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Front cover of moon rise over the Black Umfolozi River, Umfolozi Wilderness Area, KwaZulu-Natal, South Africa by Vance G. Martin, Inset photo by Fiona Silver.

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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THE TRAIL AHEAD

BY VANCE G. MARTIN, EXECUTIVE EDITOR (INTERNATIONAL)

PARDON ME IF I STEP ON A FEW TOES. Sometimes I'm convinced that one of the biggest threats to wilderness could easily lie within our own ranks of wilderness lovers. What am I talking about? Well, it's the "?-centric" debate, which persists so strongly it seems as if it is growing legs. The footsteps have gotten loud enough that you sort of feel guilty if you dare to have a twinge of anthropocentric delight in your enjoyment of the wilderness or apologetic if your zeal for the wild is not overtly biocentric.

Likewise, in the arena of policy and environmental matters in emerging economies in which I work, wilderness issues are continually marched over by our colleagues in the sustainable development debate. This stark reality has been dressed up in all sorts of fancy footwear, but the tracks are clear and can be read simply as, "If it doesn't pay its own way we are not interested" (i.e., human values rule).

The *IJW* has a clear stance on the intersection of human needs with wilderness conditions—we tread the tightrope of balance. We advocate the understanding, enhanced protection, and enjoyment of wilderness and wildlands that are untrammeled but not necessarily untrodden. We love wilderness for its own sake, and yet we have our own needs and desires can't deny that. Moreover, while we recognize the need for development, we favor a redefinition of sustainable development to one of sustainable living. Our goal is to present the best information, the most current concepts, and the most interesting experiences so that the *IJW* is working for wilderness and people—a great combination.

In this first issue of *IJW*'s fourth volume we detail some of the many aspects of this complicated interface between the (perceived) needs of wild nature and the needs of humankind ... adventure, economics, management, research, psychology And more will come throughout volume four in 1998, which will consist of three issues (sorry, four issues last year proved a bit much for the sanity and budget of your volunteer editors).

Article author and *IJW* executive editor (international), Vance G. Martin.

If the *IJW* trods upon your concept of wilderness, tell us. If it doesn't, tell us that too. Challenge us! We may basically agree that we want to "take only photographs, leave only footprints," but each of us has a unique spoor, with a character and direction of its own. By reading carefully the information revealed by our individual tracks, we can collectively create solutions for the complicated relationship between wilderness and human society ... and therein lies the trail ahead. **IJW**

IJW's NEW MANAGING EDITOR AND MORE

Beginning with this issue, Michelle Mazzola has taken up the reins as *IJW*'s managing editor, following in the talented footsteps of Alan Ewert, who continues with his responsibilities as executive editor (education). Margaret Petersen (USFS, Portland, Oregon) has joined the team as executive editor (stewardship), and Woody Hesselbarth helps out as field correspondent. As a part of the new structure, John Hendee is now the editor-in-chief, with strategic responsibilities. Michelle maintains her role as production editor, but we are pleased that she has an expanded role. Her keen knowledge and talented eye are assets for the journal, as they have been since she helped start the *IJW* in 1994.

SOUL OF THE WILDERNESS

Dashing Through the Snow— Amundsen, Scott, and Their Modern-Day Counterparts

BY JAMES M. GLOVER

WHENEVER I HEAR THE WORD *ANTARCTICA*, the first thing I think of is the famous beautifully dramatic story of the race to the South Pole between the Norwegian Roald Amundsen and the Englishman Robert Scott in 1911 and 1912. To me that story is as powerful as I imagine the story of the Battle of Gettysburg would be to a Civil War historian, or as *The Odyssey* is to a classicist. It contains the elements of all great stories: love and hate, pride and humility, courage and cowardice, and an epic journey into the unknown. Like all good stories, it offers lessons and insights still worthwhile today. In this article, I'd like to review the story of Amundsen and Scott to see what it might tell us about wilderness leadership and about how our specific cultures affect our attitudes toward wilderness and its exploration.

In June 1910 Robert Scott left England, to great fanfare, with a crew of 72 men who had the purpose of reaching the South Pole while conducting an ambitious program of scientific research. Two months later Amundsen, in the quiet of night and to no fanfare, left Norway with a crew of only 19 men and the expressed goal of exploring the North Pole. But when Amundsen was far enough away that no one could stop him, he had his brother announce a secret he'd kept for two years: He was not going north at all but was out to beat Scott to "the last great prize," the South Pole.

By January 1911 Scott's 70-day lead was gone, for both parties had reached Antarctica and set up their base camps. By December 13, 1911, it was over: On that day Amundsen and four other Norwegian skiers and dog mushers arrived comfortably at the South Pole. Three hundred sixty miles and, as it would turn out, 34 days behind them, five British explorers led by Scott trudged toward the same destination.

Article author James M. Glover.

The Norwegian team would safely return from the Pole with time, energy, and supplies to spare. Scott's group would reach the Pole but would never return, having run out of time, energy, health, food, water, and other essential supplies. The dramatic difference in results for the two parties was a reflection of the difference in leadership and in cultural attitudes toward wilderness, indigenous cultures, and polar exploration. Those differences are thoroughly explored in Roland Huntford's excellent book, *Scott and Amundsen* (1979). Although there are many other books on the same subject, Huntford's is by far the best, and virtually everything in the following paragraphs has been pointed out by Huntford. His book is one that every student of wilderness leadership should read three or four times.

Scott and Amundsen's Backgrounds

A comparison of Scott and Amundsen must begin with their backgrounds. Amundsen was born in Norway on July 16, 1872. The Norway in which he grew up was small, economically poor, and sparsely populated. It was, however, a nation of great shipbuilders and sailors. Sea merchants, of which his father was a very successful one, were much revered. And, significantly, nature dominated the landscape. Amundsen learned to ski about as early as he learned to walk. Shipyards were his childhood playgrounds, and he learned to sail at a very early age.

During the time of Amundsen's childhood and early development, polar exploration was a source of great nationalistic pride in Norway. Foremost among Norwegian explorer-heroes was Fridtjof Nansen, whose many innovations for polar travel included the development of a light and flexible "sledge" on skis; the Nansen Cooker, an early backcountry stove that became a modern prototype; specially designed clothing and tents; the use of skis; and the use of small streamlined expeditions. Additionally Nansen was the first explorer to scientifically work out food rations, and he recognized and demonstrated the value of fat in a polar diet. In April 1895, Nansen reached 88 degrees and 13 minutes north latitude, a record "farthest north." Such exploits were followed closely by the then 23-year-old Amundsen.

The culture in which Robert Scott was born and grew up was much different. He was four years older than Amundsen, so we may think of them as part of the same generation. But whereas Amundsen's nation was small, rural, and unpowerful, Scott's England of the late 1800s was rich and powerful, highly industrial, highly militaristic, and a place where humans dominated the landscape. Scott's family was affluent from generations of successful navy careers. Though very strong physically, Scott had no intrinsic interest in polar exploration; he went into it as a good way to advance his own naval career.

Two British norms that directly affected Scott's outlook prevailed in the late 1800s. The first was a preferred rule of

polar travel as put down by Sir Clements Markham, the acknowledged father of British Antarctic exploration. The rule was simple: "No skis. No dogs." The second norm explains the first one. It was a peculiarly English admiration for unnecessary suffering. As Huntford put it: "One aspect of the English romantic movement was to equate suffering with achievement. There was a virtue in doing things the hard way" (Huntford 1979, 138). These two ideas resulted in the British preference for "man-hauling," a technique of snow travel that means exactly what the phrase implies: men lashed in front of large sledges like oxen, pulling these sledges across thousands of miles of snow and ice.

The Contest

In many ways Amundsen's entire life seems to have been a preparation for his masterpiece South Pole expedition. From 1903 to 1906, he conducted a trip to the northern latitudes that resulted in the first "northwest passage": he sailed from eastern North America to the Pacific Ocean. More importantly, he systematically studied Eskimo skills. He began dressing entirely in animal skins and furs. He ate caribou. He ate a dog, which he found "most excellent." He practiced dog sledding under the tutelage of experts, learning to coat sledge runners with ice to reduce friction and to use the fan-shaped dog formation, which helps avoid entire teams plunging into crevasses.

When he finally returned to Norway from that voyage Amundsen began preparing for what he hoped would be the discovery of the North Pole. However, when it was announced (and the world believed) in September 1909 that Robert Peary had reached the North Pole, Amundsen no longer was interested in going north. He decided instead to try to be the first explorer at the South Pole (a plan he kept a secret for two more years). The innovations he made were many. For example, he had goggles specially designed from a pattern originally conceived by Peary's nemesis, Frederick Cook; he had pemmican specially made with peas and oatmeal added for bulk and fiber; he devised a dog pemmican containing fish meat and additional fat, which could also be eaten by humans if necessary; he designed sledging cases of ash from Denmark with circular lids that were easy to open; he designed his own eight-foot-long skis from some high-quality hickory he had purchased nine years before; he had sleeping bags custom-designed using only fur from one-year-old reindeer calves of a certain type slaughtered only in the fall; he ordered dogs from North Greenland, generally considered the best in the world; and he packed various layers of Eskimo sealskins and furs.

Table 1: Comparison of Staff Selections

Amundsen	Scott
One Olympic skier	Many academics
One world-class dog driver	Many navy men
No doctor	Scientifically *professional*
No academics	For polar travel, *amateur*
Small, mobile	Two paying volunteers
As polar travelers, *very professional*	Large, cumbersome
Aboard *Fram:* 19 men and 100 dogs	Aboard *Terra Nova:* 72 men, 33 dogs, 19 ponies, 3 motor sledges

Robert Scott's preparations, unhappily, were much different. He began planning two years later than Amundsen. His equipment was almost all "over-the-counter" or based on previous British patterns. In sum, as one Norwegian writer put it, he "avoided with diligence the experience of his Arctic predecessors" (Huntford 1979, 266).

Table 1 shows the differences in staff by the two European leaders. Amundsen's, as can be seen, was small, mobile, and as wilderness travelers, very professional. Scott's was large and bulky, scientifically professional but amateur as polar travelers.

What Amundsen and Scott accomplished during the Antarctic fall and winter of 1911 tells much about the two expeditions. For starters, Amundsen had strict priorities and a clear goal. As he wrote that winter, "Our plan is one, one, and again one alone—to reach the Pole. For that goal, I have decided to throw everything else aside" (Huntford 1979, 355). To accomplish his goal, Amundsen took advantage of the short fall season by depoting a huge amount of supplies far down his route toward the South Pole.

Table 2 compares the depot record of the two competing expeditions. As can be seen, Amundsen managed to depot three times the amount of supplies as did Scott. He also was able to depot supplies much farther south, and his depots were almost infinitely better marked so that they would easily be found when the big expedition finally was at hand. Huntford writes that Amundsen's depoting was "the first time in the short history of Antarctic exploration that a sane foundation had been built for an assault on the Pole" (Huntford 1979, 333).

When Amundsen's depot work was finished, he and his small crew settled in for the long dark Antarctic winter. But again, Amundsen made excellent use of his time and demonstrated his superb ability to raise an expeditionary group to the highest level of performance. He had many tricks for sustaining morale. For

Table 2: Summer Depot Summary

	Crew of:	Number trips	Amount depoted	Farthest south depot	# of pennants to mark each depot
Amundsen:	8 men 50 dogs	3	3 tons	82°	20–60
Scott:	13 men	1	1 ton	79.5	1

Table 3: Comparison of Margins of Safety at Start of Polar Journey				
	Supplies in depots	Pounds of supplies per man	Route markers	Men to Pole
Amundsen:	3 tons	1,300	every $^1/_3$ mile	5
Scott:	1 ton	124	none	5

example, he assigned each man the care of 14 to 15 dogs, thus assuring each person of direct and meaningful contact with warm living beings. Each morning he hosted a competition to guess the outside temperature and gave away prizes for the winners—thus, as he believed, attuning the crew members to the Antarctic weather and getting them out into the fresh air first thing each morning. He had the camp cook serve fresh seal meat daily, which prevented scurvy; and for breakfast each morning the crew members were presented with hotcakes garnished with preserved whortleberries and cloudberries, which further prevented scurvy. The crew members also ate each day whole-meal bread with wheat germ, leavened by fresh yeast brewed on site at their base camp (providing them with vitamin B complex).

Scott's winter was not exceptionally unproductive by most expedition standards up until that time. But compared with Amundsen's, it was a study in wasted time. Scott had partitions erected that separated officers and gentlemen from the rest of the crew. He conducted many compulsory classes, but none on such topics as navigation and skiing. Scott himself had long bouts with severe depression and often withdrew from his crew. There was very little preparation for the final journey, at least by comparison with Amundsen. Scott did make three short trial runs during the winter, but all these emphasized man-hauling, with little to

On their climb to the Polar Plateau, they accomplished one of the great individual feats in the history of exploration: They climbed 10,000 feet and covered 44 horizontal miles, sledges and all, in four days.

It's clear that Amundsen treated his crew members kindly, but he expected and received in return an enormous amount of work. A daily work schedule was established and generally adhered to. Huge workrooms were carved in snow, and in those rooms sledges were overhauled and their weight reduced. Three brand-new sledges were created—very light ones for the Polar Plateau. Two pairs of skis per person were built or renovated. Ski boots were torn apart and renovated four different times, each time making them warmer and more flexible. And new tents with sewn-in floors were created, the comfort of which was much appreciated on the final trip to the Pole.

no skiing or dog sledding practiced. Scott's diet was also much inferior to Amundsen's. He served his crew white bread; much "tin food," containing little or no vitamin C; very little fresh seal meat compared to Amundsen; and seal meat overdone on those occasions when it was served, thus further reducing its ability to provide the critical vitamin C.

There were other errors in Scott's preparation for the Pole. Taken individually they do not seem like much, but for such a challenging trip, when crew members are stretched to their limits even under the best planning and conditions, they constitute what today would probably be considered malpractice. A few examples: The furs and garments he provided didn't have the hoods connected to the coats. His tents didn't have sewn-in floors, and the crew's teepees were hard to erect in gales. Scott's primary attempt at innovation, the use of "motor sledges" (the forerunners of snowmobiles), was totally defeated because he brought along no tools or spare parts to work on those machines.

His other major deviation from Amundsen was his attempt to use ponies (instead of dogs) to pull sledges. This had been tried on previous British expeditions and had failed miserably for several reasons. For starters, the ponies' hooves punched through the snow crust. Then, unlike dogs, the ponies' entire bodies sweated profusely Their flanks became encased in solid ice. At night they had to be rubbed down and covered in blankets and have snow walls built around them, thus taking up critical time and energy. Despite Scott's efforts to care for the ponies, they all died early in the trip south.

As the race to the South Pole began, Amundsen was in much better shape. Table 3 compares margins of safety at the start of the two polar journeys. The pounds of supplies per man for Amundsen's crew is so much greater than Scott's not only because he stashed away three times as many supplies, it is also because Scott used an elaborate system of leap-frogging men, dog teams, and ponies for much of the way south. Amundsen left his base camp with just five people.

Table 4 compares the travel efficiencies of the two groups during the first stage of their polar journeys. Amundsen's party, using dogs and skis, was able to pull twice as much gear per sledge, and go about a third of the distance farther each day than was Scott's. Even more important, Amundsen's party was able to do this in workdays that were only half to two-thirds as long and, because they were not man-hauling their sledges, were able to go to bed each evening with energy to spare. The men in Scott's party, by comparison, spent every ounce of energy every day.

Another key—again—was nutrition. Just as Amundsen's crew had eaten more healthfully during the winter, they continued to do so while they were heading for

the Pole. They ate biscuits made with wholemeal flour and rolled oats leavened with yeast for vitamin B. They had all they could eat on their return trip. And, very significantly, they were back to their sources of vitamin C (to avoid scurvy) in two and a half months. That source of vitamin C was the seal meat that they stored in their depots.

Scott's crew ate a lot worse. Their biscuits were made from white flour, leavened with sodium bicarbonate—no vitamin B. They were out of reach of all vitamin C for well over three months. On the way out toward the Pole, they ate about the same number of calories (4,500) per day as did Amundsen's crew. However, they were spending a lot more energy because they were man-hauling, and on the return trip they had even less to eat, while Amundsen's crew had more to eat than they could consume. Scott's party, consequently, was in poor shape even before it reached the Pole.

As Amundsen's crew got closer to the Pole, and when they returned from it, Amundsen's careful planning and leadership became more and more appreciated by his crew. They were able to set up camp and feed their dogs in one hour at the end of each day, thus again conserving crucial time and energy. On their climb to the Polar Plateau, they accomplished one of the great individual feats in the history of exploration: They climbed 10,000 feet and covered 44 horizontal miles, sledges and all, in four days. During the exact same four days, Scott's party covered just eight more miles on flat ground. As Amundsen's crew went along, they killed their dogs and ate the fresh meat for still further protection against scurvy. Four of the five crew members were trained navigators, thus giving them huge protection against getting lost. They placed a depot every degree (60 miles) to the Pole, and every depot was marked for five miles in each direction perpendicular to their path—thus insuring that they would never miss a depot on their return trip.

When they reached the South Pole on December 13, 1911, as already noted, Scott was still 360 miles away. But the critical time on such expeditions is the return trip. Many an expedition has reached its geographic goal only to experience disaster and death on the return trip. Amundsen's party did not even come close to such a disaster. For the first two-thirds of the way back, Amundsen limited his charges to 15 miles per day even though they were capable of covering more. Instead of going farther, Amundsen had his people rest for sixteen hours out of every twenty-four and eat as much as they possibly could. Then, for the last third of the return trip, Amundsen had them sprint. They ran fifteen to twenty miles at a time, rested for eight hours, then got up and ran again. They returned to their base camp (called Framheim) on January 26, 1912. They came in early in the morning in such good condition that they played a joke on their waiting companions. They sneaked in and aroused the men from their sleep. The first one to be awakened literally thought they were ghosts because they were never expected back so soon.

Table 4: Travel Comparison, First State Polar Journey

	Pounds per sledge	Hours traveled per day	Distance covered per day	Condition of men each night
Amundsen:	880	5–6	15–20 miles	energy to spare
Scott:	450	8+	10–13 miles	exhausted

Scott's party of five finally reached the South Pole on January 17, 1912. Already starving and dehydrated, their morale plunged when they saw a tent erected at the Pole telling them that the Norwegians had been there first. Their return trip must have been a nightmare, though we can only imagine it because none survived to tell the story. From their journals we know that they had to march, pulling sledges, 12 of every 24 hours. Finding each depot became a crisis because they were poorly marked. Yet, incredibly, Scott wasted several hours of good traveling weather on February 17 collecting rock samples. That very same day the first member of their party, named Evans, died. Scott may consciously have abandoned Evans, though this is impossible to say for sure from the records.

On March 1, the remainder of Scott's party found their depot at 82 degrees south. But 75% of the kerosene stored there had leaked away. It was commonly known that kerosene leaks in extreme cold, and Scott had made the mistake of not sealing the containers properly for this environment. (Some of Amundsen's kerosene was found fifty years later, and none had leaked.)

On March 2 Scott, now rather desperate, tried to blame the elements for his situation. He wrote in his diary, "We none of us expected these terribly low temperatures" (Huntford 1979, 534). By this time his party was in terribly bad health. Scott himself had an injured shoulder and leg that were not healing. One of his men had already lost several toes and fingers from frostbite. All five were starving. Evans, as noted, had already died, after becoming paralyzed and acting stupidly, possibly from a brain hemorrhage resulting from scurvy. A crew member named Oates was suffering badly from gangrene. Others would soon follow. Scott and his crew spent their last nine days (March 21–29, 1912) dying in a tent in a blizzard. They were only 11 miles from where they could have been rescued. But they were not found until the following spring. An earlier mistake by Scott proved to be the fatal one. He had given confusing orders regarding a rescue party coming south with dogs. No such party ever reached him. His crew members, after years of military-style discipline and execution, in which nothing is ever done unless specific orders are given, were unable to act on their own and go far enough south to rescue Scott. The likely cause of death for Scott's polar party was some combination of scurvy, gangrene, starvation, dehydration, and hypothermia.

Keys to Amundsen's Success

There were many keys to Amundsen's success. Perhaps most important was his preparation. His trip was as thorough and well planned as any high-level wilderness expedition can ever hope to be. Second was his innovation. As already mentioned, he designed many items of equipment specifically for this particular expedition. He studied the innovations

of his predecessors carefully, and he saw where he could take what they had done one step further. Closely related to this was the third key to his success: his open-mindedness. Amundsen did not care where good ideas came from. If they were good, he was happy to use them. The most obvious examples are found in his borrowing from the Eskimo style of living and traveling in extreme conditions. The British saw Eskimos as primitive clowns whose technology was unworthy of consideration. Amundsen saw them as intelligent fellow humans who, thanks to thousands of years of experience, had devised the best methods of polar living and travel.

The keys to Scott's disaster included poor preparation; rigid adherence to British methods; rigid adherence to naval discipline and chain of command; large cumbersome parties; poor judgment at many stages of the process; casual selection of personnel for such a difficult endeavor; a weak leadership personality (he was generally insecure, defensive, and somewhat eager to shift blame); and lack of focus on goals. Scott became a hero in Britain because of the noble effort that he and his crew put forth and because of the scientific work his party conducted and such a difficult goal at that, it would have to be the primary goal and, really, the only goal.

I admire Amundsen for his leadership style, for his ability to work in harmony with that rather inhospitable wilderness, for his love of the outdoors, for his craftsmanship, and for his commitment to the health and safety of his followers.

The fourth key to Amundsen's success was the small size of his party. It enabled him to be fast and adaptable. Closely related was the fifth key to his success: the selection of personnel. He chose his party with extreme care and worked hard at obtaining the very best people he could get. Sixth was his delegation of responsibility. Amundsen seems to have clearly articulated specific goals, but he let his expert wilderness travelers make decisions about how those goals might be attained. The seventh and final key to Amundsen's success was his clear focus on a goal. Some might argue that he was overly obsessed with a rather silly goal. What, after all, is the value to human knowledge of five outdoor athletes being the first people to reach an arbitrary point on the map? It is a good question. Nevertheless, entire countries devoted resources to the attainment of it. And at least Amundsen recognized that if such a thing was going to be a goal, in addition to its attempt at the Pole. But had he given the one goal or the other (either scientific discovery or the attainment of the Pole) clear priority, he might not have had to sacrifice human lives for their attainment.

Lessons Learned

The story of the race for the South Pole offers obvious lessons for expedition planners. It also shows, as mentioned, that our approaches to the wilderness experience are culturally bound. One has the feeling, for example, that Amundsen's team was working with nature, taking, so to speak, what nature was willing to give. In my mind's eye, I see Amundsen and his mates gliding almost effortlessly across the snow on their waxed skis or on the ice-crusted runners of their dogsleds, comfortable in the fur clothing developed over centuries by polar peoples. Or—an even more powerful image—I see them patiently spending the long Antarctic winter perfecting their equipment in rooms built entirely of snow.

By contrast, I see Scott's people approaching the same journey as if it were a mythical struggle: man against the forces of nature. They are, after all, citizens of a nation that for several centuries dominated the world militarily and economically. They disdain dogs, skis, and the clothing of Eskimos. But their endless "man-hauling" might be seen as a metaphor for the dispiriting effort it takes to maintain a world empire. Strapped into harnesses like pack mules, neck muscles bulging, feet plunging into the snow, they drag overloaded sledges over a distance that in the end proves to be, quite literally, impossible.

Today, as our wilderness areas become more precious and rare, we need to remember that there are still many approaches to wilderness exploration. To some of us wilderness is a place for meditation and contemplation; to others it's still a place for action, competition, conquering, and winning glory for one's country. Indeed, we may be witnessing the start of a new era in which wild places are increasingly seen as playing fields for international expeditionary competitions. Every year now we hear of highly publicized races across Antarctica. There was even, in 1995–1996, another race between a Norwegian, Roger Mear, and a Brit, Borge Ousland, each this time trying to be the first to cross "alone and unaided" (Roberts, 1996).

Meanwhile, new forms of wilderness racing keep popping up. There's "skymarathoning," for example, which, as journalist Martin Dugard succinctly puts it, "basically entails running 26.2-mile races in places better suited for mountaineers" (Dugard 1995a). There are cash prizes in this sport, and even a "circuit," with events at places like Mount Kenya in Kenya and Mont Blanc in France. There's also "adventure-racing," which involves combinations of running, rafting, mountain biking, climbing, rappelling, and other forms of transport on long routes through wild country (Dugard 1995b). And finally (for now), there's that May day in 1996 when eight climbers died on Mount Everest. On the afternoon of that event, more than 30 people summitted the world's highest

peak. Two climbers coming down after summitting had to wait 45 minutes at a ledge called the Hillary Step for 20 others to pass on their way up. A bit later the storm hit, featuring 70-mile-per-hour winds. Besides the eight who eventually died, eleven other climbers, "several with little or no Himalayan experience," (Herr 1996) could not find their tents and spent the night wandering around the snowfields and crevasses at 26,000 feet. Mountaineer-journalist Jon Krakauer happened to be there, and his best-selling account of the events, *Into Thin Air*, has provoked some needed discussion about the growing business of guided high-adventure tourism and the persistence in many countries of the "conquest" approach to wilderness use.

This racing and peak-bagging, I suspect, reflects cultures like ours in the United States, in which television and other media idealize competition, aggression, winning, and physical performance. The desire for physical challenge in relatively pristine settings seems to me both natural and healthy. What seems less so is the attitude that any such adventure is about humans against nature. Moreover, the rather egotistical drive to climb the highest peak or cross the remotest piece of landscape seems analogous nowadays to big-game trophy hunting, where the participant becomes so fixated on the prize and the applause that the joy in the process is lost.

I admire Amundsen for his leadership style, for his ability to work in harmony with that rather inhospitable wilderness, for his love of the outdoors, for his craftsmanship, and for his commitment to the health and safety of his followers. It seems ironic, though, that by focusing so narrowly on the prize, he embraced, and indeed promoted, the concept of wilderness as a place to win glory for one's self or one's country.

I like to believe that Amundsen, despite his obsession with the destination, also enjoyed the journey. There's evidence that he did, such as the passage in his journal, dated November 13, 1910, on his way to the Pole: "... the land looks like a fairytale. Pinnacle after pinnacle, peak after peak—crevassed, wild as any land on our globe, it lies, unseen and untrodden. It is a wonderful feeling to travel along it" (Huntford 1979, 438). **IJW**

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SCIENTIFIC ACTIVITIES IN WILDERNESS

A Workshop to Address Issues and Concerns

BY DAVID J. PARSONS

THE CONDUCT OF SCIENTIFIC ACTIVITIES (both research and monitoring) in U.S. wilderness, parks, and other protected areas presents a dilemma for both scientists and managers. Despite historic recognition of the value of protected areas as benchmarks against which to measure the effects of modern human activities (Leopold 1941; Beard 1960; National Research Council 1992), and explicit mention of the scientific values of wilderness in both The Wilderness Act of 1964 (TWA) and U.S. federal agency wilderness policies, managers frequently permit only those activities they judge to be critical to local management needs and which have no negative effect on the resource or user experiences. Such tight control has made many scientists reluctant to undertake activities in protected areas (Franklin 1987). As a result, opportunities to obtain the understanding necessary to assure long-term ecosystem sustainability and to obtain the full benefits of protected areas as benchmarks may be diminished.

A workshop called "The dilemma of scientific activities in protected areas" was conducted on March 21, 1997, at the George Wright Society's 9th Conference on Research and Resource Management in Parks and on Public Lands held in Albuquerque, New Mexico, USA. Headquartered in Hancock, Michigan, USA, the George Wright Society is dedicated to fostering research and management of protected areas. The purpose of the workshop was to examine issues associated with the conduct of research and monitoring on wilderness and other protected lands. Workshop participants represented the perspectives of both scientists and managers. Examples of concerns, frustrations, and successes were presented along with a proposed framework to facilitate decision making.

Article author David J. Parsons.

Background

David Parsons, director of the interagency Aldo Leopold Wilderness Research Institute (ALWRI) in Missoula, Montana, USA, introduced the workshop by briefly reviewing the value of protected areas to science. For many years the designation as park, wilderness, or preserve was considered adequate to "protect" an area from change; "nature" could be trusted to take care of itself (Graber 1995). Management was largely limited to controlling fire, predators, pests and disease, or visitor use levels and impacts. Scientific benefits accrued largely from limited natural history observations and collections.

Only relatively recently have scientists come to recognize that natural ecosystems are dynamic entities, largely dependent on and responsive to periodic disturbances (Christensen 1995). Impacts of human activities, including the spread of exotic species, air pollution, recreation use, and habitat fragmentation, have become increasingly recognized as threats to the integrity of natural ecosystems (Cole and Landres 1996). Such recognition has led to the need to better understand and, in some cases, actively manage wilderness ecosystems (Christensen 1988). The decision on whether and how to manage these ecosystem requires information of the kind that often can only come from scientific study. Information on relatively undisturbed ecosystems has also proven critical to understanding the impacts of modern human activities on basic ecosystem properties (National Research Council 1992). Scientific activities often require instrumentation, manipulation, special access provisions, or result in other biophysical or social impacts that run counter to the perception of "wilderness."

Wilderness managers are thus faced with the dilemma of how to encourage scientific activities without destroying the resources and values an area was established to protect. They must decide what scientific activities are necessary and appropriate and how the benefits of improved understanding can be balanced against the impacts of obtaining the information. They are often asked to pass judgment on research proposals designed to provide information critical to issues extending far beyond their local areas. However, these managers are frequently not trained in science and do not have the ability to evaluate the importance of the data to be collected, the accuracy of data required, or the quality of the science proposed.

Despite recognition of the importance both of science to wilderness and wilderness to science (Brower 1960; Franklin 1987; Graber 1988), many scientists view parks and wilderness as inhospitable to their interests. Concerns include a perceived hostility to manipulative research, lack of security due to frequent administrative changes, and a lack or inconsistency of clear policy guidelines (Franklin 1987). Scientists frequently perceive a lack of appreciation for the value and importance of science. Stories of frustrations in negotiating with agency bureaucracies

to receive permission to carry out research in protected areas are not uncommon (Eichelberger and Sattler 1994).

A lack of consistency in policies and practices related to wilderness science within and between the federal land management agencies presents challenges for both managers and scientists. Little direction is provided on how decisions should be made or on the importance and appropriateness of science activities. Similarly, little direction is available to scientists regarding the expectations and concerns of agency managers. As a result, managers and scientists often find themselves in conflict: Neither understands the perspectives or priorities of the other. Clearly, there is a need to bring management and science into a partnership. Improved communication and mutual understanding of values and needs are essential if the best possible science is to be available upon which to base future decision making.

A Manager's Perspective

A manager's perspective on scientific activities in wilderness was presented by Linda Merigliano, natural resources specialist for the Bridger-Teton National Forest in Jackson, Wyoming, USA. Linda sees the role of the wilderness manager as managing human activities (including science) to ensure the spirit and intent of TWA are met. To her, this requires that managers evaluate each scientific proposal by asking: (a) Is the research necessary to meet wilderness objectives? (b) Can the research be done outside wilderness? and (c) If the research is necessary and can't be done outside wilderness, how should it be carried out to have the least impact?

Linda suggested that impacts be evaluated on the biophysical resource (e.g., effects of soil pits or increment cores), on the experiential resource (e.g., impacts of visitor surveys or the viewing of equipment), and on the resource of "wildness" itself (e.g., the use of high-tech equipment). Impacts on wildness are the most challenging to assess as they revolve around questions about the value of the unknown and the preservation of primitive skills. Linda saw a key question as being, "How far should we deviate from 'wildness' to accommodate science?" She emphasized that such questions focus largely on values, including how "wild" we want wilderness to be. Such questions address some of the most fundamental issues regarding the role of wilderness in society (for example, as Linda asked, "If visitors don't complain, is it OK?").

Aquatic sampling in a high mountain lake. Photo by David J. Parsons.

an area. He has been frustrated by the inconsistent response of agency managers to requests to conduct fire history research. It is his perception that approval or denial depends more on personal philosophies of individuals

Scientific activities often require instrumentation, manipulation, special access provisions, or result in other biophysical or social impacts that run counter to the perception of "wilderness."

A Scientist's Perspective

The perspective of an academic scientist was presented by Tom Swetnam, associate professor at the Laboratory for Tree-Ring Research at the University of Arizona. Dr. Swetnam reviewed his own experiences with fire history research in wilderness and parks. He recognized that his work can include potentially significant and long-lasting impacts (e.g., destruction of snags or use of chain saws to remove fire scar wedges from downed trees) that push the envelope of acceptability. He has justified the need for such techniques as, at times, being the minimum tool necessary to obtain the quality of data required to fully understand past fire regimes, allowing for the development of management prescriptions to assure the long-term preservation of than a consistent definition or application of policy.

Dr. Swetnam argued that the scientific and educational values addressed in TWA deserve more explicit recognition—even equivalency with other values (e.g., recreation). He argued that science, by informing and guiding management, is necessary to assure long-term preservation and sustainability He also argued that impacts resulting from scientific studies need to be placed in the context of others that are often more routinely accepted in wilderness (e.g., wildfire suppression techniques). He is most concerned by what he sees as an inconsistency in policy interpretation both between and within the wilderness agencies. He is also concerned with what he sees as a lack of understanding of the scientific and

educational uses of wilderness and their importance to ecosystem management and restoration.

A California Case Study

David Graber, senior scientist for the National Park Service at Sequoia and Kings Canyon National Parks in California, USA, reviewed several examples of scientists and managers successfully working together to develop mutually beneficial objectives and acceptable approaches. The success of Sequoia and Kings Canyon National Parks in encouraging, facilitating, and benefitting from cutting-edge research in such areas as air pollution and acid deposition effects, fire history and ecology, seismic geology and wildlife studies has been widely recognized (Tonnessen 1992). These parks utilize a process for documenting and evaluating the benefits, impacts, and potential mitigation actions of proposed scientific activities in designated wilderness (Parsons and Graber 1991). This process has resulted in denial of permission to conduct activities judged not to be beneficial enough to merit the expected impacts. It has also led to approval of selected proposals to gauge stream flow, dig soil pits, use chain saws to extract fire scar wedges from dead trees, and utilize helicopters for equipment transport. Dr. Graber emphasized that these decisions, although probably affecting experiences of some wilderness visitors, are justified by the long-term benefits of the scientific knowledge obtained.

Experimental meadow clipping (herbage removal) studies. Photo by David J. Parsons.

Much of the success of the Sequoia and Kings Canyon process can be attributed to efforts by the staff in these parks to bring managers and scientists together at the early stages of problem identification and planning. This interactive dialog assures that scientists understand the needs and concerns of agency managers and that managers understand the options and potential impacts for acquiring the desired information. In most cases such dialog has resulted in an understanding and cooperation that assures all parties are involved in the decision-making process. The physical presence of a park-based science staff, once common in the National Park Service, has helped in the facilitation of such information exchanges.

Research Proposals Considered

In recognition of the lack of clarity and consistency in the application of guidelines for evaluating scientific activities among the four federal wilderness management agencies, Peter Landres, research ecologist with the ALWRI, proposed a process for considering research proposals. Dr. Landres proposed a structured set of issues and questions to guide the comprehensive evaluation of scientific proposals by weighing the negative impacts (both social and biophysical) of the proposed work against the potential benefits of the information to be obtained. The proposed process will not provide cookbook answers, rather it will provide a thought process to facilitate decision making.

The proposed process is based on four basic premises: (a) every activity (including science) in wilderness causes some impact, (b) evaluation decisions need to consider tradeoffs between benefits and impacts, (c) a structured set of questions ensures that both benefits and impacts are fully considered, and (d) the proposed process will allow the merits and detriments of the decision to be openly and fully discussed.

To evaluate scientific proposals, managers should try to answer four questions: (1) What is the legal and policy context for the land unit? (2) What is the issue of concern to the land unit? (3) What are the benefits of the proposed studies? and 4) What are the potential impacts of the proposed activities? A suggested means for weighing benefits against impacts in a two-way matrix was presented as a way to facilitate decision making. Activities that create no impacts should be easy to approve (even if there are no direct or discernable benefits; [Graber 1988]). Activities with significant impacts but no discernable benefits would most likely be denied.

Those activities for which both benefits and impacts are anticipated will require more in-depth analysis. This analysis will include considering benefits to the individual wilderness and local managers, benefits to all wildernesses and to the National Wilderness Preservation System, benefits to national-level policy makers and to all lands managed for their natural amenity and commodity values, and society-at-large that benefits from these values. Analysis of impacts will include evaluating both ecological and social effects of the proposed scientific activity. Dr. Landres suggested that understanding who and what benefit from the research and what these benefits are will help the decision maker evaluate the desirability of specific activities. This approach should facilitate consideration of benefits beyond the specific area in question.

Summary and Conclusions

The workshop presenters and participants agreed that scientific studies are critical to guide management decisions, evaluate the effectiveness of management actions, understand how natural systems work, and improve understanding of people's relationships to nature and the benefits that people and society accrue as the result of such relationships. The dilemma comes in deciding how such benefits should be weighed against the impacts—biophysical and social—that occur from the conduct of the investigations. It is clear that there are varying perspectives on just how the value, appropriateness, and thus necessity of such activities should be evaluated.

The idea of increased communication between scientists and managers, coupled with a process to facilitate evaluation of benefits and impacts, was endorsed by all in attendance as critical to resolution of this dilemma. The exchanges that occurred during and after this workshop, together with the process outlined by Peter Landres, appear to be productive first steps in this resolution. The ALWRI will continue to provide leadership in addressing these issues by working with the land management agencies in refining policy interpretations and guidelines, working with the scientific community to improve understanding of concerns and constraints of the management agencies, and refining the proposed process for evaluating scientific proposals. As was stated by David Brower nearly 30 years ago, "Wilderness is necessary to science, and science is necessary to preserve the wilderness" (Brower 1960). **IJW**

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Paleoecological sampling of meadow sediments for pollen, plant macrofossils, and charcoal. Photo by David J. Parsons.

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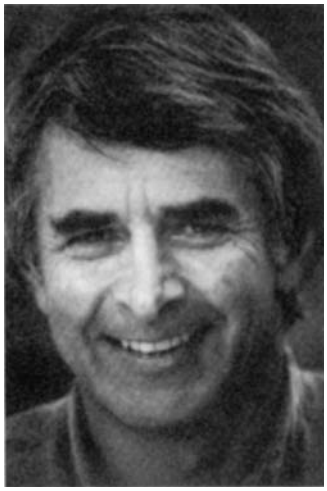
THOUGHTS ON THE INNER JOURNEY IN WILDERNESS

BY DAVID CUMES

"I only went out for a walk and finally decided to stay until sundown,
for going out, I discovered was actually going in."
—John Muir

AS AN INCREASING NUMBER OF PEOPLE participate in wilderness programs, better terminology is needed to describe the effect of nature on the human psyche. For the sake of this discussion it will be called "Wilderness Rapture."

Anthropologists and other visitors to the Khoisan (or San, commonly called Bushmen) hunter-gatherers of the Kalahari have been impressed not only with their technical skills but also with their group interaction, harmony, and spirituality. It seems they have acquired many of the attributes we associate with dedicated practitioners of Eastern philosophies such as living in the present moment, inner peace, unconditional positive regard for one another, unconditional love for children, a low sense of ego, and a disinclination to judge others or circumstances. It may be that the San are like this, not by virtue of any religion or esoteric practice, but because of the austerity of the Kalahari desert, the people's interdependence, and most of all, their proximity to nature. They do have a pure spiritual practice, maybe the purest of all: a nature practice.



Article author David Cumes.

Wilderness Rapture

Many of us who love wilderness are aware of the fact that the more we separate ourselves from creature comforts and the more we expose ourselves to the diverse polarities of nature, the more powerful the Wilderness Rapture. It is not the same in a hotel in Yellowstone National Park. Comfort, paradoxically, may get in the way of a deeper connection between nature and our innermost being. Herein may lie the magic of the Sans inner harmony. They sleep and eat on the earth, they are exquisitely attuned to all the elements, they rely on the fauna and flora for survival, and they are masters of their environment. They also have surprising paranormal powers that not only help them hunt and gather but also heal disharmony and illness in the group. The San are adapted not only to the desert wilderness but are attuned to their inner wilderness as well. They are ideal models to follow for an inward experience in nature because they can go in just as easily as they can go out.

A Bushman face reflecting inner peace and harmony. Photo by David Cumes.

Effects of Wilderness Rapture

The factors that relate to Wilderness Rapture appear to be limited by the need to be objective and scientific, and what we are discussing is rarely measurable. In fact, analysis may get in the way of the inner experience. Nevertheless, dissection and appropriate extrapolation of wilderness psychology literature does help us explain this phenomenon.

Wilderness researchers, such as John Hendee, Rachel and Stephen Kaplan, Randall Pitstick, Robert Greenway, Michael Brown, and others, have noted certain changes in those participating in extended journeys into the wild outdoors. The following is a summary of some of these transformations that may be classified under the heading Wilderness Rapture.

1. Being or feeling more like our true self.
2. An appreciation of awe, oneness, wonder, transcendence, or a peak experience (Maslow 1971).

3. Humility and a realization that any control we think we have over nature is an illusion.
4. Becoming more pleasant and affable with fellow trekkers.
5. A connection with nature and a sense of comfort in her surroundings.
6. A sense of renewal and vitality, feeling less cluttered, more mindful and focused.
7. An appreciation of solitude on the solo. This experience was often described as the most powerful aspect of the trek.
8. Major lifestyle shifts on returning such as changing occupations or selling a home. These may be attempts to align the outer self or persona with our inner needs. Intimate contact with wilderness can bring us closer to an appreciation of what is really true for us.
9. Release from bad habits or addictions. These could be past patterns of behavior that are undesirable, such as watching too much television, or something more drastic such as chemical dependency.
10. Many participants experience a sense of loss or depression when they return home. Paradoxically this depression occurs in the face of a demonstrable restorative effect that is measurable by various parameters. This phenomenon of "reentry depression," may be a consequence of Wilderness Rapture. Reentry depression seems to be a manifestation of how potent the inner effect of the journey has been. The more powerful the journey, the more profound the reentry depression. The depression may be a result of having been in an altered state of consciousness and upon the return there is a rude awakening as we are propelled back into a normal state of awareness.

Wisdom from Ancient Traditions

Before we venture into the wild outdoors, a sense of duality is often apparent. We may feel that we are "here" and wilderness is out "there." Elaborate preparations to leave are made, and finally we wonder what all the fuss was about as we enter and imperceptibly become part of the wilderness. The basis of indigeneous people's rites of passage in nature is that when we are in nature for a sufficient time, and with the appropriate intention, we fuse or become one with nature. It is then that a special dream, vision, sign, metaphor, archetype, or animal may appear as a sacred message to that individual to guide him or her in life's purpose. This "fusion" between seeker and sign occurs in an altered state of consciousness. Seeing a bald eagle in a Chicago zoo is unlikely to have the same impact.

The characteristics of Wilderness Rapture suggest that it is a spiritual phenomenon catalyzed by the multifaceted splendor of the wild. If we are to understand this feeling better we need to explore some of the wisdom of ancient traditions and spiritual giants who have preceded us.

"Transcendental" has been defined as beyond ordinary limits, beyond the bounds of human experience, connecting with the supernatural. This mystical event often promotes feelings of awe, oneness, harmony, and inner peace. Maslow called it the peak experience. A similar phenomenon has been described in Eastern traditions as "samadhi" or "nirvana." The difference between Maslow's peak experience and these more esoteric versions seems to be one of intensity and the ability of the mystic to induce the event at will and remain in that state as long as desired. The peak experience on the other hand is usually a transient, unpredictable occurrence, and when we try to maintain or duplicate the sheer pleasure of the event, it eludes us.

San mother and child connecting with Earth Mother for sustenance. Photo by David Cumes.

Comfort, paradoxically, may get in the way of a deeper connection between nature and our innermost being.

According to Maslow, a peak experience occurs when we encounter transcendent ecstasy. "Ecstasy" is Greek for standing outside oneself. It is a change in consciousness implying transcendence or at least partial transcendence of the ego and is associated with bliss. Maslow states that there are many precipitating factors such as music, dance, sexual orgasm, childbirth, and even pain for those who need a more intense catalyst to tune into their inner being. Mathematics, science, art, and nature can also induce peak experiences as well as any circumstance promoting pure joy, pure justice, pure excellence, pure truth, and pure goodness. In the word "pure," Maslow may have meant that there was no goal or ulterior motive, and the activity was done purely for its own sake and not to bolster ego.

In Yoga tradition, "samadhi" means ecstasy and is the final limb of the devotee's path. It is accompanied by complete sensory inhibition and sensory withdrawal with the merging of subject and object into a single experience. It has therefore been described as that phenomenon where the observer, the observed, and the process of observation are fused into one. This might occur in wilderness when one sees an animal or a vista, and

Facilitating the right brain—practicing Yoga on the trail. Photo by David Cumes.

for a brief, blissful moment in time there is no separation between him or her (the observer) and that object (the observed). This phenomenon may give us a fleeting idea of what samadhi may be like. Samadhi occurs when the Yogi connects with the transcendental (higher) self, or atman, and can lead to self-realization by transcending ego. The Yogi in samadhi becomes one with the cosmos and realizes that he or she is the absolute, as the psyche, or mind, merges with the higher self. This state is accompanied by magical powers, one of which is control of body heat. Yogis and the Khoisan are known to be able to handle fire without being burned. In Buddhism, the concept of nirvana is similar and comprises a meditative state of sensory withdrawal and ecstatic transcendence. A vital quality of all these states is the lack of separation or duality. A similar, although somewhat diluted, feeling of oneness may occur if we spend extended periods in the wild outdoors.

Topsy turvy at 17,000 feet in the Andes. A more receptive way of relating to wilderness. Photo by David Cumes.

Left Brain/Right Brain

Simplistically speaking, the brain has two sides or two polarities of function. The left is said to be more masculine and the right, more feminine. The left relates to intellectual, cognitive, and goal-oriented behavior. It involves drive, will, ambition, and achievement and is invoked during most of our day-to-day activities. In wilderness the left brain keeps us safe by facilitating mastery of the necessary "hard" skills. It seems likely that this side of the brain function augments ego by making us proud of our achievements in and outside wilderness. It is also the side of the brain that helps us understand the mechanism of Wilderness Rapture, even if it is responsible for removing us from the experience by its incessant intellectualization.

The right brain is receptive, creative, and intuitive and involves empathy, compassion, feeling, and love. It creates interconnectedness amongst participants during the "soft" skills of group work, group dynamics, and other creative pursuits. The right brain helps us balance the left, and this balance is probably the gateway to the higher self. This article is a left-brain attempt to examine and promote the importance of this equilibrium.

When we experience a magnificent sunset we develop a special feeling or emotion inside our body. The minute we begin to analyze whether this is the best sunset we have ever seen, we lose the wonder of that instant. The left brain may get in the way of our most intense inner moments. There seems to be a point where a right-brained fascination that has no ulterior motive becomes a left-brained goal or rationalization, and the balance is disturbed. A photographer may have an epiphany while focusing on an awesome peak and lose it when he or she realizes it must satisfy the critics at National Geographic. Balance between left and right is evasive, which may be the reason that the peak experience is infrequent. Our Western culture, schooling, and conditioning have developed the cognitive at the expense of the intuitive.

To reach rapturous heights safely in wilderness, both the left and the right, or whole brain function, are necessary. The San can flip flop with great ease between these two polarities. They indeed operate with whole brain function, where both right and left are in balance. There are also modern-day hunters who might appear to be externally oriented and motivated by ego but are Zen-like or meditative in their hunting techniques. There are climbers who may appear fixated on a goal but who connect with their inner being while scaling difficult summits. Many of us, however, tend to be more interested in the technical aspects of our wilderness trek. We may not be as skilled as a hunter-gatherer, and concern for safety and success causes us to be preoccupied with navigating ourselves safely through wild country This form of attention and focus often precludes the more subtle connection with our creative and empathetic side.

There is no adequate neurophysiological explanation for Wilderness Rapture, and the best we may be able to say about it for the present is that it hinges more on a right-, rather than a left-brain phenomenon. In the Yoga scriptures there is a detailed portrayal of an energy body that describes the mechanism of samadhi. Yoga tradition clearly identifies three main energy channels. Two of them spiral around each other and up the spinal

column like a DNA helix. The one on the left is the feminine, the moon, the cool, or the blue channel. The one on the right is the masculine, the sun, the hot, or the red channel. Energy can only move up the vital third, central channel of the body's axis if the two polarities of masculine and feminine, sun and moon are balanced. When the energy moves up an energy hierarchy via the center all the way to the crown, Shakti, the divine feminine, unites with Shiva, the divine masculine, and samadhi results. The peak experience, which is the most intense manifestation of Wilderness Rapture, is probably a form of mini-samadhi.

Balancing Opposite Polarities

Mystical Judaisms Kabbalistic Tree of Life is a model with a similar theme. The Tree has three limbs: left, right, and central. The left side of the Tree is feminine and restrains or holds. The right side of the Tree is masculine and expands. The Kabbalah even describes the two contrasting forms of intelligence: receptive, intuitive, and creative understanding on the left (characteristics of the right brain) versus wisdom and intellect on the right (similar to the cognitive, intellectual capabilities of the left brain). The central trunk of the Tree represents the will, grace, balance, and equilibrium that occur after left and right are balanced. With this balance the energy moves up the Tree to the crown. Here the mystic reaches the state of "I am that I am" as he or she comes directly in contact with his or her own divine nature. The Shechina, or the feminine essence, of the divine is also a crucial part of the balance of the Tree.

Although Yoga philosophy and the Kabbalah describe the mechanism of transcendence, there is as yet no scientific explanation of the ineffable or a religious experience. The fact that it is indescribable, unutterable, and inexpressible may indicate that we may never be able to study it completely However, we may be able to extract an essential truth from these three models that can help us on our inward journey. In order to be whole or experience oneness we need to balance our opposite polarities.

The bushman backpack—simple yet sophisticated. Photo by David Cumes.

To connect with the Earth Mother we should not forget she is feminine.

But if a wilderness or outdoor school or travel organization stresses the more goal oriented, macho, and intellectual at the expense of the more feminine, creative, and empathetic, then balance is lost. We need both left and right brain, both sun and moon energy, and both sides of the Tree of Life to truly bag the "peak." This may subconsciously be the reason most of us are driven into wilderness in the first place. We seek to reconnect with the sense of harmony that occurs when we come into contact with our inner being or higher self. Wilderness Rapture is a way to get a glimpse into the great mystery of the universe.

The search for our divine nature requires an awareness that ego is the biggest stumbling block on the tricky road to the higher self. This does not mean we must get rid of ego altogether, only that we should be aware of its limitations.

The difference between the outwardly directed and the inner journey depends on an inner self-awareness or inner truth. The basis of this special awareness or truth is the concept that if one wishes to find true lasting happiness and harmony, one needs to look to another source, and this requires moving beyond the entrapments of ego in the direction of our inner being. This is different to the more outward self-awareness that comes with competence building, wilderness skills, and leadership training. The obligation of most outdoor schools seems to stop at the stage of self-mastery and leadership. A business executive may become more successful in her or his career after such an experience but she or he may not realize the more

The search for our divine nature requires an awareness that ego is the biggest stumbling block on the tricky road to the higher self.... When we are alone we can let go. Nature is impartial and does not judge. There is no longer any need to protect the fragile ego.

life-affirming and self-nourishing feeling that comes with the inner-directed experience. Inner peace occurs in the space of the higher self and this is why Wilderness Rapture is so profound.

The inner journey confirms that when one transcends ego, inner peace results. Christ validated this concept when he said: "He who loses himself [ego self] will find himself [higher self]). This may be one reason the solo experience in wilderness is so meaningful. When we are alone we can let go. Nature is impartial and does not judge. There is no longer any need to protect the fragile ego. An appreciation of this core belief that has existed for millennia can help us attain a more healing and restorative experience in the wild outdoors. **IJW**

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WILDERNESS @ INTERNET

Educating a Dispersed Wilderness Audience— Internet Opportunities

BY LLOYD QUEEN, STEPHEN PEEL, WAYNE FREIMUND, AND PHIL BAIRD

THE RESOURCE OF WILDERNESS HAS STRUGGLED to gain a dedicated and coherent education system. Ideally, such a system would include representation within primary and secondary schools and continuing education programs for professionals. Presently there are no four-year college degrees specifically offered in wilderness management or stewardship and minimal offerings in schools. Thus, the leadership in developing comprehensive wilderness education programs and certification has largely come from within the management agencies as professional training or in the form of continuing education (Porter and Swain 1996).

One element of the struggle for more wilderness higher education programs is the geographic dispersion of students. Higher education systems require a critical mass of interested students and faculty who are sufficiently committed to developing a program (DeLoughry 1995). However, the constraints of physical and intellectual access to higher education are declining. Philosophical and technical changes are providing additional forums for wilderness education to be developed. These changes are leading to increased access to formal education, often facilitated by emerging technology, and they beg several questions: How should we decide whether to take advantage of technology-facilitated learning? How should education be delivered and by whom? What do we know about learning that translates to this new forum? Does this shift in paradigm represent progress? These questions must be considered in a deliberate manner as the opportunity to access a critical mass of formal yet dispersed wilderness students is explored.

The elements needed for successful distance learning—motivated learners, instructors, and capable technology—are quickly becoming a reality within the wilderness interests of academia. One example is the Wilderness Management Distance Education Program (WMDEP) at the University of Montana, Center for Continuing Education, Missoula, Montana 59812, USA. The WMDEP is currently developing five wilderness courses for Internet delivery (www.wilderness.umt.edu). During the 1996-1997 winter quarter at the University of Minnesota, Crookston, MN 56716, USA, a group of 23 students at the Crookston campus enrolled in the Internet course, Management of Recreation Resources.

At Crookston there was a critical mass of interested students and a supportive faculty but a lack of local expertise and time to offer the course in a traditional classroom. The Internet course consisted of three "meetings" per week for twelve weeks, assignments, discussions, and exams. Students and instructors communicated through audio links, websites, newsgroups, e-mail, and digital video. Although the forum had some limiting factors (such as limited real-time video-based interaction), the choice for the students was to take advantage of this offering or forgo the subject matter entirely. The Internet course was successful enough to ensure both further development and a commitment to develop on-line versions of other courses within the program.

Education and Technology

The resistance by wilderness educators to adopting the latest instructional technology is understandable. Seemingly, there is an inherent contradiction between technology and the wilderness ideal. In the minds of some, this has been an obstacle to taking full advantage of the potential benefits digital information technology may offer. Yet, the diffusion of new technology progresses through a life cycle, regardless of the nature of the innovation or of the community through which it passes (Rogers 1962).

According to Gilbert and Geoghegan (1995), the spread of instructional technology (in this case, on-line courses or programs) is determined by many social and psychological factors that pertain to the diffusion of innovation in the use of technology. These factors, assert the authors, have combined to create a chasm between the early adopters and the much larger group of unengaged, mainstream educators. Currently, instructional technology use has achieved virtually the saturation point among early adopters, but has rarely crossed over into mainstream education. Interestingly, most of the innovation in instructional computer networking is occurring at the K-12 and community college levels. For example, although installation of new computers in K-12 schools has increased at a constant rate over the last 10 years, network applications have increased exponentially (Itzkan 1994). Although this may be a function of increasingly diverse student needs, it may be related as well to the basic structure of education. This increased connectivity has clear implications for instruction at the university level.

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Students participate in real-time discussions of wilderness issues while 1,000 miles apart.

For most universities, the support systems in place have been developed for and favor the traditional classroom pedagogy. Traditionally, universities tend to be facilities-heavy with a reward system that discourages innovation. Consequently, the university courses and programs that are offered on-line tend to be those that are technology dependent. A good demonstration of this phenomenon can be seen in the types of courses available through the Internet. Most are in business or information management programs, many offered exclusively by business or professional institutions. Universities offer on-line courses of their own, but most are likewise centered around business management and information technology programs. Courses and programs in traditional liberal arts education subjects follow at a distant third. At the very bottom of the list are on-line courses or programs in environmental science, including forestry and wilderness management.

The urgency for knowledge of wilderness has placed education as a critical wilderness issue (Barnes and Krumpe 1995). However, there are obstacles to communicating information about wilderness issues, including a general lack of public awareness and little organized structure to environmental education beyond the classroom. Likewise, because no medium is a neutral transmitter of information, the effect of computers and the Internet on education depends on its application (Reinhardt 1995; Wang and Sleeman 1994). Of the small but expanding amount of wilderness information available on the Internet, much is informal and of doubtful origin. Although the Internet may serve as a medium for wilderness education, up-to-date, accurate knowledge of wilderness issues requires a more formalized delivery method than that which currently exists. Bringing the advantages of the traditional classroom and distance learning to wilderness education can potentially increase the audience and improve the quality of wilderness instruction. As computer networking technology advances and Internet communication becomes more commonplace, educators will become more willing to invest in the medium, and wilderness courses will undoubtedly become more available and attractive to prospective students.

The Internet's Place in Education

Does the Internet have a valid place within wilderness education? Does the tool facilitate the goals of educators and the aspirations of learners? To address these fundamental questions, we can draw from formal learning theory lessons. Education has been described as a process that converts information into knowledge (Bloom 1956; Charon 1979; Gagne and Briggs 1974; Harris 1995; Jegede 1991; Piaget 1970). These lessons tell us that development of a (distance) education program should be based on applicable theory and should consider the processes involved in knowledge creation. Explicit learning outcomes should be the framework for designing presentation of materials. The material should be relevant, paced, and engaging and should provide students with a diversity of learning opportunities. With the Internet, multimedia resources may be incorporated in order to stimulate ideas and critical thinking. Although on-line courses will never completely replace the classroom experience or correspondence instruction, it can certainly supplement them, especially to reach the student who would otherwise be excluded.

So what is the Internets role in learning? Henderson (1984) asserts: "The way to help students become more effective learners is to broaden their conceptions of what learning is." Laszlo and Castro (1995) predict that learners will work increasingly with interactive learning technologies such as computers and the Internet. They argue that the interactive environment of the Internet can be productive for creating "learners" instead of "knowers." Indeed, the ability to access networked information via the computer may soon become a measure of professional skill (Reinhardt 1995). This reflects a fundamental principle of the "paradigm shift" educators acknowledge is occurring within education—that of teaching learners how to learn (Bates 1991; Berge and Collins 1995; DeLoughry 1995; Donlevy and Donlevy 1995; Jensen and Hino 1995; Scheponik 1995; Sherry 1994; Wang 1994; Woolf and Hall 1995).

Implications and Recommendations

Educational institutions are looking more favorably at on-line education as a legitimate element of their curriculum. For them it means creating a bigger audience for their programs. Advantages for the students include better access to more current information and exposure to a diversity of ideas and instructional styles. On-line classes can also reduce cultural and language barriers—a phenomenon whose significance should not be lost on the international wilderness community (Applebaum and Enomoto 1995). Differences in educational ability may be minimized as well; the computer is non-judgmental, provides immediate feedback, and can be accessed any time, allowing the student to work at his or her own pace (DeVillar and Faltis 1991).

As a working prototype for Internet-based wilderness education, the Crookston experience strongly suggests that we are only beginning to see the potential for distance learning. We note that these students could literally have

participated in this course from any (Internet capable) place in the world. As learners themselves, managers enrolled in such courses could provide real world pragmatism while gaining from the idealistic energy of the college environment. Other students could participate conjointly while doing field work in virtually any part of the world. This diversity enriches the education experience for students while stimulating the instructors as well. The result is a potentially richer learning experience for all involved.

When asked what things were particularly good about the Internet wilderness management course, Crookston students responded:

"The best thing about this course is that we all can read the input from everyone else in the class. [There are] many different viewpoints to each one of the questions."

"I think it is nice to get different perspectives and ideas on management from areas other than Minnesota."

"Being in the news group gives everyone a chance to respond to questions, where in a class setting only one person can reply [at a time]. A shy person can give a response and participate."

"The scenario format is interesting. It makes the class hands-on although we are hundreds of miles away."

"I like to be able to go back to the message postings and review/refresh."

Summary and Conclusions

This case study provides the wilderness community with a glimpse of one important element in the future of higher education vis-a-vis interactive distance delivery The Crookston example illustrates an opportunity for wilderness education that could have broad implications. With proper development and implementation, the Internet forum can help stimulate the wilderness education community and provide a more comprehensive and accessible international education program. Our challenge is to think deliberately and systematically about this opportunity. What types of courses do we need? What are the likely outcomes of these efforts? How should success be evaluated? In spite of the success of the program, it is important to acknowledge the difficulties in engaging in the medium of the Internet. Although a detailed accounting of the pros and cons is more appropriate to a formal case study, there are several areas of concern. These efforts involve technical overhead: the systems must be put in place, training has to be conducted, and the system must be managed. The learning space changes from the classroom that we are all familiar with to a potentially more anonymous and individualistic setting. There are certainly unanswered theoretical questions about the type(s) of learning models most appropriate to this medium. And, evaluation of the course must now focus not just on the content, but also on the efficacy of the transactions that can and cannot occur when doing distance delivery.

The purpose of this article has been to remind us to consider how the presentation of wilderness education can be refined to meet the learners needs in light of what we already know about education and technology. Like World Wide Web developments traditionally highlighted in the "Wilderness @ Internet" feature of this journal, we should recognize that the potential of this medium is just emerging. The philosophical and technical changes that will be wrought by these developments warrant our attention, criticism, and considered review. Taken on balance, the shift toward the adoption of the Internet as a critical part of the wilderness dialog suggests not that it is inevitable, but that we must move carefully and deliberately onward. **IJW**

With proper development and implementation, the Internet forum can help stimulate the wilderness education community and provide a more comprehensive and accessible international education program.

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RECREATIONAL TRIPS TO WILDERNESS

Results from the USA National Survey on Recreation and the Environment

BY H. KEN CORDELL AND JEFF TEASLEY

Abstract: Although it is not the only use of the U.S. National Wilderness Preservation System (NWPS), recreation visits to wilderness are of high value to many people. As part of the 1994–1995 National Survey on Recreation and the Environment (NSRE), a general population sample of nearly 12,000 persons age 16 or older across the United States was asked about its outdoor recreation participation and about recreational trips it took away from home. In describing participation, members of the sample group were asked if they took any trips to wilderness areas. Based on these answers, this article presents national estimates of the number of trips taken to wilderness for recreation by people over 15 years of age in the United States.

THIS ARTICLE PRESENTS RESULTS FROM QUESTIONS about recreation participation that were included in the NSRE. Outdoor recreation participation rates in the United States are first estimated in order to establish context for the recreational role of wilderness. A look at the number of recreational trips taken away from home over the past year and the types of destinations chosen, including wilderness destinations, lends further perspective. Some characteristics of recreationists in general are compared with those who visit wilderness, and some characteristics of people indicating they know of the NWPS are compared with those not aware of the system. The NSRE is the latest in the continuing series of National Recreation Surveys, the first of which was conducted in 1960 (Cordell, et al. 1996).

Participation in Nature-Based Outdoor Recreation

During the 1994-1995 survey period, almost 95% of the U.S. population, approximately 189 million individuals 16 years of age or older, participated in some form of outdoor recreation at some time during the previous 12 months (Cordell, et al. in press). Substantial numbers reported participation in nature-based activities that typically occur away from roads and developed recreation sites (see Table 1).

The activities shown in Table 1 are among those permitted in most designated wilderness areas (though horses and hunting are not allowed in some). Although it was not possible to determine exactly how much of their participation in these activities occurred during visits to wilderness, we did ask about the last recreational trip each respondent took that was 15 or more minutes away from home. For this trip, visits to units within the NWPS were differentiated from other government managed sites.

Outdoor Recreational Trips Away from Home

Of the estimated 189 million outdoor recreation participants over age 15 in the United States, 77% reported that they took one or more recreation trips at least 15 minutes away from home during the 12 months just prior to their interview in 1994–1995 (some 145 million people). Across the four regions of the country, the percentage of respondents taking trips away from home ranged from 73% in the South to 80% in the Rocky Mountains/Great Plains region (see Figure 1).

To characterize recreation trips people took, respondents were asked about their most recent trip taken within the last 12 months. Twenty-nine percent reported the destination of their last trip to be privately owned land, 56% reported their destination was a public (government managed) area, and the remainder did not know the ownership of their destination. Among the four regions, 54% and 56% in the North and South, respectively, indicated their last trip was to a public area. In the West, 58% in the Pacific Coast region and 65% in the Rocky Mountains/Great Plains region said their last trip was to a public site.

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Among persons who said their last trip was to a government managed area, 7.5% reported that the destination area was best described as a national forest, 10.7% reported it was a national park, and 1.7% (± 0.37% at 95% confidence, approximately 1.4 million people) indicated it was best described as an

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Table 1: Percentage and number of Americans age 16 years or older reporting participation in nature-based recreational activities that occur away from roads and developed sites, 1994–1995.

Activities	Percentage and Confidence Interval[1]	Number in millions
Hiking	23.9 ± 0.62	47.8
Orienteering	2.4 ± 0.20	4.8
Backpacking	7.6 ± 0.39	15.2
Mountain Climbing	4.5 ± 0.34	9.0
Rock Climbing	3.7 ± 0.28	7.5
Horseback Riding	7.1 ± 0.39	14.3
Wildlife Viewing	31.2 ± 0.62	62.6
Studying Nature Near Water	27.6 ± 0.62	55.4
Big Game Hunting	7.1 ± 0.39	14.2
Cross-country Skiing	3.3 ± 0.28	6.5
Canoeing	7.0 ± 0.39	14.1
Floating or Rafting	7.6 ± 0.39	15.2

[1] Ninety-five percent confidence interval for a proportion (Agressi and Finlay 1986).

Source: USDA Forest Service and the University of Georgia, National Survey on Recreation and the Environment, 1994–1995.

area of the NWPS (see Table 2). Just over 60% indicated a local or state government destination and about 9% indicated a publicly-owned water body other than a national park, national forest, or wilderness as their last trip destination.

Trips to Wilderness

Descriptions of the most recent trips to wilderness areas provide a cross-sectional representation of the wilderness trips Americans take. This cross-section of wilderness trips was used to develop overall wilderness visitation estimates. In Table 2, percentage estimates of public site visitors reporting their last trip was to an area of the NWPS is shown to vary from a low of 1.1% among residents of the South, to a high of 2.5% in the Pacific Coast region. Nationally, the proportion of all trips to either public or private sites that were taken to wilderness areas was 0.934%. An estimate of the total trips to designated wilderness was estimated by multiplying the proportion of trips to wilderness areas by estimated total trips for all destinations separately for each recreational activity reported as the primary trip purpose by NSRE respondents. For example, nearly 1% of hiking trips was reported as NWPS area trips. Of the 434 million hiking trips among persons age 16 years or older in 1994-1995, 0.934%, or an estimated 4.1 million, was to wilderness areas.

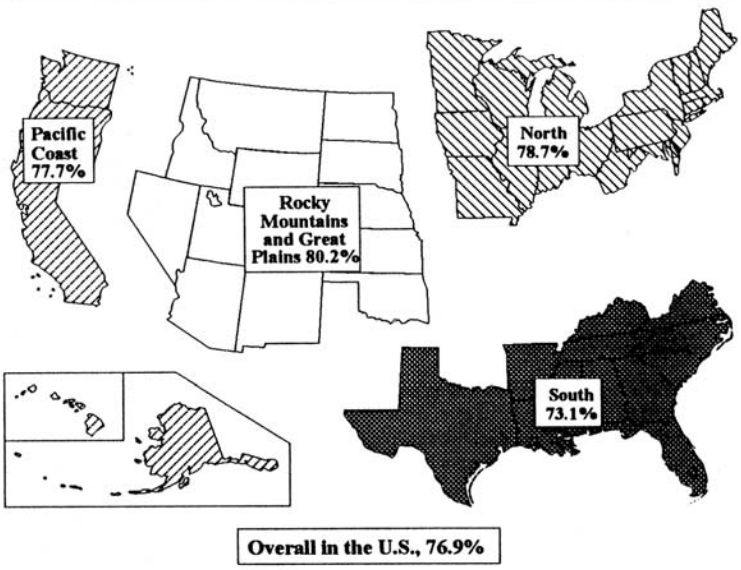

Figure 1.--Percentages of outdoor recreation participants 16 years or older who took one or more trips more than 15 minutes away from home for a recreational activity in 1994-95 by region of the country. Source: USDA Forest Service, National Survey on Recreation and the Environment, 1994-95.

A key assumption of this study is that NSRE respondents correctly knew when their destination site was an area of the NWPS. Accepting this assumption, two estimates of total trips to wilderness were derived. The first is a summation of reported trips to wilderness across all recreational activities allowed by wilderness policy. This included activities whether or not respondents identified them as the primary trip purpose. The second was to sum wilderness trips across only those activities allowed in wilderness that respondents identified as their primary trip purpose. Adjustments were made for hunting and horseback riding as these activities are not permitted in some areas; for example, hunting in national park wilderness. The adjustment was to decrease the estimate for these two activities by the proportion of the NWPS total area that is in national parks in the lower 48 states.

Across all permitted activities, the estimate of total trips to wilderness areas was 34.7 million trips (±7.8 million, the 95% confidence interval) during the 1994-1995 survey year. Focusing only on permitted activities specifically identified by respondents as primary purposes for wilderness trips, we derived a lower bound estimate of 15.7 million trips (with a 95% confidence interval of ± 3.5 million) . Activities comprising this latter estimate included only horseback riding,

Table 2: Percentage and number of Americans age 16 years and older who visited a government-managed recreation site during their last trip by region, 1994–1995.[1]

	National Estimates of Population Taking Trips to Public Sites		Regional Estimates of Population Taking Trips to Public Sites (Percentage and 95% CI)			
Type of Government Managed Destination	Percentage and 95% CI (n=4502)	Millions	North (n=2035)	Pacific Coast (n=755)	Rocky Mtn./ Great Plains (n=398)	South (n=1315)
Local or State Park, Resort or Other Site	60.3 ± 1.43	49.5	66.8 ± 2.05	50.0 ±3.57	45.0 ±4.89	61.1 ± 2.64
National Forest	7.5 ± 0.77	6.2	4.3 ± 0.88	11.7 ± 2.29	20.1 ± 3.94	6.2 ± 1.30
National Park	10.7 ±0.90	8.8	8.0 ± 1.18	15.8 ±2.60	13.9 ±3.40	11.0 ±1.69
Wilderness Area	1.7 ±0.37	1.4	1.8 ± 0.06	2.5 ± 1.11	1.6 ± 1.23	1.1 ± 0.56
Other Federal Areas	2.4 ± 0.45	2.0	1.8 ± 0.06	2.0 ±0.99	4.4 ±2.01	3.0 ±0.92
Other Public Water Body	9.4 ± 0.85	7.7	8.8 ± 1.23	11.7 ± 2.29	9.2 ±2.84	9.1 ±1.55
Didn't Know	7.9 ± 0.79	6.5	8.5 ±1.21	6.3 ± 1.73	5.9 ± 2.31	8.4 ± 1.50

[1]Respondents were asked to recall the last recreational trip they took that was 15 or more minutes from home. The last trip taken prior to a respondent's interview was the trip sampling convention used in the NSRE. The above estimates of persons taking trips to government managed destinations are sample sums weighted to reflect population-level numbers.

Source: USDA Forest Service and the University of Georgia, National Survey on Recreation and the Environment, 1994–1995.

hiking, backpacking, mountain and rock climbing, wildlife viewing, hunting, fishing, and a miscellaneous few other activities. The larger estimate, 34.7 million annual trips, added visiting prehistoric sites, bird-watching, studying nature near water, cross-country skiing, small game hunting, warm- and cold-water fishing, and white-water floating.

The two estimates of recreation trips away from home to visit wilderness areas provide a lower (15.7 + 3.5 million) and an upper (34.7 ±7.8 million) bound estimate of national-level wilderness visitation. Although neither of these point estimates is embraced by the 95% confidence interval of the other, it seems likely that the 1994–1995 level of NWPS visits lies somewhere between them as almost all activities that occur legally in wilderness are accounted for in their computations.

Nonmotorized, nature-based activities, such as wilderness backpacking, are increasing in demand among recreationists. White Cloud Peaks, Idaho. Photo by John C. Hendee.

Table 3: Percentages and means for Americans age 16 years or older by personal or recreational characteristic and by type of government managed site they visited on their last trip, 1994–1995.

Personal or Recreational Characteristics	Local or State Area	Federal Lands Not in NWPS	Federal Wilderness Areas	Other Reservoir, River or Ocean Not in NWPS	Refuse/ Don't Know
Percent under 35 Years	43.0 (A)[1]	42.3 (A)	39.0 (A)	38.3 (A)	45.1 (A)
Percent Female	50.0 (A, B)	43.0 (B, C)	40.2 (C)	44.5 (B, C)	55.4 (A)
Percent White	83.2 (B)	88.7 (B)	94.5 (A)	86.9 (B)	82.9 (B)
Percent with 16 or More Years of Education	33.9 (A, B)	40.4 (A)	40.8 (A)	28.9 (B)	31.5 (B)
Mean Number of People in the Household	3.03 (A)	2.93 (A)	2.76 (A)	2.81 (A)	2.83 (A)
Mean Number of Activities Participated in During Last 12 Months	16.74 (B)	18.53 (A)	18.39 (A)	16.87 (B)	15.69 (B)
Mean Number of Days per Activity	18.17 (B, C)	17.25 (C)	25.64 (A)	20.96 (B)	20.15 (B, C)

[1] Different letters indicate means that are significantly different.

Source: USDA Forest Service and the University of Georgia, National Survey on Recreation and the Environment, 1994–1995.

Characteristics of Persons Taking Trips to Wilderness

Persons who indicated they had visited a wilderness area in the last year were compared with visitors to other government managed recreation sites. This comparison was across a number of personal or recreational attributes using Duncans Multiple Range Test at the 0.05 level of significance (see Table 3). The percentage of people under age 35 years is not significantly different between the four types of government managed sites. The percentage who are female is significantly higher at local and state areas at about 50%. The percentage of white participants is significantly higher at wilderness areas. The average numbers of persons in the household were not significantly different. Visitors to wilderness and other federal lands are among those who participated in the highest number of recreational activities across the year. Wilderness visitors participated in their chosen activities on average more days per activity per year than did visitors to other types of sites.

Survey respondents were also asked whether or not they were aware of the NWPS. A smaller percentage of those aware of the NWPS were under age 35 (33% vs. 53%). Only a slightly larger percentage of those aware of the system were white (88% vs. 85%), but a larger percentage had 16 or more years of formal education (40% vs. 25%). People aware of the NWPS also participated in more recreational activities, 19 vs. 17, over the course of a year.

Discussion

The NWPS of the United States is the largest protected wilderness land base in the world at nearly 105 million acres. Among other purposes, it provides diverse and often very challenging settings for outdoor recreation. From the estimates reported in this article, at least 1.4 million persons 16 years of age or older take advantage of this opportunity each year by taking recreational trips to visit a wilderness area. Across this nation's population 16 or older, an estimated 15.7 to 34.7 million trips are made to designated wilderness annually for a variety of recreational purposes. Compared with people who reported visiting other types of government managed sites on their last trip away from home, visitors to wilderness areas are about the same age, though much higher proportions are white, and they have spent more time involved in recreational activities than other outdoor recreationists.

Recreation participation in the United States continues to grow both in terms of the numbers of people who participate and in terms of the number of days and trips participants devote to their chosen activities (Cordell et al. in press). While unreliable visitation statistics leave it unclear whether recreational use is increasing per unit of area in designated wilderness (Loomis et al. in press), growth trends in activities consistent with wilderness use restrictions indicate a growing demand for settings for nonmotorized, nature-based activities. It seems likely that the estimated 15.7 to 34.7 million trips people take annually to recreate in wilderness will also rise.

Wilderness visitors are not a representative cross section of the U.S. public and often have been cited by wilderness opponents as "elitists." The point is—

whether people are wilderness visitors or RV campers—there is a need to consider the recreational lifestyles and preferences of all recreating "publics." Through management activities that provide access within designated wilderness, a significant segment of the U.S. public is being served.

As the political and social climates in the United States change, there will be an increasing need to have good information and defensible data describing outdoor recreation, including visits to wilderness, one of the NWPS's more visible values. Currently, the managing agencies and interested organizations seem to have too little in the way of staffing or funding to monitor use levels accurately. However, recent interest in better and more credible information about outdoor recreation use should give rise to greater emphasis on improving wilderness recreation use data in the near future. The estimates of the number of recreational trips people take to wilderness provided in this article represent one effort to improve our knowledge and understanding of the recreational role of wilderness in the United States. **IJW**

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CULTURAL INFLUENCES ON WILDERNESS ENCOUNTER RESPONSES

A Case Study from Finland

BY JARKKO SAARINEN

Abstract: During the summer of 1992, backpackers were interviewed in Urho Kekkonen National Park in northeastern Finland. As the Finnish Forest and Park Service prepares to deal with increasing numbers of users at this park, knowledge is needed about how visitors respond to encountering other people in various places within the park. For these backpackers, response to encounters with other people is dependent upon whether the encounter is in wilderness or frontcountry zones, the size of group encountered, and whether the group encountered is foreign or from Finland. Most important, a strong majority of visitors indicate that interaction with other backpackers is generally a pleasurable experience and one to which certain cultural customs apply.

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DURING THE 1970s AND 1980s, Finland and other Scandinavian countries perceived increasing ecological and social problems related to promotion of recreation use and nature-oriented tourism in national parks and conservation areas. With Finland's recent membership in the European Union, growing inter-Union tourism marketing, and the likely consequence of increasing foreign tourist visitation to the country, there is concern about increasing conflict between tourism interests and traditional use of protected areas by native Finnish people.

Lake Luirojarvi—the "pearl" of Urho Kekkonen National Park. Sokosti fjelds in the background. Photo by Jarkko Saarinen.

In many places around the world the concept of recreation carrying capacity has been used to determine appropriate levels of use for an area while maintaining a sustained quality of recreation (Stankey, McCool, and Stokes 1990; Wagar 1964). The concept has been applied in many places in the United States, but application can sometimes be quite complex, particularly within contexts where it has not previously been applied. The concept is geographical in nature: it is always associated with a specific area. The carrying capacity may differ from one area to another and may vary across zones within the same area (Clawson and Knetsch 1966; Hammitt and Patterson 1991; Stankey 1982). In addition, the concept of recreation carrying capacity is based upon judgments about likely human experience outcomes, which may depend on the past experience and cultural background of those making the judgments. Thus, we cannot examine and measure recreation carrying capacity directly from the physical, phenomenal environment, but rather we must assess the "behavioral environment" (Kirk 1963) (i.e., the perceived and cognitive environment for the population of interest) (Jackson 1989).

For these reasons, carrying capacity judgments may be deeply dependent upon the cultural context of the judgments and how people relate to specific places. People create the context and a sense of the place in question by connecting the physical setting, the activities, and the meanings of place together with their past experiences and future expectations (Relph 1986; Tuan 1974). The structures of these expectations are based on the personal, and possibly the societal, historical

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accumulation of past experiences with the place (Moore and Graefe 1994; Watson, Roggenbuck, and Williams 1991), and this can lead to very different evaluations of social conditions encountered at recreation places.

Evaluating Recreational Use Encounters

An alternative to simply summing individual responses to hypothetical encounter levels to determine the carrying capacity of a place may be to develop greater understanding of the basis for normative judgments about social interaction that occurs during an encounter. Norms have typically been defined by asking respondents to indicate the range or maximum level of acceptable encounters, and the distribution of these responses are then examined. The need, however, is to understand how visitors evaluate an encounter based on the context of that encounter. The popular literature on human interactions in Finnish forested environments offers one source for developing understanding of social expectations about encounters in a specific context. Such literature can provide some insight and help establish hypotheses about the cultural context for the social interaction.

Solitude, or privacy, is an acknowledged desirable state among wilderness backpacking motives in most places (Hendee, Stankey, and Lucas 1990). However, in the popular Finnish backpacking literature, interpersonal interaction in the backcountry is commonly a positive thing, and the anticipation of a positive interaction may be a cultural norm itself. In an encounter situation each backpacker is expected to greet the other and stop for a brief or even longer conversation (Kemppinen 1967, 1975; Vuoristo 1983). In wilderness settings social interaction with similar others may be interpreted as satisfying the need for security, which may serve to strengthen the sense of belonging together. This sense is believed to be the force behind expression of common motives, attitudes, and values among recreational users. Thus, in Finland particularly, a contact between Finnish backpackers is usually expected to be a pleasant and warm experience when two or more like-minded persons meet each other (Kemppinen 1966, 1967, 1975; Kojo 1977).

Perceived differences in motives, attitudes, and values among different types of visitors, however, have been reported to cause conflict in U.S. research (Ajzen and Driver 1991; Jackson 1986; Jackson and Wong 1982; Knopp and Tyger 1973). The more alike encountering groups are, the less likely they are to annoy each other (Shelby and Heberlein 1984). Ramthun (1996) further stresses the importance of stereotypical evaluations of "outgroups" to feelings of conflict: An individuals perception of a social situation, and distinction between those people who are like him or her and those who are not. These differences are expected to be contributing to conflict in Finnish backcountry encounters as well (Watson and Kajala 1995).

Table 1: Preferences for Encounters in Urho Kekkonen National Park, Finland, 1992.

	Nonwilderness Zone N	Nonwilderness Zone %	Wilderness Zone N	Wilderness Zone %
Prefer to Contact Other Visitors	155	79.1	78	78.0
Prefer Not to Contact Other Visitors	20	10.2	18	18.0
Does Not Matter	21	10.7	4	4.0
Total	196	100.0	100	100.0

$X^2 = 6.68$, df = 2, p = 0.035

Table 2: Encounter Behaviors in Urho Kekkonen National Park, Finland, 1992.

Coping Behavior		Nonwilderness Zone N	Nonwilderness Zone %	Wilderness Zone N	Wilderness Zone %	
Purposefully Avoid Talking to Backpackers Outside Your Own Party on the Trail	A/U	22	12.4	5	5.6	$X^2=3.35$
	S	23	12.9	10	11.2	df=2
	S/N	133	74.7	74	83.1 5	p=0.188
Initiate Greeting to Other Visitors	A/U	140	79.1	66	74.2	$X^2=1.25$
	S	28	15.8	19	21.3	df=2
	S/N	9	5.1	4	4.5	p=0.534
Initiate Social Interaction with Backpackers in Other Parties	A/U	65	36.7	41	46.1	$X^2=7.57$
	S	64	36.2	37	41.6	df=2
	S/N	48	27.1	11	12.4	p=0.023

A/U = Always/Usually S = Sometimes S/N = Seldom/Never

The literature also suggests some potential cultural influence on reaction people have to sizes of groups encountered in backcountry settings. Watson, Williams, Roggenbuck, and Daigle (1992) reported that a majority of wilderness users at some places in the United States were accepting of meeting several groups of six people each day while hiking. According to Kemppinen (1966, 1967) and Kojo (1977), the maximum group size in a Finnish wilderness setting should be four persons, and a more desirable size is two or three persons. In nonwilderness settings the appropriate group size can be larger, with as many as 10 persons per group.

On the basis of what we find in previous research and the popular literature, we can hypothesize that in Finnish recreational settings (a) backpackers will have positive attitudes toward meeting similar others, (b) attitudes toward contact with other user groups may be culturally contingent—there are traditional ways to respond to encountering other backpackers, (c) acceptability of encountering large groups may vary across types of management zones, and (d) evaluations of encounters with other groups may be influenced by perceptions of "outgroup" memberships for those encountered.

Urho Kekkonen National Park: A Case Study

The Urho Kekkonen National Park in northeastern Finland was established in 1983. It is the second largest national park in Finland (2,550 sq. km) and the most heavily visited. In 1992 approximately 200,000 people visited the park (Hokkanen 1994). The park is administratively divided into four management zones, each with its own specific rules. Generally, the frontcountry zone is more regulated, developed, and crowded than the three wilderness zones. As early as the 1970s there were some reports of conflict between native Finnish visitors and foreign tourists in the park when differences in attitudes toward use of trailside huts surfaced (Haljoki 1973).

Data were collected during the summer of 1992 through a combination of personal interviews and on-site questionnaires. A total of 311 Finnish visitors were contacted in the park at the hikers' huts (on sample days, every third domestic visitor to arrive was interviewed). There were 24 sample days in the nonwilderness and 22 days in the wilderness zones of the national park.

Attitudes toward meeting other visitors along the trails were measured by asking the respondents whether they would prefer meeting no other backpackers or whether they preferred to encounter a few small groups during a day of hiking. Respondents could indicate "it makes no difference." The respondents were asked to indicate how frequently they "purposefully avoid talking," "initiate greetings," and "initiate conversation" with backpackers outside their own party. Respondents were also asked to indicate how they feel about encountering certain types of visitors, including "domestic," "foreign," "groups of two to three persons (domestic and foreign separately)," and "groups of more than 10 persons (domestic and foreign separately)."

The physical location of the encounter did influence preference for contacts (see Table 1) and willingness to initiate social interaction (see Table 2). Although the majority (nearly 80%) expressed preference for some level of contact with others, twice as many of the minority did not want contacts in the wilderness zones. Backpackers were more active (46%) in starting social interaction in the wilderness zones where the pressure of recreational use and the number of encounters are lower than in the nonwilderness zone. We can assume that in more crowded areas, social coping behavior is more common than in wilderness or wildernesslike areas. High-use areas may also attract less experienced visitors who are less familiar with tradition (Hall and Shelby 1996) and users of those areas might not be as homogeneous as those in more remote environments.

Table 3: Effect of Different User Groups in Encounter Situations in Urho Kekkonen National Park, Finland, 1992.

User Group		All Respondents N	All Respondents %	
Individual Domestic Backpacker	Pleasant	236	78.4	
	Neutral	65	21.6	
	Unpleasant	0	0	
				p = <0.001
Individual Foreign Backpacker	Pleasant	172	57.0	
	Neutral	129	42.7	
	Unpleasant	1	0.3	
Group of Two to Three Persons, Domestic	Pleasant	150	49.8	
	Neutral	145	48.2	
	Unpleasant	6	2.0	
				p = 0.005
Group of Two to Three Persons, Foreign	Pleasant	120	39.7	
	Neutral	164	54.3	
	Unpleasant	18	6.0	
Group of More Than Ten Persons, Domestic	Pleasant	25	8.3	
	Neutral	111	36.8	
	Unpleasant	166	55.0	
				p = 0.317
Group of More Than Ten Persons, Foreign	Pleasant	36	11.9	
	Neutral	110	36.4	
	Unpleasant	156	51.7	

"Pleasant" = connected classes 1 and 2, "Neutral" = class 3, and "Unpleasant" = connected classes 4 and 5

Attitudes toward contact with individual backpackers (a majority considered it pleasant) and small and large groups (large groups were less pleasant) were as expected (see Table 3). The different reactions to domestic and foreign backpackers is more difficult to interpret (see Table 3). In general, interaction with foreign visitors is less often pleasant. Contacts between backpacker groups of up to three people, however, are rated as either pleasant or neutral. They are seldom "unpleasant" experiences. Generally, the normative call for greetings and interaction presumes a common language. Owing to language barriers, it is more difficult to establish warm social contacts or any contact at all with foreign visitors.

There were no differences between encountering large domestic or large foreign groups. Some respondents indicated that contacts with large groups are disturbing because of the noise and feelings of crowding during the encounter situation. Thus, if contacts are unpleasant as a result of the group size, the significance of a common or nonshared language is probably less important than in the case of individual backpackers and smaller groups. Therefore, response to large groups was rather similar regardless of language.

There were no major differences in evaluations of encounters across zones. The more negative evaluation of large groups in the wilderness zones provides some evidence of environment-specific norms (see Table 4). Generally, however, when group size is within normative levels, encounters are positive.

Summarizing Lessons Learned

Saarinen, Kajala, Sippola, and Hallikainen (1995) suggested that there may be unique considerations for management of wilderness and other protected areas in Finland due to historic relations between the people and the land. Backpacking—one of the growing activities in these places—in the Finnish context seems to be much more of a social experience than an individual activity. This simple notion raises some question about how to proceed with social carrying capacity determinations in Finland. The social aspects of backpacking and wilderness recreation activities are recognized, but most past research has approached the subject from the individualistic point of view. If the recreation carrying capacity and encounter behavior norms are social in nature, we should not attempt to explain them only by psychological means (Durkheim 1963) but should advance to group or subpopulation indicators, much as the need exists in the area of social value conflict investigation (Watson 1995). This does not mean that we should ignore individual norms, interpersonal conflict, and recreation carrying capacity issues. Rather, it means that we need to focus more on the relationship between individuals and social groups. There also seems to be a need for new tools in social carrying capacity research. For example, if we consider that social interaction itself and the social practices related to it are normative in nature, what obligations and sanctions exist? These components are difficult or even impossible to identify in a quantitative manner, as investigated in this study. They are probably symbolic and abstract rather than concrete objects. Therefore, we need to use more sensitive research methods that give

Hikers on the trail to Rumakuru hut where crowding is a problem during the spring and autumn seasons. Photo by Jarkko Saarinen.

Table 4: Attitudes Toward Contact with Different User Groups in Urho Kekkonen National Park, Finland, 1992.

User Group		Nonwilderness Zone		Wilderness Zone		p-value
		N	%	N	%	
Individual Domestic Backpacker	Pleasant	150	100.0	86	100.0	0.999
	Unpleasant	0	0	0	0	
Individual Foreign Backpacker	Pleasant	109	99.1	63	100.0	
	Unpleasant	1	0.9	0	0	0.636
Group of Two to Three Persons, Domestic	Pleasant	91	96.8	59	95.2	
	Unpleasant	3	3.2	3	4.8	0.440
Group of Two to Three Persons, Foreign	Pleasant	73	86.9	47	87.0	
	Unpleasant	11	13.1	7	13.0	0.598
Group of More Than Ten Persons, Domestic	Pleasant	20	17.1	5	6.8	
	Unpleasant	97	82.9	69	93.2	0.029*
Group of More Than Ten Persons, Foreign	Pleasant	27	22.3	9	12.7	
	Unpleasant	94	77.7	62	87.3	0.070

*The scale is dichotomized by connecting classes 1 and 2 together, as well as 4 and 5, and by disregarding the option 3 (no effect). P-values are results of Fisher's Exact Test.

us a chance to interpret and understand the meanings and structures of social interaction in different environments.

In this study the attitudes toward different user groups were found to depend on tradition and expectations for social interaction. These factors are not independent; the tradition generally regulates social interaction, and interaction causes and strengthens the tradition. In the future it seems desirable to develop greater understanding of social meanings and their relationship to social norms. Although this approach suggests the need for a more qualitative approach, there is a need for continued application of established quantitative research methods to measure and demonstrate that there are trends and causality in norms related to carrying capacity issues. What their meanings are to visitors in specific situations may be, however, a question for more qualitative research. **IJW**

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ECONOMIC VALUE OF WILDERNESS IN NAMIBIA

BY JONATHAN I. BARNES

Abstract: Wilderness exists, de facto, in Namibia, though threatened by rapidly growing, poor, rural, human populations. Economic development is a high priority. In the long term, the continued existence of wilderness will depend on its ability to contribute competitively to development. In this article, wilderness is described in terms of its total economic value (as opposed to economic impact), comprising use values (direct and indirect), and nonuse values (option bequest, and existence). Although rural Namibians place high importance on use values, the international community places much higher importance on the nonuse values of Namibian wilderness. The allocation of land for wilderness must ensure that either high domestic use values or high international nonuse values can be captured as income by rural communities.

NAMIBIA IS A POORLY DEVELOPED NATION with markedly unequal asset and income distribution. Most people live under communal land tenure in rural environments, are poor, and struggle to meet their basic needs. Human populations in the rural areas of Namibia double about every 30 years. A very high priority must be put on the generation of income among the poor, rural majority. In the past, people in the communal lands tended to view wildlife and wilderness negatively because they were unable to derive any benefits from them. Recent policy and legislative developments allow for the transfer of property rights for management and use of wildlife and associated resources to local communities. This local empowerment process is aimed at providing incentives for conservation and eliminating overexploitation of wildlife and other resources due to open access.

Nearly all lands designated for conservation in Namibia have an opportunity cost in that they could be used for other purposes by which income could be generated. Land zoned for parks or wildlife core areas have the physical potential to be used for traditional livestock keeping, livestock production, and, in a few places, crop production. In the future, retention of these lands for wildlife and nature conservation depends on their ability to generate higher tangible economic value under conservation than under alternative uses.

In the same vein, wilderness zones within conservation areas have opportunity costs in that many of them could be used for more intensive wildlife uses involving, for example, motorized tourism, hunting, or wildlife cropping. In the long term, as human population pressures and demands for development increase, wilderness areas will be converted to more intensive or alternative uses unless they are perceived to have high value by Namibians, and in particular by rural society. So far, wilderness in Namibia has tended to occur de facto rather than as a result of deliberate planning.

Table 1 describes some characteristics of economic values likely to be associated with Namibian wilderness. The importance of each component of wildernesss economic value as perceived by people in rural Namibia, by Namibian society as a whole, and by the global international community is shown. Most notable in Table 1 is the inverse relationship between the importance that rural Namibians are likely to place on the values and the importance that global society would place on them.

Article author Jonathan I. Barnes. Photo by Beth Terry.

Elephant in a Caprivi region park setting, Caprivi Game Park, Namibia. Photo by Peter Tarr.

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Table 1: Some likely characteristics of the types of economic value likely to be associated with Namibian wilderness lands.

	Type of Value				
	Use Values		Nonuse Values		
	Direct	*Indirect*	*Option*	*Bequest*	*Existence*
Ease of measurement?	Good	Moderate	Poor	Poor	Very poor
Available data?	Some	Little	None	None	None
Realize as income?	Easy	Not easy	Difficult	Difficult	Difficult
Likely importance to:					
Rural Namibians	Very High	High	Low	Low	Low
All Namibians	High	High	Moderate	Moderate	Moderate
Global Society	Low	Moderate	High	High	High

Also of note is the suggestion that high nonuse values, perceived globally, are difficult to capture as income.

Data from Barnes (1995a, 1995b) suggests that the direct use values associated with wilderness in Namibia, referred to in Table 1, are dominated by financial expenditures of hiking tourists. On some communally controlled land small amounts of consumptive resource use (of bush foods, bush products, wood, game, and fish) also take place in areas that qualify as wilderness. Regarding the income from tourists, evidence from Barnes (1996) and Barnes, et al. (1996) suggests that the prices set by government for use of wilderness trails are below the maximum levels that users would be willing to pay. Any positive difference between the actual benefit received from a product and the actual price paid for it is known as the consumer surplus. Consumer surplus is realized as unpaid-for benefit and not as income, and if it is realized by foreigners, it is lost to Namibia altogether.

If international nonuse values for preservation of Namibian wildlife and wilderness are significant, it appears difficult for them to be captured as income. The nonmarket nature of the values is the problem, and many of the people who perceive these values will never visit Namibia. Willingness to pay for preservation needs to be captured via funds, taxes, and other mechanisms and transferred to landholders who are investing land and resources in wild land preservation. This investment presently takes place in the form of grants from international nongovernmental organizations to Namibian ones, such as the Save the Rhino Trust, and in the form of international aid from, for example, United States Agency for International Development (USAID) to the Namibian Community-based Natural Resource Management Programme (NCNRMP). As income, however, these transfers are inefficient. Experience in Namibia (Jones 1996) shows that only 20% of aid money for the NCNRMP ends up actually reaching landholders, and the flows of money tend to be temporary and unsustainable.

Gemsbok in a Kunene region park setting, the Skeleton Coast Park, Namibia. Photo by Peter Tarr.

Economic Values of Namibian Wilderness

There is likely to be wide variation in the total economic value of different wilderness areas. For example, Brandberg Mountain has characteristics of scenic beauty, endemic wildlife and vegetation, uniqueness, suitability for hiking or mountaineering, and low alternative value for other uses. The use of Brandberg as a unique hiking or mountaineering destination has high direct value. Also the well-known, unique, natural characteristics of Brandberg mean that its nonuse values are likely to be high. The vast dune sea in the south of Namib-Naukluft Park is effectively a wilderness and can also be described as having high nonuse values. A very small wilderness zone within one of the parks in the Caprivi region could have a much higher total economic value per unit area, due to its great biotic richness and potential for intensive hiking tourism. A fairly large wilderness area embracing Burkea Woodland in the north-central Kalahari sandveld of the Kaudom Game Park would be likely to have much lower value due to its relatively poor biotic diversity, monotonous scenery, and lower potential for attracting hikers.

Wilderness economic value will vary depending on the inherent quality of the site and on land use patterns in and around the site. For direct use values there is likely to be an optimal size for a wilderness area, beyond which the values per unit of land from recreation and consumptive uses begin to diminish. Similarly, the indirect use value of wilderness as a core area from which dispersal of wildlife takes place has

an optimal value dependent on the size of the wilderness and the surrounding land uses. Results from research on nonuse values of wilderness in North America (Godfrey and Christy 1992) and of wolves in Sweden (Boman and Bostedt 1995) suggest that there is an optimal size, based primarily on ecological considerations, beyond which these values can diminish rapidly.

Wilderness Use Values

Profiles depicting estimates of current and potential direct use values of wildlife resources have been prepared for communal land and adjacent parks in Caprivi and Kunene regions in Namibia (Barnes 1995a, 1995b). Economic models were developed for wildlife use activities and aggregated using numbers of units (lodges, households, enterprises, etc.). The models measure the inherent financial profitability of the activity as well as (through shadow pricing) the economic contribution of the activity in terms of net national income. For each of 35 zones in these regions, the net economic contribution of wildlife use to the economy was measured, as were the benefits accruing to resident communities. In some of the zones de facto wilderness subzones are present. These subzones are associated with "natural area" and "multiple use" subzones.

Profiles from four selected zones have been used to derive estimates of potential, direct, and indirect use values (in terms of the net contribution to the economy or national income) for the wilderness components of the zones. The selected zones are the "eastern core area" of the West Caprivi Game Park (Caprivi region, park setting), the eastern part of the "multiple use area" of the West Caprivi Game Park (Caprivi region, communal land setting), the Skeleton Coast Park in the vicinity of the Uniab River (Kunene region, park setting), and the Uniab River catchment (watershed) adjacent to the Skeleton Coast Park (Kunene region, communal land setting). Table 2 shows these estimates, which can be assumed to be fairly typical of the better quality wildlife areas found in the northeast and northwest.

The results in Table 2 suggest that the economic use values of wilderness in Namibia are likely to be dominated by indirect values. These indirect use values are dependent on wilderness being associated with large tracts of surrounding natural land that can be used more intensively for tourism and consumptive wildlife use. If wilderness areas were to be much larger than those in Table 2, similar net benefits would be attributable to more land, and the average use values per hectare would be lower.

Table 2: Estimates[1] of potential economic use values for four typical potential wilderness areas in Namibia.

Wilderness Area	Extent	Economic Use Value (N$/Hectare)	
	(Hectares)	*Direct[2]*	*Indirect[3]*
Woodland/Floodplain Habitat			
Caprivi Region (Park Setting)	30,000	1.45	4.33
Caprivi Region (Communal Land Setting)	60,000	0.68	1.36
Desert/Semidesert Habitat			
Kunene Region (Park Setting)	70,000	0.54	1.63
Kunene Region (Communal Land Setting)	100,000	0.99	2.99

[1]Average annual net contribution to the national income per hectare, derived primarily from empirical financial and economic enterprise models (Barnes 1995a, 1995b).
[2]Direct use value derived mainly from guided hiking trails.
[3]Indirect use value derived from lodge-based tourism and consumptive resource uses in surrounding "natural areas" or "multiple use areas"; which uses are attributable to the presence of the wilderness.

In a study on the economic characteristics of demand for wildlife-based tourism in Namibia (Barnes, et al. 1996) tourists were systematically sampled at a variety of private and state controlled destinations. A contingent valuation bidding technique was used to solicit maximum willingness to pay for a return trip of a similar nature. Respondents were asked for their total trip cost, whether they would

Table 3: Main attractions inducing wildlife-based tourism visits in Namibia (named by 750 tourists surveyed).

Attraction Named	Number of Responses	Percent
Unique, Unspoiled Nature/Landscape	252	26.8%
Wildlife/Animals	161	16.5%
Etosha National Park	88	9%
Dunes/Namib Desert	77	7.9%
Game Parks/Natural Resorts	31	3.2%
Others (40 Attractions, Each with < 30 Responses)	368	36.6%
Totals	977	100%

The Fish River hiking area in the Ai-Ais/Hunsberg Reserve Complex, Namibia. Photo by Peter Tarr.

Wilderness must be planned in a way that ensures that its total economic value, realizable by both local land holders and society as a whole in Namibia, is higher than the value of alternative nonwilderness land uses.

return on a similar trip, and if so (94% said yes), what level of trip cost would prevent them from returning. The results suggest that the average wildlife tourist in Namibia derives a consumer surplus amounting to some 26% of her/ his cost, or about US$110 (N$550) per tourist trip. Some 70% of tourists are foreign, so most of this surplus is lost to Namibia.

Barnes (1994), Ashley, et al. (1994), and Barnes and de Jager (1996) compared the economic value of livestock production and wildlife use on commercial ranches in Botswana and Namibia. Their findings suggest that the use values in Table 2 exceed the values attainable from commercial livestock production in these remote parts of the country. It is not clear to what extent they would exceed the values of traditional livestock keeping, however, as this is dominated by nonmarket values that are difficult to measure. Opportunity costs are likely to be much higher in the less arid Caprivi region than in Kunene.

Nonuse Values

Only minor research on nonuse values has been done in South Africa. Oellermann, et al. (1994) used a bidding technique to survey the willingness to pay to prevent flooding of the Wakkerstroom Wetland (a small wetland) in Mpumalanga province, South Africa, among 50 members of the local Wakkerstroom Natural Heritage Association. Median willingness to pay for option values was between US$3.40 (N$17) and US$4 (N$20) per month. For existence and bequest the median willingness to pay was between US$3 (N$15) and US$3.60 (N$18) per month. There was a positive relationship between willingness to pay and income levels, and a negative relationship between willingness to pay and family size.

Holland (1993) conducted a detailed survey of 246 visitors to four protected areas (recreation areas and game reserves) in KwaZulu-Natal Province, South Africa, using a bidding technique to elicit their nonuse values for the sites. One of these sites was the Royal Natal National Park, in which tourism use, although intensive, is restricted to nonmechanized activities. Results suggested that visitors were willing to pay US$3 (N$15), US$1.40 (N$12), and US$1.4 (N$12) per month to a fund for the option to use, bequest value, and existence (respectively) of this park. The total annual nonuse value perceived by visitors was calculated to be US$77,800 (N$389,000), which amounted to US$8.60 (N$43) per hectare of park.

The closest we get to identifying nonuse values for wilderness in Namibia is from examining results of the general wildlife-based tourism demand survey referred to above (Barnes, et al. 1996). The survey sample of 750 tourists from the general tourist population was asked to name the main attraction(s) that had induced them to take the trip in Namibia; 977 responses were recorded, involving 45 different attractions. Table 3 shows the results suggesting that sentiments for wilderness preservation are important.

In the survey tourists were asked if they would be willing to pay toward a special conservation trust fund that would be used directly in "conserving and protecting wildlife in Namibia." Out of 683 responses, 494 (72%) said yes and 190 (28%) said no. Those who had said yes were asked in an open-ended question to state how much they would be willing to pay. Three hundred and thirty one respondents gave an amount, the mean of which was US$28.80 (N$144) per trip (standard deviation = 162). The mean willingness to pay for the whole sample of 750 tourists (including the 28% who would not pay anything) was calculated to be US$20.80 (N$ 104) per trip. Since the average tourist did not make more than one trip per year, this amount can be assumed to be per tourist, per annum.

This willingness to pay to a conservation fund is a measure of the nonuse value of wildlife in Namibia as perceived by the leisure tourist. It amounts to 4.8% of the mean total trip expenditure within Namibia for the tourist sample. If we can assume that tourism in and around wilderness areas involves similar nonuse values, then it can be calculated that non-use values associated with the use values in Table 2 are

between 15% and 25% of these. This estimate, of course, is restricted to nonuse values perceived by the actual tourist for the wilderness areas and surrounding natural lands. It does not include any nonuse values held by non-users in Namibia and elsewhere. To the extent that the nonuse value of tourists could supplant consumer surplus use value, some or all of the willingness to pay for a conservation fund could also reflect use values.

Economic Values and Policy Planning

Irland (1988) gives a good argument for the use of economics in wilderness planning in North America. Development pressure in Namibia makes it essential. Wilderness must be planned in a way that ensures that its total economic value, realizable by both local land holders and society as a whole in Namibia, is higher than the value of alternative nonwilderness land uses. Failure to ensure this will mean that, as demand for rural land and income generation grows, wilderness will be converted to these other uses.

Designation of land with high levels of biological diversity as wilderness is likely to result in maximum preservation of nonuse values and is sound policy. It is suggested that a system of safe minimum standards be developed for natural assets to safeguard the option to capture their values in the future. The standards should reflect the likely nonuse values of natural land and wildlife communities that are difficult to measure. As pointed out by Meffe and Carroll (1994), the burden of proof should rest with those who would wish to dispense with natural assets, and not with those who would wish to protect them.

The data shown above illustrate the importance of planning wilderness as an integral part of a larger land use plan in which both economic and ecological factors are considered. The use values associated with an interlocking combination of wilderness and "natural" and/or "multiple use" areas are complementary and much higher than if these land types were not together. A wilderness on its own would not generate the indirect use values described in Table 2. The optimal sizes for wilderness and surrounding natural/multiple use areas is not known. However, land use planning exercises based on wildlife use cost-benefit models (Barnes 1995a, 1995b) suggest that, as a rough guide, wilderness areas should be surrounded by some two to four times the amount of land in natural/multiple use zones. These suggested ratios (1:2, 3, or 4) tend to reflect differences in the land requirements for the various tourism activities.

All possible ways in which foreign consumer surplus and nonuse values for natural assets can be captured for Namibia should be investigated. The development of a conservation trust fund (or environmental investment fund) for Namibia is in progress. This fund should be developed primarily as a mechanism for capturing consumer surplus and non-use values. It should be designed to ensure the sustainable transfer of these values to local landholders and society in Namibia as a return for their investments in natural assets and wilderness. **IJW**

***Welwitschia mirabilis* plant in a Kunene region communal land setting, Namibia. Photo by Peter Tarr.**

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WILDERNESS MANAGEMENT TRAINING IN AFRICA

BY PAUL D. WEINGART

[*Editor's note:* To keep wilderness wild, land managers need a special perspective and customized training. Although this imperative is often taken for granted in North America, Australia, or New Zealand, it needs to be patiently nurtured in other countries in which it is often obscured by expanding rural populations or emerging economies. Furthermore, one doesn't often see it on the agenda of international aid agencies. More often than not it requires an individual who sticks with the process as a matter of deep personal conviction and heart—one person can make a difference. Here is a case study to both challenge and inform you to do the same.

—Vance G. Martin, Executive Editor (International)]

SINCE 1989, MY WORK IN SOUTH AFRICA with The WILD Foundation and its collaborators has focused on implementing a series of wilderness management training courses to strengthen the quality and effectiveness of resource management in South Africa. An essential element of the success of these courses has been the commitment by local nongovernmental organizations (NGOs) and agencies.

In 1989 I was invited by Dr. Ian Player to participate in the South African Wilderness Conference in Durban, South Africa. While at the conference Ian expressed a desire that wilderness management training courses be conducted in South Africa similar to those attended earlier by Drummond Densham (of the Natal Parks Board) in the Superstition Wilderness, Arizona.

Drummond had attended that 1987 course as my guest and that of the U.S. Forest Service (USFS). At that time and until my retirement in 1988, I was director of recreation, wilderness, and cultural resources for the Southwest Region of the USFS out of Albuquerque, New Mexico.

Building upon that idea and Ian's connections, a rotary district in South Africa requested my services through Rotary International (RI) as a rotary volunteer. RI then provided airfare and expenses, enabling us to conduct the first Wilderness Management Field Course in 1991. Drummond Densham, Roland Goetz (of the Wilderness Leadership School), and I were the instructors of that first course held in Umfolozi Game Reserve (which contains the first wilderness area proclaimed in South Africa).

Initially, I brought teaching materials from our courses taught in the United States. These were later formulated into a Basic Course Manual and Advanced Course Manual, along with some material from South African sources. Three of the strengths of the Basic Course are the venue being in the field and not in a classroom; keeping the registration to about 15 people; and high interaction among participants and among participants and instructors. These strengths also carry over into the Advanced Course with the addition of more classroom teaching.

In the four-day Basic Course, participant objectives are to

Waterburg Plateau Park, Namibia, 1997.

1. understand the concept of wilderness as a protected area category;
2. develop a basic philosophy of wilderness;
3. develop an understanding of the value of wilderness;
4. define wilderness and the need for this form of protected area as well as the legislative protection currently provided in South Africa;
5. understand the principles of wilderness management and the need to develop special management skills;
6. develop a holistic approach to wilderness and adjacent areas;
7. do basic planning for visitor use of wilderness areas; and
8. develop a wilderness interpretative program.

Early in the course, the participants become familiar with the international and local history of wilderness designation; understand the values of wilderness; and identify in what

manner wilderness is recognized, and how (or if) wilderness is defined under legislation.

To be recognized as wilderness an area must have economic, biological, recreational, and/or spiritual values. In any country, but especially in African nations, it is crucial to understand and effectively interpret those values to native peoples who live adjacent to the wilderness, parks, or reserves. This is often a case of listening, then listening again, rather than simply trying to teach. In any case, without the local peoples commitment to keeping wilderness wild, the future of these areas is precarious at best.

... especially in African nations, it is crucial to understand and effectively interpret [the value of wilderness areas] to native peoples who live adjacent to the wilderness, parks, or reserves. This is often the case of listening ... rather than simply trying to teach.

Another critical point made in the course is that you cannot plan wilderness management in a vacuum. A good wilderness manager must address contiguous or related areas. Therefore, management tools, such as Recreation Opportunity Spectrum (ROS), need to be applied to the entire park or reserve, and the Wilderness Opportunity Spectrum (WOS) used for planning the wilderness area.

The Limits of Acceptable Change (LAC) process is another important tool for managers in developing a managing and monitoring plan for wilderness. Wilderness management principles are taught in the Basic Course to help develop wilderness management skills. The principles are reviewed in the Advanced Course.

One of the most popular elements of the training for the attendees is the use of local case studies, to which they apply the management principles to real-life issues or problems in their wildernesses, parks, or reserves. Through this approach, attendees can more fully understand how application of what they have learned can really work for them in making management decisions.

In the Advanced Course, the focus is on a short review of the Basic Course. Attendees then learn the application of principles and tools in developing a management plan for a specific wilderness area along with methods for monitoring its use or condition to assure that the values for which it was established are properly protected.

The objectives of the Advanced Course are for the participants to

1. understand the application of ROS and WOS;
2. understand the principles of LAC and management planning;
3. discuss the need for (more) comprehensive legislation; and
4. identify candidate/de facto wilderness and their possible legal protection.

The courses are focused primarily on park and reserve managers who have (or may have during their careers) responsibility for managing wilderness. People from the higher echelons of management are also encouraged to attend. The popularity of the courses has drawn people with wilderness interests or responsibilities from NGOs, universities, national parks, and private sector reserves. Attendees have come from National Parks Board of South Africa, Natal Parks Board, KwaZulu Department of Nature Conservation, Cape Provincial Administration, Transvaal Provincial Administration, Namibian Parks (under the Ministry of Environment and Tourism), The Wilderness Leadership School, Lapalala Wilderness, Bophuthatsawana Parks, Cape Point Nature Reserve, various universities, Mzinzi Holdings, Mala Mala Reserve, and have included some private conservationists.

The venue for the courses has been varied, with the emphasis being on field locations. They have been held in facilities provided by Natal Parks Board, KwaZulu Department of Nature Conservation, the Wilderness Leadership School, Eastern Cape Provincial Administration, Lapalala Wilderness, Namibian Parks (Ministry of Environment and Tourism), Cape Point Nature Reserve, and Mzinzi Holdings Nagle Dam.

Except for 1993, courses were held every year in South Africa through 1997. In 1996 the courses were conducted for the first time outside of South Africa when a Basic Course was held in Waterberg Plateau Park in Namibia. A follow-up Advanced Course and another Basic Course were then held in Namibia in August 1997, and two courses were held in the Baviaanskloof area in the Eastern Cape of South Africa in September 1997. There were more than 200 enrollments in the Basic and Advanced Wilderness Management Training Courses through 1996.

There is no specific national wilderness legislation in any country in Africa, although South Africa has several areas legally designated under the National Forestry Act or administered under provincial policy. Some other areas in South Africa and Namibia are zoned as wilderness through local policy. There has been a draft of wilderness legislation prepared in South Africa. At an International Wilderness Symposium held in Waterberg Plateau Park in 1996, there were proposals developed for Namibia to inventory potential wilderness areas and discussion of possible legislation in the future.

Vance Martin, president of the WILD Foundation, has been instrumental in the continuance of the training courses. Also key has been the continued support and sponsorship by African NGOs and agencies, including the Wilderness Foundation, the Wilderness Action Group, Wilderness Leadership School, KwaZulu Department of Nature Conservation, Mzinzi Holdings, KwaZulu Conservation Trust, Natal Parks Board Trust, Namibian Nature Foundation, and the Namibian Ministry of Environment and Tourism.

The intent of the Wilderness Action Group of South Africa is to see that the courses are provided annually as long as there are managers who can profit from the training. There is also a desire to have more facilities and trainers to pick up the training responsibilities from both an African and international perspective.

Wilderness is a precious and fast disappearing resource. The men and women charged with its care and management have a huge responsibility that cannot be overstated. Only through wilderness management training can they develop and build on the correct philosophy and perfect the skills necessary to do the proper job of managing wilderness.

Especially important in Africa is the communication and relationships with the people who live around the parks, reserves, and wildlands as a way to clarify how wilderness values enhance their daily lives and thereby strengthen their commitment to that resource.

The importance of wilderness management training in Africa can best be summed up by a statement made years ago by an old friend of mine who has a great wilderness dedication and philosophy. Bud Moore stated: "Quality wilderness management can only rise to the capability level of the people who are out there on the job." We hope our Wilderness Management Training Field Courses in Africa will help develop the philosophy and commitment along with the skills that enable them to do the job. **IJW**

Paul D. Weingart was employed by the U.S. Department of Agriculture–Forest Service from 1957 to 1988. When he retired he was director of recreation for the USFS, Southwest Region, in Albuquerque, New Mexico. He has a long association with wilderness and has been involved in its designation, management, and enjoyment for many years. He has extensive experience in all phases of outdoor recreation management and has extensive knowledge of Africa, having visited Kenya, Zimbabwe, Zambia, Botswana, Namibia, and South Africa. In 1989 he gave the keynote speech at the South African Wilderness Conference, and he is a training associate for the WILD Foundation. He and his wife Gail now reside in Bozeman, Montana.

NEW PUBLICATIONS FROM THE ALDO LEOPOLD WILDERNESS RESEARCH INSTITUTE

Erin Muths and Paul Stephen Corn. 1997. Basking by adult boreal toads (*Bufo boreas boreas*) during the breeding season *Journal of Herpetology*, 31 (3): 426–428.

Paul Stephen Corn, Michael L. Jennings, and Erin Muths. 1997, Survey and assessment of amphibian populations in Rocky Mountain National Park, *Northwestern Naturalist*, 78: 34–55.

Proceedings of Limits of Acceptable Change and related planning processes: progress and future directions. USDA Forest Service, Intermountain Research Station. General Technical Report INT-GTR-371. December 1997. Stephen F. McCool and David N. Cole, comp. This includes the following papers:

David N. Cole and George H. Stankey Historical development of Limits of Acceptable Change: conceptual clarifications and possible extensions.

George H. Stankey, Institutional barriers and opportunities in application of the Limits of Acceptable Change.

Ed Krumpe and Stephen F. McCool. Role of public involvement in the Limits of Acceptable Change wilderness planning system.

Greg A. Warren. Recreation management in the Bob Marshall, Great Bear, and Scapegoat Wildernesses: 1987 to 1997.

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ANNOUNCEMENTS AND WILDERNESS CALENDAR

Upcoming Conferences

• *"RIVERS CONFERENCE '98—Conserving & Restoring Our River Heritage"*

This conference will be held May 3–5, 1998, at the Delta Vancouver Airport Hotel in Vancouver, British Columbia, Canada. This event will advance our understanding of the best approaches to river management by bringing together more than 300 dedicated and involved individuals to share ideas and chart the future course of rivers in Canada. The conference is being organized by the Outdoor Recreation Council of British Columbia in cooperation with the Canadian Heritage Rivers System. For more information, contact Rene Hogg, Projects Coordinator, Outdoor Recreation Council of BC, #334-1367 West Broadway Vancouver, BC, V6H 4A9 Canada. Telephone: (604) 737-3058. E-mail: orcbc@istar.ca. Website: http://home.istar.ca/~orcbc/.

• *National Wilderness Stewardship Training*

This training course will be held September 10–17, 1998, and is hosted by the Arthur Carhart National Wilderness Training Center in Huson, Montana, USA. Formerly known as the National Advanced Wilderness Training for Line Officers, the course has been upgraded to challenge participants by using the case study method from the Kennedy School of Government, Harvard University.

Senior managers from the four federal wilderness managing agencies will join international, state, and nongovernmental organization managers to (1) strengthen knowledge of wilderness values, concepts, and issues; (2) gain tools used to make wilderness management decisions and address political realities; and (3) build commitment to leadership in wilderness management. The course will begin in Missoula, Montana, includes a weekend field trip into one of the federal wildernesses in Montana, and will wrap up at the Double Arrow Lodge in Seeley Lake, Montana. The cost of the course is $700, which includes tuition, meals, lodging, and the weekend field trip. For more information, contact Chris Ryan at (406) 626-5208, ext. 17. E-mail: /s=c.ryan/oul=rOIfl6a@mhs-fswa.attmail.com.

• *Wilderness Ranger Workshop*

The 1998 Wilderness Ranger Workshop hosted by the San Juan Mountains Association and the San Juan/Rio Grande National Forest will be held near Durango, Colorado, the week of May 18–23, 1998.

An annual educational event, this workshop will feature Nina Leopold Bradley as the keynote speaker. Those attending will choose from a wide range of field-oriented topics important to both rangers and managers. The strength of this nearly decade-old training school is the mix of interagency and nongovernmental organization participants and staff. Workshop fees are anticipated at $300, including food and lodging. For more information, contact Alan Peterson at (970) 385-1210.

• *6th World Wilderness Congress*
The 6th WWC has been rescheduled for October 24–30, 1998, in Bangalore, India. See below.

South Africa Loses Parks Leader

South African conservationists were dealt another blow (see *IJW*, vol. 3, no. 3, p. 48) in December when Dr. Enos Mabuza succumbed quickly to cancer. Dr. Mabuza was chairman of the National Parks Board, in addition to his position on the boards of numerous corporate and educational institutions. Well liked by the public and greatly admired by his colleagues, he was a remarkably poised, talented, and thoughtful gentleman. In addition, he was one of the foremost proponents in his country of the need to protect wilderness areas per se, and he was a featured speaker on this subject at the 1st World Wilderness Congress (WWC) (South Africa) and again at the 2nd WWC (Australia—see *IJW*, vol. 3, no. 2, p. 48). His wisdom and vast experience will be greatly missed, difficult to replace, and long remembered.

Zulu Wilderness: Shadow and Soul

The long-awaited account by South African Ian Player of his work and friendship with his remarkable mentor and friend, Magqubu Ntombela, was published in its South African edition in December 1997. The first printing sold out within a month. The U.S. edition published by Fulcrum Publishing will be available in April 1998 (see advertisement on inside back cover) and will be reviewed in *IJW*, vol. 4, no. 2.

U.S. Congress Debates Wilderness Issues

Some 19 or so bills that involved wilderness or potential wilderness were introduced during the first session of the 105th Congress. Only four passed both chambers and reached President Clinton for signature into law. One makes possible a land exchange in Colorado involving wilderness study area lands. Another increases the potential for a 160-acre expansion of the Eagle's Nest Wilderness in Colorado. The third made a small boundary correction in Colorado's Raggeds Wilderness, and the fourth changed the name of the Everglades Wilderness to the Marjory Stoneman Douglas Wilderness.

6TH WORLD WILDERNESS CONGRESS

Bangalore, India
October 24–30 1998

The 6th World Wilderness Congress (WWC) is refocused on a new date (following its 1997 postponement due to the change of central government in India) with a new executive officer. According to a press release from the Bangalore (South India) secretariat, the congress convenes October 24–30, 1998. The objectives of the 6th WWC remain as before (a wildlands policy framework for Asia; a critical look at wilderness in developing countries; wild rivers of the world; marine and water wilderness; and more) but with an expanded use of television, the web, and other international media. The cultural program also continues to grow, with one of the highlights being Nature: East meets West, a live concert by noted American Jazz musician Paul Winter playing with his Indian peers, fusing the best of contemporary and classical nature music from East and West.

Krishnan Kutty has been named the new executive officer for the 6th WWC on generous secondment from the National Outdoor Leadership School (NOLS). Kutty was already based in Bangalore, from where he leads the NOLS Asia program, and he is now focused clearly on the 6th WWC. For more information, he can be reached either by e-mail: krishnankutty@compuserve.com, or through the U. S. office at The WILD Foundation: <<hyperlink mail to: wild@fishnet.net>>, or by fax: (805) 649-3535.

A number of other interesting bills were introduced. This included an ongoing effort to designate large portions of the northern Rockies ecosystem as wilderness. Of note was a bill that passed the House but died in the Senate. It would have permanently protected a number of small dams in California's Emigrant Wilderness built early in this century to help sustain a recreational fishery of exotic fish and to support livestock grazing. Other bills offered competing "solutions" to the controversy surrounding the Boundary Waters Canoe Area Wilderness in Minnesota; addressed allocation issues in Utah, California, and Wyoming; and designated portions of Rocky Mountain National Park as wilderness.

Intertribal Sinkyone Wilderness Park

In the first effort of its kind, a natural area has been purchased by a Native American group (consisting of a consortium of tribes) whose objective is to restore to the area its original wilderness values and conditions. The Intertribal Sinkyone Wilderness Council purchased approximately 4,000 acres (1,580 hectares) on the eastern border of the existing Sinkyone Wilderness State Park (Northern California) in a deal involving Georgia-Pacific Corporation, The Trust for Public Lands, and the California State Coastal Conservancy. The Council eventually hopes to purchase 40,000 additional acres (16,200 hectares) of logged lands and take over management of adjacent Bureau of Land Management and California State wilderness lands. An adjacent area of the purchase was financed by a $ 1.3 million grant from the Lannan Foundation of Santa Monica (California), and set the new Intertribal Sinkyone Wilderness Park on a course of ecological restoration and the renewal of indigenous cultural traditions linked to wilderness values.

Wilderness & Science— A "Tip Sheet"

The Wilderness Society has begun a bimonthly newsletter entitled *Wilderness & Science* in which its staff shares "interesting scientific news." The inaugural issue talks about barred owls as indicator species and their relationship to old-growth forests. For information on obtaining a copy, contact Ben Beach at (202) 429-2655 or via e-mail at ben_beach@ tws.org.

British Columbia Creates a Large Wilderness Preserve

As part of a new national preserve "larger than Switzerland," the provincial government has set aside nearly 11 million hectares of undeveloped land as wilderness. Located in the northeastern section of the province of British Columbia, the reservation was enabled in part after two oil companies relinquished oil leases within the area. A director of the Canadian Parks and Wilderness Society called the decision "an environmental victory which will resound around the planet."

A Breath of Fresh Air for the Mt. Zirkel Wilderness

The Rocky Mountain Region of the USDA Forest Service announced that it has reached an agreement with the Public Service Company of Colorado to ensure future protection of the Mt. Zirkel Wilderness. After years of study and protracted legal action, the utility company agreed to retrofit two coal-fired electric generation plants in western Colorado with effective pollution control equipment. The generation plants were causing serious air quality degradation in the Mt. Zirkel Wilderness, which was designated as a Class I airshed by the original Clear Air Act. Damage to natural resources included poorly buffered lakes in the wilderness showing severe pollution-caused acidification.

Circles on the Mountain— New Wilderness-Related Publication

The semi-annual publication, *Circles on the Mountain: A Journal for Rites of Passage Guides*, is a forum dedicated to the personal, societal, and ecological need for meaningful rites of passage in nature. Long associated with the California Wilderness Guides Council, the international network of wilderness vision quest guides, Circles has returned after a four-year lapse with a 46-page publication. It is dedicated to sharing stories, information, techniques, and inspirations related to facilitation of rites of passage in nature. Subscriptions are US $12 per year (US$18 international) for two issues, summer and winter. Contact Scott Johnson, publication editor, Circles on the Mountain, 2012 Tenth Street, Berkeley, CA 94710, USA. Telephone: (510) 843-1234. E-mail: circles@xjps.net. Website: www.jps.net/circles.

A Test of Wilderness Management Strategies

On the evening of October 24, 1997, winds blowing at speeds near 120 mph blew down millions of trees in an area encompassing some 20,000 acres. Nearly 5,000 hectares of the blowdown occurred inside the boundary of the Mt. Zirkel Wilderness in Colorado, USA. The event presents a whole range of contentious issues for wilderness managers. Will this natural event be viewed as a disaster both inside and outside the wilderness? Should the typical resulting visitation of bugs and disease be cause for suspending the statutory hands-off approach and lead to removing the "host" material? Will this area be lost to recreationists if chain saws aren't used to re-establish the pre-event trail system? Will scientists gain a Rocky Mountain laboratory akin to that near Mount St. Helens to study processes of "recovery?" Stay tuned. The USDA Forest Service has convened a special team to produce the National Environmental Policy Act study necessary before any final decisions may be made. For more information, contact the Routt National Forest at (970) 879-1722. E-mail: / s = mailroom/oul = r02f06a@mhs-fswa.attmail.com.

U.S. Forest Service National Wilderness Award Winners

Mike Dombeck, Chief of the USDA Forest Service (USFS), announced the recipients of the National Wilderness Awards in late 1997. Cosponsored by several nongovernmental organizations, the awards honor excellence in six areas of wilderness work by USFS and private

sector individuals and organizations. The winners are:

- Aldo Leopold Award for Overall Wilderness Program Management (Co-sponsored by The Wilderness Society): Superstition Wilderness Coordinated Management Team, Tonto National Forest, Southwest Region.

- Bob Marshall Individual Champion of Wilderness Management (Co-sponsored by Wilderness Inquiry): Liese Dean, District Wilderness Program Manager, Sawtooth National Forest, Intermountain Region.

- Wilderness Education Leadership Award (In-Service) (Cosponsored by America Outdoors): The Northern Region Pack Train.

- Wilderness Education Award (External) (Cosponsored by America Outdoors): Discovery Foundation, Juneau, Alaska.

- Primitive Skills and Minimum Tool Leadership (Cosponsored by Wilderness Watch): Weminuche Ditch Project, San Juan and Rio Grande National Forests, Rocky Mountain Region.

- Excellence in Wilderness Management Research: Alan Watson (*IJW* Executive Editor) and Don Hunger, Aldo Leopold Wilderness Research Institute, and Kurt Becker, Salmon and Challis National Forests, Intermountain Region.

Letter to the Editor

Dear Editor:

I have just begun subscribing to the *International Journal of Wilderness* and have been reading through the first two issues I received. I would like to comment on the article "Visitor Perceptions of Livestock Grazing in Five U.S. Wilderness Areas," which is in the June 1997 issue.

The title of this article is very misleading. It begins as promised, but then on p. 18, starting with the second paragraph under the subheading "Situational Factors," the article veers sharply to another subject: advice to ranchers on how to manage their stock in wilderness areas. The authors clearly have a strong bias in favor of ranchers using wilderness, a bias that conflicts with my own, which is to get livestock completely out of wilderness areas. If a place is grazed, it ain't wild, no matter what the statutes say The authors go so far as to suggest that ranchers put up drift fences and develop water improvements in wilderness areas. What is wilderness to these authors?

It might be that this article, with its advice to ranchers on how to make other wilderness users accept their exploitation of wilderness via domestic animals, would have been more appropriately published in a range management journal. Either that, or at least have had a title that more honestly indicated the article's aims.

Yours sincerely,

Denis Jones
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Submit future Wilderness Digest to *IJW* managing editor Michelle Mazzola via e-mail: m.mazzola@usa.net. Thanks to field correspondent Woody Hesselbarth for facilitating much of the digest information for this issue. He can be reached directly via e-mail: whesselbarth@igc.com.

BRUCE DELL OF SOUTH AFRICAN WILDERNESS LEADERSHIP SCHOOL LECTURES AT THE UNIVERSITY OF IDAHO

Bruce Dell, director (Trail Programs) for the Wilderness Leadership School (WLS) in South Africa, presented five lectures at the University of Idaho, USA, September 28–October 6, 1997. These presentations highlighted programs of the WLS and their wilderness experience philosophy. The mission of WLS, said Dell, "is to restore balance between humans and nature, especially persons with leadership responsibility and potential leaders."

Founded 25 years ago by noted conservationist Dr. Ian Player, WLS has played an active role in developing environmental awareness among a wide spectrum of leaders in South Africa. In addition to running about 60, five-day backpacking trips ("trails") each year, WLS also operates a Rites of Passage Youth Program and a wilderness experience program for opinion leaders and members of Parliament.

Dell's presentations described the evolution of WLS programs from one originally operating with fixed camps to one today that features mobile backpacking that follows Leave No Trace practices. He also discussed wilderness guiding philosophy, emphasizing the importance between striking a balance between interpreting events to clients and letting nature tell her own stories. One of the most important presentations dealt with difficulties people have returning from the tranquility and balance of nature to fast-paced lives in todays urban societies, especially the quickly changing post-apartheid South Africa.

BOOK REVIEWS

Into the Wild by Jon Krakauer. 1996. Anchor Books, Doubleday, New York 207 pp., $12.95 (paperback).*

Many readers of this well-written and engaging book may recognize their own hidden impulses in this true story. In 1992 Christopher McCandless, immediately after graduating with honors from Emory University in Atlanta, Georgia, began his cross-country journey as a self-proclaimed "super tramp" and eventually headed "into the wild" north of Mt. McKinley Alaska, where he perished after a sixteen-week ordeal. But this is more than just a wilderness adventure that ends in tragedy. Author Jon Krakauer, expanding on his 9,000-word article in the January 1993 issue of *Outside* magazine, spent a year retracing McCandless's steps, interviewing family, friends, and the acquaintances McCandless had met on his journeys. In the book he also recounts the ordeals of other similar adventurers and the allure of high-risk activities and wilderness on the American imagination. The problematic bonds between fathers and sons, and the subconscious impulses that influence one's relationships and choices are also carefully woven into the tapestry of this rich story. The results of Krakauer's painstaking detective work and reflection are both enlightening and disturbing. This book is hard to put down.

You don't have to be just a wilderness survival buff to like the story of McCandless's wilderness ordeal while camped out in the abandoned Fairbanks Bus 142, with only a 22-caliber rifle and his own experience and judgment between him and an unforgiving and wild environment. At one moment, readers will find themselves sitting in judgment of youthful exuberance and risk-taking, as well as the call to adventure beyond the ordinary, to pushing the limits of safety and predictability, as our hero does. The next moment, they will feel mysteriously drawn to the inner as well as outer drama of this story.

What makes this story so compelling is McCandless's lust to connect with nature, ultimately driving him more toward solitude and self-reliance than a desire to be with people or to follow any conventional lifestyle. He was driven toward the pure, the extremes, toward independence such that he wouldn't be disappointed nor would anyone have to rely on him. Where did this come from? Much of it seems rooted in parental relationships and based as much on rebellion against authority as idealism. The evidence compiled by Krakauer indicates that everyone who met McCandless liked him and wanted to help him. We liked him too. He was kind, sensitive, and compassionate to others, and he was highly intelligent, resourceful, and well-read in classical and contemporary literature. He followed his dream. He put it on the line. I wish he had come back to tell his story in person. Why didn't he? Did he want to die? I don't think so. He just tested himself beyond the edge and couldn't get back, though he tried. The lack of map and compass, the swollen rivers, inexperience, and poor judgment cost him his life. But that he made it for 113 days documents his resourcefulness. And rather than wallow in self-pity at the end, journal entries reveal his absolute joy and clarity as he moved closer to death.

Chris McCandless's story touches that place within us that yearns to find our own identity through some great venture. The attraction of danger—to climb the highest mountain, to run the treacherous river—touches universal truths; that is, to find one's true self often requires placing one's life on the line. Most young people, and many older people as well, feel the necessity to prove themselves in dangerous surroundings. Some resonating factor can be discovered in the lives of all the young men described in this book. Indeed, the human spirit may well resonate with the spirits of others who have gone a similar way in other times and other places, and this compelling idea is demonstrated by Chris McCandless.

Though we may not have the desire to climb an ice cap or be dropped by helicopter to a remote place to live alone for an extended period of time, we who read this book have some yearnings also. There is something in all of us that needs to climb a symbolic mountain, to paint a beautiful picture, to be the best teacher, to truly discover what we are meant to do with our lives. If we recognize this urge, we no longer question whether a particular act is reasonable. We identify with McCandless. Those who don't understand such passion will perhaps sit in judgment of McCandless's search.

*Reviewed by Marilyn Riley and Betty Warren, codirectors, Wilderness Transitions, Inc. E-mail: rile/mr@earthlink.

Aldo Leopold: A Fierce Green Fire (An Illustrated Biography)* by Marybeth Lorbiecki. 1996. Falcon Publishing, Helena, Montana. 212 pp., $19.95 (hardcover).

Be prepared to find yourself thinking about the persistence, the tragedies, the successes, and the people in Rand Aldo Leopold's life for many days after finishing this popular biography (you will also learn why the "Rand" was dropped from his name at an early age). Most of us know that Aldo Leopold was the author of *A Sand County Almanac* (this name changed, also, before being published), but few of us know the personal story of how he came to write it. This biography is meant to focus on

the man and his family and friends, telling the story of his childhood, his education, his professional challenges and contributions, and the very personal mentoring he provided students and peers.

The 212 pages of text and photos are easy to read in an afternoon. It makes excellent airport reading. It served me well from Missoula to Phoenix and part of the way back. I suspect it would be even better reading on a wild mountain top in the Rockies or somewhere in the broken desert of the southwestern United States. This is the story of the man who helped us articulate a conscience in our relationship with the land, the air, the water, and wildlife.

And now his story reminds us of the importance of personal relationships as well. Aldo Leopold, it turns out, placed high value on two types of relationships: that between people and that between people and the land. Through this book we learn more about the former.

One passage in the book sticks in my mind after finishing it two weeks ago. I have mentioned it to several people during conversations. It is the kind of thing you quote to people who know who Leopold was, not to those who don't. The statement has equal applicability, but some understanding of the source increases the impact. In a letter to the Forest Officers of the Carson in 1913, while he was recuperating from a serious illness, he wrote, "After many days of much riding down among thickets of detail and box canyons of routine, it sometimes profits a man to top out [on] the high ridge of leave without pay, and to take a look around. ..." How eloquently he reflects on the contrast between the world of detail and routine we too often find ourselves in and the pause forced on him by recovery from an illness. How sad that such a pause must sometimes be forced on us. How obvious the personal benefit from such a pause. Even through this reflection we come to understand the experiential value he must have placed on "topping out" in wilderness to look around at the land and at one's personal relationships.

Although friends and family outside my professional life seldom indicate an interest in reading literature from my chosen field of wilderness protection, a casual mention of this book elicits requests frequently. It would be a good book to give to someone perhaps more interested in relationships between people than between people and the land, with a strong side effect of bringing the two types of relationships together for the reader. The emotional attachment to people and places that Aldo Leopold felt and expressed are relayed to the reader throughout the book.

I hope this book leads you to pause a moment, or longer, to think about similarities and contrasts between your own life and Aldo Leopold's. Experience with him the seriousness of illness and threats to job security, the different relationships and subsequent differences in influence attributed to his mother and father, and his reaction to growing materialistic values in U.S. society. Come to understand Aldo Leopold a little better. Come to understand yourself a little better.

*Reviewed by Alan Watson, Aldo Leopold Wilderness Research Institute, Missoula, Montana, USA. E-mail: Alan.Watson/ rmrs missoula@fs.fed.us.