic methods, labeled the Conservation Development Framework (CDF), to identify priority areas for conservation action and guide the management of different land use options (e.g., recreational areas, roads and lodges, lookout points, cultural sites, areas with high biodiversity) inside TFCAs. Until now, the CDF has been applied to South African parks only, but once finalized Peace Parks Foundation will apply it to TFCAs in the rest of southern Africa. A CDF process has two main phases. The first is centered on generating detailed information on the ecological sensitivity and aesthetic value of the landscape as well as the tourism potential of the area in question. In the second phase, expert knowledge is combined with the information generated in the first phase to partition a park into definable areas, referred to as use zones. The use zones cascade from Wilderness to Remote through Buffer areas into Low and High Intensity Leisure zones.

The figures below illustrate some of the CDF information outputs for a hypothetical area. Figure 1 is an example of the information generated to reveal visually sensitive areas in a park. Visual sensitivity is one of the factors contributing to the aesthetic value of a park, which was historically not considered a natural resource. Using state-of-the-art software from the Environmental Systems Research Institute, it is now possible to treat it as such and locate potential development sites (e.g., for telecommunication towers, power lines, and roads) that will be invisible to visitors in certain areas of the park. This makes it possible, for the first time, to strategically identify areas from where none of the infrastructural development would be visible so that visitors could have a true wilderness experience.

A CDF also relies on information that indicates areas of biodiversity that are ecologically sensitive to development. Figure 2 illustrates this for an area in a range of values

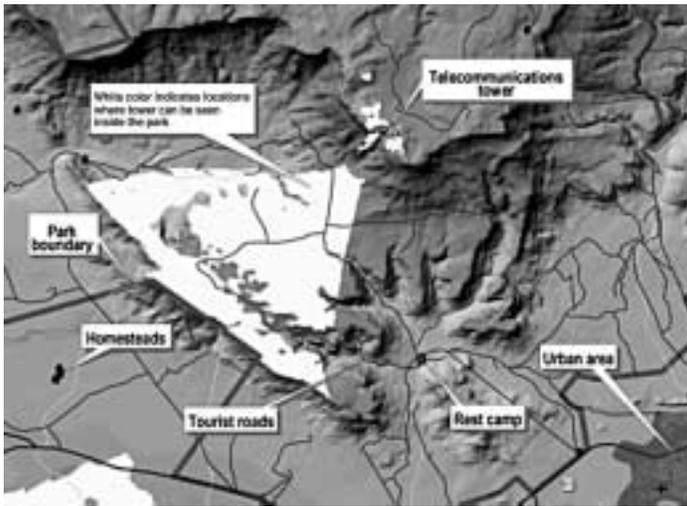


Figure 1—The range of areas from where a telecommunications tower would be visible if it were to be built at the location indicated.

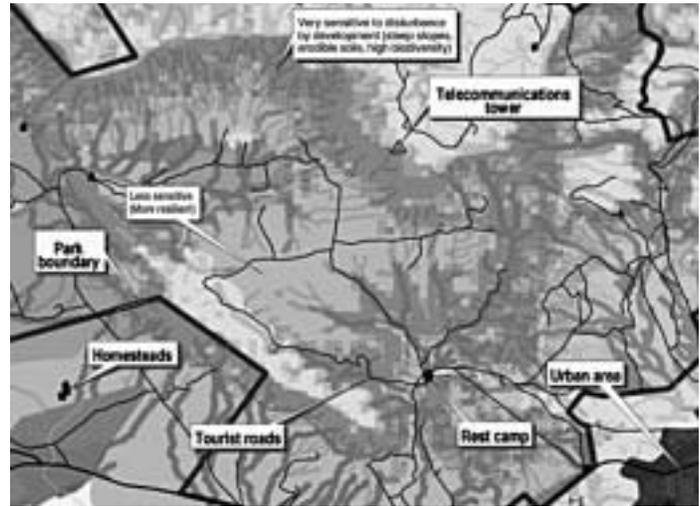


Figure 2—Areas sensitive to disturbance as well as areas where the impact of development could possibly be mitigated.

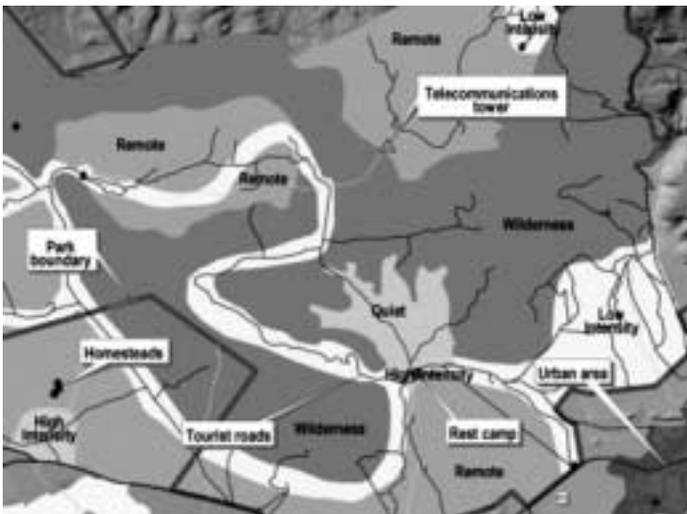


Figure 3—The Final Conservation Development Framework, showing the various use zones according to which the park will be managed.

spanning from low (cream color) to highly sensitive (red color). Information on the ecological sensitivity of areas is primarily derived from data on the biophysical character of the landscape.

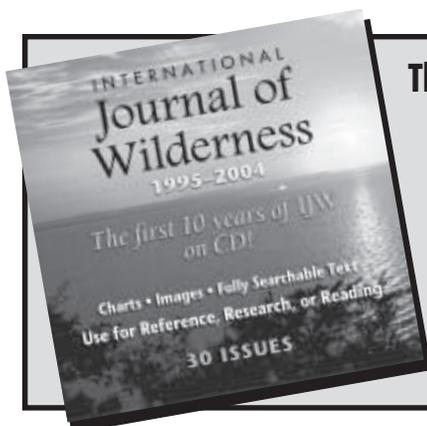
The final output of a CDF is a map displaying boundaries of various land use options within a park (see figure 3). Once the final output of the CDF has been generated, it is presented to the various ministries of the governments involved with the TFCA. Following their authorization, the land use zones are then adopted as management guidelines for a period of five years, after which the whole process is reviewed.

In essence the CDF is an iterative and participatory process that needs input from scientists, local communities, and regional planners alike. By encouraging the use of this spatial framework in planning and stakeholder workshops, the foundation hopes to standardize management practices across the international borders of TFCAs in southern Africa.

Acknowledgments

Special thanks to SANParks Planning, especially Paul Britton and Dr. Steven Holness. **IJW**

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Announcements and Wilderness Calendar

COMPILED BY STEVE HOLLENHORST

The 8th World Wilderness Congress

The 8th World Wilderness Congress (8th WWC) will take place in Anchorage, Alaska, September 30 to October 6, 2005. Organized by The WILD Foundation (USA), and hosted by many Alaskan and international organizations, the theme of the 8th WWC is Wilderness, Wildlands, and People—A Partnership for the Planet. The Congress will include technical working sessions in the symposium cochaired by Leopold Institute social scientist Alan Watson and Sawtooth National Recreation Area land manager Liese Dean entitled Science and Stewardship to Protect and Sustain Wilderness Values. For more information regarding the 8th World Wilderness Congress, visit the official website at <http://www.8wwc.org>.

Chad Dawson Receives Award for Contributions to Adirondack Wilderness Protection

The New York State Department of Environmental Conservation (DEC) presented the 13th annual Adirondack Stewardship Award to Dr. Chad P. Dawson for his “contributions to protecting wilderness values in the Adirondack Forest Preserve.” The Adirondack Stewardship Award is presented by DEC to groups or individuals who demonstrate outstanding stewardship of the natural resources of the Adirondacks. The award was presented at the 40th Anniversary National Wilderness Conference in Lake George, New York, hosted by the Association for the Protection of the Adirondacks. In presenting the award, DEC commissioner Erin Crotty stated:

The history, culture, and natural beauty of the Adirondack Forest Preserve make it one of the most

important regions in the country. The Department is fortunate to have partners like Dr. Chad Dawson to assist us in planning for and managing these valuable lands. Dr. Dawson is recognized nationally for his contributions to protecting wilderness values, and we are grateful for his involvement in State efforts.

A plaque was presented to Dr. Dawson recognizing “his stature in the national wilderness management community and his substantial contributions to Adirondack Forest Preserve planning and land stewardship efforts.” Dr. Dawson has had a great influence on the protection and management of the Adirondack Forest Preserve. He has authored numerous research papers on wilderness and forest preserve subjects for regional, national, and international audiences, including the 5th and 6th World Wilderness Congresses. He has mentored more than half a dozen graduate students in research on Adirondack Forest Preserve issues and written numerous technical reports and studies in support of the state’s natural resource planning and management. Dr. Dawson is chair of the Forest and Natural Resource Management Department at the State University of New York, College of Environmental Science and Forestry in Syracuse, where he also teaches courses and conducts research in wilderness and recreation management. He is managing editor of the *International Journal of Wilderness* and coauthor of the textbook *Wilderness Management: Stewardship and Protection of Resources and Values* (John Hendee and Chad Dawson, 2002, Fulcrum Publishing). *IJW* joins with Chad’s many U.S. and international colleagues in congratulating him on this well-deserved recognition of his wilderness leadership. John Hendee, *IJW* editor in chief. Source: <http://www.dec.state.ny.us/website/press/nwrel3.html>.

Submit announcements and short news articles to STEVE HOLLENHORST, *IJW* Wilderness Digest editor. E-mail: stevenh@uidaho.edu.

Bush Reverses Protection for Roadless Forest

The last 58.5 million acres (23.7 million ha) of untouched national forests, which President Bill Clinton had set aside for protection, were opened to possible logging, mining, and other commercial uses by the Bush administration. Ninety-seven percent of it is in 12 states: Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. Governors can submit petitions within 18 months to stop road building on some of the 34.3 million acres (13.9 million ha) where it would now be permitted, or request that new forest management plans be written to allow the construction on some of the other 24.2 million acres (9.8 million ha). Eight days before leaving office in 2001, Clinton acted to take decisions about roadless forestland away from local federal managers. Environmentalists said the managers often were too close to logging companies and other developers. The Forest Service will have final say over the governors' petitions. But the agency is creating an advisory committee to help put the rule in place. The agency said petitions from the states could be based on requests to protect public health and safety; reduce wild-fire risks; conserve wildlife habitat; maintain dams, utilities, or other public works; or ensure that people have road access to their private property. Agriculture undersecretary Mark Rey, who oversees forest policy, emphasized that the rule probably would not lead to a big spurt of road building.

Four Clear Goals for World Commission on Protected Areas

The four strategic priorities for IUCN's World Commission on Protected Areas (WCPA) over the next four years are set: conserving biodiversity, developing ca-

capacity, improving protected area management, and addressing issues of governance, equity, and livelihoods. The four-day WCPA Steering Committee meeting was attended by 20 WCPA regional and theme vice-chairs from around the world. They developed a strategic plan focused on implementing the Convention on Biological Diversity's Programme of Work on Protected Areas—which recognizes WCPA as one of its main parties—the Durban Action Plan, and the Millennium Development Goals. The Steering Committee also reviewed the existing WCPA Task Forces and their mandates in light of these new strategic directions. Regional priorities were especially highlighted, such as the urgent need to develop country-level capacities to improve protected area management. The Swiss government supported the WCPA Steering Committee meeting with an excursion to the Col du Marchairuz in the Parc jurassien vaudois (Jurassic Park of the Swiss Canton of Vaud). This field trip was accompanied by a presentation on a novel approach to protected area establishment, initiated through an agreement reached amongst landholders to develop a protected area. For more information on the activities of the WCPA Steering Committee, visit <http://www.iucn.org/themes/wcpa/wcpa/steeringcommittee.htm>.

Importance of Wilderness and Roadless Lands

Trout Unlimited (TU) released state reports for Idaho and Oregon that demonstrate graphically the link between remaining roadless public lands—Bureau of Land Management (BLM) and Forest Service (FS) wilderness areas, BLM roadless areas, and FS inventoried roadless areas—and the best cold-water fish and wildlife habitat and the best fishing and hunting opportunities. Through the use of maps, TU has conveyed the important

connections between wildlands, game species habitat, and recreational opportunities. It is clear that both wilderness and roadless lands are important, not only to preserve fish and wildlife habitat and protect remaining threatened species populations, but to preserve opportunities for fishing and hunting that many Americans enjoy. To review the maps, visit <http://www.wilderness.net/>.

Parks Canada Budget Increases over the Next Five Years

On February 23, 2005, the government of Canada announced a massive budget increase of \$315 million in the 2005 budget for the Parks Canada Agency to conserve the country's national parks and national historic sites. Of this total, \$209 million over five years is budgeted for refurbishing park and site infrastructure, a significant increase from its original annual budget of \$40 million; \$60 million over five years are approved for restoring ecological damage in the parks, which comes on top of the \$75 million received in the 2003 budget; finally, \$46 million over five years for Canadian Historic Places. "The Parks Canada Agency is entering a new era of optimism, based on a solid financial basis that will allow us to provide memorable experiences to future visitors while protecting these national treasures," said Alan Latourelle, CEO of Parks Canada. The allocations are part of an overall \$5-billion package in the government of Canada's 2005 budget to support a sustainable environment over the next five years. For more information, visit <http://www.fin.gc.ca/budget05/pamph/pagree.htm>.

Mountain Biking in Wilderness Controversy

The blanket ban on bicycling in wilderness areas and its effect on future

trail access continues to be a focus for the International Mountain Bicycling Association (IMBA) in 2005. IMBA is pursuing a controversial four-part strategy to protect access for mountain bicycling while preserving natural areas. IMBA believes mountain biking, a low-impact, muscle-powered recreation, is an appropriate use of trails on public lands and is consistent with the values of wilderness land protection, which includes recreation in natural landscapes. When proposed wilderness areas include significant mountain biking opportunities, IMBA reportedly pursues boundary adjustments and alternative land designations that protect natural areas while preserving bicycle access. (More at http://www.imba.com/news/news_releases/02_05/02_10_wilderness.html.) Part of the controversy is based on the lack of specific reference to wilderness in a recent agreement between the National Park Service and IMBA, which can be read at http://www.peer.org/docs/nps/05_19_5_imba.pdf. The Wilderness Society and Public Employees for Environmental Responsibility have sought to ensure compliance with National Park Service regulations that govern bicycles. (More at http://www.peer.org/docs/nps/05_19_5_npsltr.pdf.)

3rd Annual Wilderness Therapy Symposium

Naropa University's Center for Wilderness Therapy Training is hosting the third annual Wilderness Therapy Symposium from September 23 to 25, 2005, at Naropa's Boulder, Colorado, campus. The symposium brings together clinicians, wilderness guides, field instructors, university faculty, and other interested parties to share specific skills through hands-on, experiential workshops. The symposium provides a forum for the exchange and development of ideas and allows for collaboration be-

tween various areas of the field of wilderness therapy. Keynote speakers include Richard C. Schwartz, Ph.D., John Acker, Ph.D.; Jay Huffine, Ph.D.; Hilary Moses, LCSW; Bill Plotkin, Ph.D.; and Roger Strachan, Ph.D. Extended workshops offered include equine assisted therapy, centered rock climbing, integrating gestalt and wilderness therapy, rites of passage, self-created ceremony in wilderness settings, addiction, and family. The symposium also includes opportunities to meet human resource representatives from wilderness programs and to network with other conference participants. For more information and to register, go to <http://www.naropa.edu/wilderness/symposium/index.html>.

Nominations Sought for Wilderness Stewardship Research Award

The U.S. Forest Service is seeking nominations for the Excellence in Wilderness Stewardship Research Award. The award is copponsored by the *International Journal of Wilderness* and the USDA Forest Service. Wilderness Stewardship Research Award nominations will be accepted through January 31, 2006, for accomplishments in calendar year 2005. This award recognizes excellence in an individual or team wilderness research accomplishment, or research accomplishment in related fields that has direct application to U.S. wilderness. Employees of the federal and state governments, other private or public organizations, and private individuals are eligible under five criteria: (1) ability to identify management implications of the research; (2) creativity and innovation in scientific method; (3) effectiveness of research accomplishments in addressing wilderness stewardship issues of critical importance; (4) effectiveness in communicating research results to management; and (5)

where appropriate, an interdisciplinary design of the research project occurred recognizing the interactions between the physical, biological, and social components of the wilderness resource. To obtain specific instructions for submitting nominations, contact Alan Watson, Aldo Leopold Wilderness Research Institute (awatson@fs.fed.us).

Motorized Incursions into Kalmiopsis Wilderness Blocked by U.S. Federal Court

Federal magistrate John P. Cooney has ruled that a group of investors who paid \$150 to patent a mining claim in the Siskiyou National Forest will not be able to develop unregulated motorized access to build a destination resort in the heart of the Kalmiopsis Wilderness Area. The judge ruled that the "undisputed evidence" before him demonstrated that the claims brought by the plaintiffs in the case had no merit. Moreover, the court held that it need not even reach the substance of the plaintiffs' claims because the investors were not the proper parties to bring the suit and that they had waited too long to file their case. The judge ruled that, by its language explicitly prohibiting permanent roads within a wilderness area, the passage of the Wilderness Act of 1964 should have placed the public on notice that the United States did not believe that there were any permanent roads or historic rights-of-way located within the Kalmiopsis Wilderness Area. Accordingly, any claims that a party wished to bring asserting that such access rights did exist should have been brought within the 12-year statute of limitations imposed by law, that is, no later than 1976. Plaintiffs did not file this suit until 1999, long after the time allowed by the Court. More information at <http://www.westernlaw.org/>.

Letter to the Editor

Dear *IJW* readers,

On the North American continent there is one place that sticks out above all others (pun intended), and that is Mt McKinley, or as the Natives call it, "Denali," the Great One. North, south, and west of Denali lies a vast country thinly populated by a rare breed of humans, still living their lives in harmony with the land. Very few people even know we are here. It is probably one of the last strongholds on earth for people like us. Due to our unobtrusive lifestyles, we have very little power to protect this land we love and depend on for our livelihood. I am proud of our lifestyles, and have always had a burning desire to share this pride in writing with others. Thank you for the opportunity to do that.

Americans are well known for their pioneering spirit, and the frontiers being all but gone doesn't erase the fact that some of us are still born with the same spirit and need wild places to exist, just as the wildlife that surrounds us does. Interior Alaska is a land of extremes in about every way you can imagine, from the people to the land itself and everything in between. Winter is for most Alaskans the most favored season; summer is to be endured, with spring and fall brief pauses between.

My wife, Fran, and I live on the Kantishna river country north of Denali, and on clear days the North Face of Denali is ever-present and is a big part of our lives. We grow and hunt for almost all of our food needs. Gardening is not one of the things you

decide to do on an impulse; gardens take years to develop where we live.

By the time November arrives each year, the boats and fishwheels have all been put to bed for the winter, meat is in, berries and gardens are all taken care of, and our heating bill is covered by the large wood pile at the main cabin. The two or three 600-mile round-trips to town bringing in supplies we need are over. This is the time to earn our year's needed cash. First, last, and foremost I am a trapper. I do not enjoy killing animals; the reverse is true. I love, admire, and respect them. When not engaging in harvesting my wild neighbors, I enjoy watching, taking pictures, and protecting them, as most trappers do.

Wolves around Denali comprise a big issue where I live. The National Park Service has been doing intensive research on Denali Park's wolves for over 20 years. Nobody in Alaska wants the wolves to be wiped out. They are a big part of Alaska and Denali, but I think we need controlled management of wolves, along with all the other species, to give us viable populations of them all. If we can't do it, nature will, with the boom-and-bust method. Any person who has witnessed the effects of overpopulation with its starvation, diseases, and cannibalization, and the long periods it takes to reverse, should and probably would support wildlife management by the people who really care. The result will continue to be abundant wildlife for all causes.

Another big issue of the country west and north of Denali Park is the safety of the country itself. It is a land that is classified as critical habitat and needs to be treated accordingly. It seems

someone is always proposing putting a road or railroad out through the country west of Denali, or someone with tourists in mind wants to reopen old mail trails or cat roads to make the country easily accessible to public traffic. So far the residents of the country itself, along with plenty of other concerned people, have been able to stall the Alaska Department of Natural Resources from issuing permits allowing all this to happen. But our days are numbered without caring people. The country is being literally torn up by heavy equipment doing gas and mineral exploration. If left alone starting tomorrow, it would take centuries for the land to heal and in some areas would still be permanently scarred.

This land north, south, and west of Denali needs to be protected. Otherwise, it will also be gone, with Denali National Park an island unto itself, stuck right in the middle, the only protected land. I don't mean to lock up the land from human use by any means. In fact, the folks who live here now and love the land are its biggest defenders. But we need help to keep it as it is, because once it is gone, it will be gone forever.

With proper management, the land and the animals will remain in good health. We don't need to go overboard in protecting the animals, but by protecting the wildlands we ensure the animals of their home and substance. We need to have both. And there still might be room in it for people like Fran and me.

Mike Turner
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Nenana, AK 99670 USA

Book Reviews

Landscape Ecology and Resource Management: Linking Theory with Practice

Edited by John A. Bissonette and Isle Storch. 2003. Island Press, Washington, DC, and Covelo, CA. 480 pp., \$65.00 (hardcover).

Academics currently provide at least two major challenges to wilderness preservationists. First, deconstructivists have challenged the realist perspectives of most wilderness supporters, denying that wilderness independently exists, and highlighted the fact that the term *wilderness* is a cultural construct, complete with sometimes questionable assumptions. The battle between realists (e.g., David Forman) and relativists (e.g., J. Baird Callicott) has often been heated, and some suggest that this battle has weakened progress and support for creating strict wilderness preserves.

The second, less direct challenge has come from landscape ecologists and conservation biologists, who suggest that many traditional practices in wilderness creation and management do not reflect ecological realities and may not protect wilderness in the medium to long term (indirectly supporting some of the arguments of the deconstructivists). *Landscape Ecology and Resource Management: Linking Theory with Practice* attempts to tease out practical conservation strategies from the many theories being created by landscape ecologists around the world.

An important message in this book is the realization that the majority of traditional ecological studies focus on small-scale field sites, yet their findings can not be successfully applied

to larger scales. Similar problems with the relevance of data occurs at the temporal scale: Research findings obtained from one time period will not normally be relevant at other time periods, especially given the extremely rapid anthropogenic changes occurring in the 21st century. This is in part due to ecological “thresholds,” especially at the landscape scale, which suggests that even small amounts of habitat disturbance or fragmentation at a local scale may have much larger, nonlinear impacts at the regional or landscape level. If this is the case, creating relatively small wilderness areas may not protect ecological integrity at the large scale or in the long term.

Other complex issues include questioning the effectiveness of the common practice of using indicator species to manage wilderness, noting that most protected areas are too small to maintain necessary wildlife populations and ecological processes (and even more disturbingly, suggesting that even large wilderness areas may not be enough to maintain wildlife populations), and the problems of ecological “time lags” in understanding the impacts of human activity.

One of the strengths of this book is the critical view the editors give their discipline. The link between observation (data) and reality is acknowledged as being tenuous at best. Although the book never really manages to provide clear management strategies for land managers, it is more than successful at identifying the complex, adaptive nature of ecological systems and identifying many issues that will concern wilderness

managers. In addition, the book highlights the need for land managers to better understand how ecosystems “work” and the utility of critically assessing their own approaches to preservation to protect wilderness from their greatest threat: human excess.

Review by JOHN SHULTIS

Voyageurs National Park: The Battle to Create Minnesota's National Park

By Fred T. Witzig. 2004. University of Minnesota Press, Minneapolis. 304 pp., \$24.95 (paperback).

The creation of both this book and Voyageurs National Park seem to have been a long labor of love. Author Fred Witzig, who was involved in the 12-year-long battle to create the park, first started researching the book in 1978. *Voyageurs National Park* reviews in great detail the political, bureaucratic, and public struggles required to create Minnesota's first national park.

All the typical conflicts and arguments encountered in park creation were present in Minnesota. The major stumbling blocks to having the park designated included antagonism between the National Park Service and the USDA Forest Service; partisan politics at the local, state, and national levels; interpersonal ill will between supporters and opponents; behind-the-scenes efforts by extractive industries to prevent park creation and influence boundaries; profit-seeking private interests; antifederal attitudes at the local and regional levels; bureaucratic iner-

tia; attempts to have the area designated as other types of protected areas (e.g., national recreation area or state park); and challenges to park boundaries during and after designation. Indeed, perhaps the greatest value of this book is that it identifies and describes the seemingly endless amount of battles and conflicts that most proposed parks encounter. Reading through the many heartbreaks and crises along the long road toward designation, one cannot help being amazed at the strength and tenacity of the park boosters, mainly private citizens, but also supportive politicians. The fight to create Voyageurs was made even more difficult by the requirement that the state solve the thorny issue of how to deal

with the considerable private land parcels within the proposed park. This battle took an extra four years after President Richard Nixon signed the authorizing legislation in 1971.

The efforts of several individuals very familiar to wilderness advocates are noted in the text. In 1921, Arthur Carhart developed a plan for the Forest Service that emphasized the recreational value of the area. The role of Ernest Oberholtzer, an ardent and influential advocate from the region, is very briefly noted, and the steadying and powerful influence of Sigurd Olsen—a key figure in the U.S. wilderness movement—is revealed throughout the text.

In these dark days, when the politics of consumption and anti-environmental-

ism seem to rule the American federal political landscape, this book reminds us of the ultimate power of strong public support for parks, and gives us hope that this support may be more important and powerful in the long term than short-term political doctrines. The book also reminds us of the immense difficulty of creating parks—even in the hallowed days of the 1970s—and of the extreme efforts that have always been required to successfully overturn the still dominant powers of extraction and consumption. With so many opponents, the war is never won, but many important battles—like the creation of Voyageurs National Park—have been won along the way.

Review by JOHN SHULTIS

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more informed decisions and helps Alaskans realize that the federal government is also their neighbor. If local people are involved in monitoring use and enforcing rules, area residents feel as though they have more input and are not being overrun by outside influences. Local employees often have good ideas about what's best for an area, and local people tend to be more familiar with the history and natural history of an area; these are certainly attractive qualities for a park ranger or manager. Denali National Park and Preserve uses the local-hire program extensively, with about half of its workforce locally hired.

9. Define ambiguous terms in ANILCA. Federal agencies need to work with the state of Alaska and other constituents to define ambiguous terms in ANILCA so land managers and the public have a clearer understanding of park man-

dates and common expectations.

Conclusion

There have been a wide variety of challenges to managing Denali National Park and Preserve, especially as the National Park Service implements the provisions of ANILCA. Management priorities of the National Park Service and the state of Alaska have differed considerably, as decisions are made to protect various types of competing values and because of conflicting interpretations of ANILCA. Alaska's tradition as an Owner State, and federal land management in which the final say in decision making comes from Washington, DC, add a level of complexity that is not the case in National Park Service units in other parts of the country. However, there has been considerable progress in recent years because of improved understanding and communication between federal and state land managers, greater public involvement at all levels, and the

recognition of public interest in protecting a wide range of values in Denali National Park and Preserve. **IJW**

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