INTERNATIONAL

Journal of Wilderness

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—John C. Hendee
IJW Editor-in-Chief

SCIENCE AND RESEARCH, *continued*

INTERNATIONAL PERSPECTIVES

WILDERNESS DIGEST

On the Cover

FRONT: Tihaya River flowing through the autumn tundra of Kronotsky Zapovednik, with the Kikhpinich and Krashenninikov volcanoes rising in the distance in the Kamchatka World Heritage Area, Russian Far East. © Igor Shpilenok (www.shpilenopk.com); International League of Conservation Photographers; and Minden Pictures.

INSET: Interior mountains of Kamchatka Oblast, RFE. © Vance G. Martin (www.wild.org).

International Journal of Wilderness

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

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EDITORIAL PERSPECTIVES

Future Range of Variation in Wilderness?

BY CHAD P. DAWSON

Over the last several years, the media worldwide has reported, to some degree, on the public and scientific issues and concerns about climate change. Much of this reporting has included themes such as "Is climate change scientifically proven?", "What caused climate change?", "How much is human activity affecting climate change?", and other such broad questions. During 2007 the Intergovernmental Panel on Climate Change (IPCC), established by the World Meteorological Organization and United Nations Environment Programme, completed and published reports by three IPCC Working Groups to provide comprehensive and up-to-date assessments of the current state of knowledge on climate change:

- Working Group I report, *The Physical Science Basis*, Paris (February 2, 2007);
- Working Group II Report, *Impacts, Adaptation and Vulnerability*, Brussels (April 6, 2007); and
- Working Group III Report, *Mitigation of Climate Change*, Bangkok (May 4, 2007).

The IPCC is finalizing its Fourth Assessment Synthesis Report, *Climate Change 2007*, and it is scheduled to be adopted and approved at the 27th session of the IPCC, on November 12 to 17, 2007, in Valencia, Spain.

The IPCC reports have confirmed that global climate change is affecting biological systems, ecosystem services, and biological diversity, and plant and animal species are facing increasing risks of extinction around the globe. For example, changes in average temperature in some regions have caused glaciers and snow cover to be reduced in area, changes in vegetation ranges, and insect infestations to spread as winter temperatures warm.

Although wilderness managers have used concepts such as the historical range of variability (HRV) to understand the duration and rate of change in the behavior of ecosystems, much of this has focused on the pre-European settlement of the United States as the ecological time period against which to compare current conditions and processes in wilderness. These natural processes and conditions are the result of ecosystems responding to climate, natural disturbances, and other factors. Wilderness managers have used the HRV to better understand these current processes and conditions and to guide them in plant and animal restoration efforts, prescribed vegetation burning in fire-dependent communities, and other management activities that seek to reduce the impact of human-induced change.

As some of the predictions of global climate change and resulting biological and ecological impacts occur, the HRV will not provide much guidance for wilderness managers, as historic and current conditions and processes cannot always be maintained or restored in the future. Although we understand some of the ecosystem adaptation and resilience mechanisms, we do not understand them well enough to predict the future range of variability (FRV) in our current wilderness ecosystems. Furthermore, because of climate change the HRV may not be helpful in determining the FRV, leaving wilderness managers in a quandary regarding what natural process and conditions to maintain or restore. The impacts of climate change on future wilderness management will be profound.

In this issue of *IJW* some stewardship and management challenges in Alaskan wilderness are presented in an article by Mark Hummel about the Stikine-LeConte Wilderness and what has happened during the 26 years of management under Alaska National Interest Lands Conservation Act, or ANILCA. Don Aragon shares some of the stewardship and land preservation history of the

Continued on page 7

Wilderness and the Human Soul

BY IAN PLAYER

Editor's note: *Ian Player, a seminal figure in the wilderness movement worldwide, has just turned 80 years old. Simultaneously, the multiracial Wilderness Leadership School that he began during the apartheid era in South Africa celebrates its 50th anniversary this year. Ian generously provided the Soul of the Wilderness piece for the inaugural issue of the* IJW *in 1994. In honor of this special year for Ian, we publish here the remarkable keynote speech he gave to the 8th World Wilderness Congress (WWC) in Alaska in 2005, a speech that deeply touched the assembled delegates and that will be included in the plenary proceedings of the 8th WWC being published by Fulcrum Publishing and The WILD Foundation.*

South Africa

A recent flight from South Africa took me over the Drakensberg Mountains, Ukhahlamba of the Zulu people. I looked down and pondered; I saw the red grass glowing luminously in the afternoon sun. These mountains were the last refuge of the San, or Bushmen, people who painted their exquisite art on cave walls and recorded the history of our country, the coming of the Nguni people, the Boers on their horses and English soldiers, and the vast array of wild animals. By 1870 there were no San people left; they were shot and killed without mercy and with them went vast tomes of wisdom and knowledge.

A man named Richard Nelson said: "The abandonment of ethically and spiritually based relationship with nature by our western ancestors was one of the greatest and perilous transformations of the western mind." Today nearly all of modern man's ills spring from this abandonment, and wilderness has become so important because it reconnects us to that ancient world.

We South Africans can be proud that our country was the first in Africa to proclaim a game reserve and the first wilderness area. Imfolozi Game Reserve in KwaZulu-Natal has that double distinction.

The World Wilderness Congress (WWC), as a concept, has come a long way on a torturous path and had to overcome what, at times, seemed insurmountable odds. The WWC has now become a critically important forum which provides a platform for many divergent views. I believe that it is important that we look at the history of the WWC. Vance Martin, president of The WILD Foundation, tells me it has now become the longest-running, public, international environmental forum. The WWC concept was born in South Africa in 1976 in the small wilderness area of Imfolozi Game Reserve in KwaZulu. It was a suggestion of my great friend and mentor Magqubu Ntombela who had led many treks into the wilderness with me. He said that we needed a big Indaba (meeting) to bring together everyone who had trekked so that we could share experiences. He was a man who could neither read nor write, but he was the wisest, most gracious and bravest man I have ever known. The African people have a word for it: *ubuntu*.

Ian Player at the 8th WWC in Alaska.

World Wilderness Congress

It is fitting too that the WWC began in Africa. It is the cradle of mankind. All of us here have our origin from that mighty continent, as DNA research has proven. C. G. Jung said, "We do not come into the world tabula rasa." Three million years of Africa is imprinted on the human psyche. I know this imprint from taking many hundreds of people in small groups from all over the world on foot treks into the wilderness of Imfolozi and Lake St. Lucia. They are gripped by the spirit of Africa, and at night as they sleep on the red earth, they dream their dreams and hear the animals and birds. There is a connection that is evoked from the depths of the collective unconscious: the rasping cough of the leopard, the howl of hyena, and the scream of the elephant. It is an experience that has awakened thousands of people to the value of the African wilderness, to the understanding that this was once their home, and this, in turn, inspires them to protect it. As Shakespeare says in *Othello,* "It is the cause, it is the cause my soul." And so it has become for many of us, worldwide.

In 1977 South Africa was a "pariah" nation, and organizing that first WWC in Johannesburg in October of that year was a nightmare. But, the first WWC was an undeniable success, where for the first time a black field ranger—Magqubu Ntombela, a Bushman of the Kalahari—took his rightful place amongst leading international scientists, politicians, writers, and artists.

The WWC established the importance of wilderness in breaking down racial barriers in South Africa, and the wilderness trails in the Imfolozi Game Reserve were a leading example. Magqubu used to tell the mixed groups as we sat around the fire at night, "If we are charged by rhino or lion and blood flows, it will be the same color blood for everyone, even though our skins may be a different color."

> Many millions of people regard national parks, forestry, and wilderness areas as sacrosanct.

The WWCs that followed in Australia, the United Kingdom, the United States, and Norway were also beset with political problems because the WWC had originated in South Africa, and because I am a South African. I will always be grateful to those American and international conservationists who stood by us, and ensured that the WWCs became a forum for everything associated with wilderness. Vance Martin knows this because he was at the front from 1983 on.

Today, thanks to Nelson Mandela and the peaceful elections in 1994, South Africa is the brightest light on the continent of Africa and stands poised to be a wilderness and conservation example for all of emerging Africa. But, we in the world wilderness movement are under no illusions about the difficulties that lie ahead. The struggle for political freedom is over in South Africa, but not in all the African states. The new struggle is an environmental movement for all our people to make wise use of the natural resources.

In 2001 the WWC returned to South Africa, to a transformed country, and—thanks to Adrian Gardiner, Andrew Muir, and the Eastern Cape government—it was a phenomenal success. South Africa has proved what can be done.

The same situation is not true for other parts of Africa. I do not want to enlarge on a litany of woes facing conservation in Africa, but the problems range from the desperate situation of the last remaining northern white rhino in the Democratic Republic of the Congo to some parks where the game scouts do not have boots.

At the recent G8 Economic Summit in Britain, there was a focus on Africa. One can only hope that the environment will receive proper attention, because in previous aid to Africa it did not. The G8 Economic Summit now has a chance to rectify it.

Wilderness Concept in the United States

Whereas, it is correct that the birth of the WWC was in Africa, the honor for the establishment of national parks and wilderness areas belongs to the United States of America. It was Americans who articulated the wilderness concept and set aside wilderness areas against what, at times, seemed overwhelming odds. The spirit of one of the greatest American presidents, Theodore Roosevelt, was always with them. It was not for nothing that he said, "The greatest sport the world affords is aggressive fighting for the right." Yet, we must remember that Frederick Courtney Selous, the great Nimrod, was his guide in Uganda, and the African wilderness made a deep impression on Theodore Roosevelt, and it affected his thinking.

In my library is a book with the prosaic title of *S.1176 Hearings before the Committee on Interior and Insular Affairs of the United States Senate*. The

pages are worn thin and underlined everywhere. The cover is tattered from constant use. It has been in my possession since 1958. A most treasured book sent to me by Howard Zahniser, then secretary of The Wilderness Society. In it I have written, "This has been the bible of the wilderness movement in South Africa." The Americans showed us the way. It is a phenomenal story of the past, the present, and the future.

One of the witnesses quoted in the S.1176 hearings was Sigurd Olson. He said:

> In days to come, the wilderness concept must be clear and shining enough to capture imaginations. It must take its place as a cultural force with all expressions of man's deepest yearnings and his noblest achievements in the realm of the mind. It must be powerful enough to withstand everywhere in the world, the coming and enormous pressures of industry and population.

Talk about intimations of the future: this is it.

In the S.1176 hearings is the gripping story of the blood and guts fight for the conservation soul of America. You realize too, that what it is expressing is the depth of the impact that the Native Americans made on the psyche of Anglo-America. Constantly there are echoes, and one senses their spirit in the extraordinarily eloquent pleas from some of the most eminent Americans of their day.

I first came to America in 1964 as a guest of Metro Goldwyn Mayer and through Ira Gabrielson. I met Stuart Udall, secretary of the interior, and a man proud of his Native American blood; he became a speaker at the first WWC. Ten minutes in his company gave me a deep and emotionally moving insight into the soul of American conservation. He reiterated that America had to be an example to the world.

The men and women who testified for wilderness in the S.1176 hearings were heroic people, many times going against the grain and knowing that they were up against it. They warned against roads, lodges, hotels, restaurants in the national parks. They knew they were setting an example for the world and it had to be the right one. They were unafraid to talk. I was determined that the Wilderness Leadership School I initiated in 1957 would emphasize that the wilderness experience was a spiritual journey. Another witness, Edwin Way Teale, said that wilderness areas are "storehouses of wildness, and wildness will become an ever-increasing spiritual need in the crowded tomorrow."

We are now in the crowded tomorrow, with a vengeance. Try a Los Angeles freeway on what they call a "quiet" day.

I love America. It has always been good and inspirational for me. But, I have to tell you that an article in the *New York Times* of August the 29th, 2005, has caused me much stress; it is entitled "Destroying the National Parks." It refers to a document that calls for the rewriting of national park rules by one of the assistant secretaries, which has been met with profound dismay in professional national park circles. This must be stopped.

Many millions of people regard national parks, forestry, and wilderness areas as sacrosanct. What difference is government to nature, and how do human desires fit in accordingly? The Unites States started the national park movement, and became a leader in ethics, policy, and action. It must remain so.

Wilderness Inspirations

The wilderness work America articulated, and the rest of the world has followed, is practical, political, philosophical, psychological, and scientific. But, at the deepest levels, there are still too few people who understand it is the work of the soul. The lines of the psalm say it best: "Be still and know that I am God." And it is in the wilderness that the stillness can be found.

We have to face the fact that rampant materialism is creating havoc in our world and wilderness areas are under threat everywhere. This has not been helped by Judeo-Christianity; Edward Whitmont puts it succinctly: "For several centuries traditional theology has tended to create an absolute gulf between man and nature." Yet, the world seems to continue as though there were no tomorrow. We have forgotten those wonderful images in the gospels that describe John the Baptist coming out of the wilderness "clothed with camel's hair with a leather belt around his waist, and he ate locusts and wild honey".

For too long there has been a cataclysmic clash between Western and indigenous cultures, with the latter being the bigger loser. Sense of place and spirit of place have been destroyed.

We are all engaged in a momentous struggle, and we owe it to the early wilderness pioneers to honor their vision and their achievements.

There is a terrible potential for destruction to birds, landscapes, and silence in the Highlands of Scotland and other wild country in Britain with the proposed wind farms. The Wilderness Foundation United Kingdom is vigorously fighting this danger. As C. G. Jung said, "We have lost a world that once breathed with our breath and pulsed with our blood. Did the wind use to cry and the hills shout forth praise?" There is a cry of helplessness from indigenous people as a once-known world is swept away.

Marie-Louise von Franz, a psychologist of great depth, said: "Western civilisation is in danger of building a wall of rationality in its society, which feeling cannot penetrate. Everything has to be rational and emotion is frowned upon."

Poets are critically important to our cause. Wilfred Owen, a First World War poet, said that all a poet can do is to warn, and that is why true poets must be truthful. Poets warn us and they inspire us. Think of W. H. Auden's words as a reflection of ecological doomsday:

> The stars are not wanted now, put out every one.
> Pack up the moon and dismantle the sun.
> Pour away the ocean and sweep up the wood.
> For nothing now can ever come to any good.

Compare this to the inspiration of Herman Hesse:

> Sometimes, when a bird cries out,
> Or when the wind sweeps through a tree
> Or a dog howls in a far off farm
> I hold still and listen a long time.
> My soul turns and goes back to the place
> Where, a thousand forgotten years ago,
> The bird and the blowing wind
> Were like me, and were my brothers.

Fraser Darling, the great Scottish biologist, said: "To deprive the world of physical wilderness, would be to inflict a grievous wound on our own kind."

My great friend, the late John Aspinall, the most famous gambler in Britain who became a conservationist and who, even when devastated by cancer of the jaw, continued to campaign and poured millions into the saving of the gorilla and other conservation causes, said:

> I believe that wilderness is the earth's greatest treasure. Wilderness is the bank on which all cheques are drawn. I believe our debt to nature is total. I believe that unless we recognise this debt and re-negotiate it—we write our own epitaph. I believe that there is an outside chance to save the earth—and most of its tenants. This outside chance must be grasped with gamblers' hands. I believe that terrible risks must be taken and terrible passions roused before these ends can be accomplished.

The World Wilderness Congress … has come a long way on a torturous path and had to overcome what, at times, seemed insurmountable odds.

We are all engaged in a momentous struggle, and we owe it to the early wilderness pioneers to honor their vision and their achievements.

This is our task in the 21st century. We need something that will stir our psychic depths and touch the images of the soul. It has to surpass creeds and instantly be recognized. We must learn a new language to convey the feelings of beauty, hope, inspiration, and sacredness for humanity and all other life. We need to remember the first principle of ecology: that "everything is connected to everything else," and the wilderness experience is the spiritual spark that ignites the understanding. **IJW**

IAN PLAYER is the founder of the Wilderness Leadership School in South Africa and The WILD Foundation.

Continued from EDITORIAL PERSPECTIVES, page 3

Wind River Indian tribes and their work to protect some roadless areas on the reservation. A study of wilderness day use and use patterns and their impacts on management are examined by J. Daniel Abbe and Robert Manning. Professor Gary Green and four colleagues provide some important insights into what constrains wilderness visitation and what ethnic/racial groups are most affected. **IJW**

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The Stikine-LeConte Wilderness in Alaska

Twenty-six Years of Management under ANILCA

BY MARK HUMMEL

The Stikine-LeConte Wilderness

The Stikine-LeConte Wilderness is located on the Tongass National Forest (TNF) on the mainland of southeast Alaska, southeast of Petersburg, Alaska, (population 3,000), and northeast of Wrangell, Alaska (population 2,000). On the north end is LeConte Glacier, North America's southernmost tidewater glacier. To the south, the 350-mile (560-km) Stikine River originates in the mountains of north-central British Columbia, flows west from the Canadian border through the wilderness, and ends in a 17-mile (27-km) wide delta (Demerjian 2006) (see figure 1).

The name "Stikine" comes from a Native Tlingit word meaning "Great River." The Stikine-LeConte Wilderness includes immense ice fields and glaciers, high alpine tundra and lakes, forest, vast flood plains, active and vegetated sand dunes, natural hot springs, and habitat for birds, moose, brown and black bears, mountain goats, and wolves. Kate's Needle is the highest peak on the TNF at 10,002 feet (3,048 m), and the Stikine Ice Fields are the largest on the TNF. A plentiful variety of plants, animals, and fish provides a subsistence-rich lifestyle today, as it has for Tlingit natives for thousands of years.

Mark Hummel.

Figure 1—The Stikine River flows from Canada through Southeast Alaska's coastal range and the Stikine-LeConte Wilderness, terminating in a delta that provides habitat for hundreds of thousands of migratory birds. Photo by Mark Hummel.

The Stikine River is the fastest, free-flowing, navigable river in North America, moving an average of 56,000 cubic feet (15,864 decisteres) of water per second (U.S. Geological Survey 1990). The silt-laden current meanders down a braided corridor, cutting banks, shifting channels, devouring and depositing islands (see figure 2), and carrying a tremendous load of silt into a vast delta. The Stikine River delta and grass flats provide a major stop on the Pacific Flyway, hosting spring and fall migrations with over 350,000 birds a day. A large proportion of the world's western sandpipers rest and feed, in groups of tens of thousands, on the flats within a two-week period each spring. Snow geese, sandhill cranes, and scores of other species also refuel on the flats. Up to 1,500 bald eagles converge on the lower river each spring—the

largest spring congregation of eagles in the world.

People and Their Use of the Wilderness

Native people have used the river as a major transportation route since ancient times, followed by fur traders and then miners. John Muir visited the river several times in the 1800s, calling it "a Yosemite 100 miles long." Commercial travel on the river was guaranteed in an 1871 treaty with Great Britain, stating that navigation on the river shall forever remain free and open.

Today, as in the past, most of the wilderness use occurs on relatively few sites along the Stikine River Corridor. The river is accessible by motorboat from approximately May through October, predominantly by small- to medium-sized boats that are capable of operating in shallow water. Fluctuating water levels and ice cover hinder travel much of the fall, winter, and spring. Access requires local knowledge of the delta for navigation, along with knowledge of seasonal river depths and velocities in the channels and sloughs, including hazards such as downed trees and sandbars that appear and disappear at different tides and river water levels.

Local Recreation

The Stikine River is the place many Wrangell and Petersburg residents go to "get off the rock." They fish for trout and salmon, and hunt waterfowl and moose, not just for recreation, but for subsistence. They gather, informally, at favorite places such as The Desert, an area of active sand dunes; at Twin Lakes, a shallow pair of boat-accessed lakes that warm up enough for summer swimming; and at Shakes Hot Springs, where a spring flows through long-established indoor and outdoor tubs. They stage picnics and extended family gatherings, sharing the river with children and grandchildren while telling river stories passed down over generations. Wrangell sponsors a spring Garnet Festival that features the delta stopover for bird migration and an upriver large run of eulachon ("hooligan" locally), a small, oil-rich, high-nutrient fish.

Figure 2—The classic, braided river channel of the Stikine River changes course often, creating oxbow lakes, consuming some islands and creating others. Photo by Mark Hummel.

Commercial Tourism

Wrangell has long looked to the Stikine River for outfitting and guiding opportunities. Guides access the river with clients in jet boats accommodating from six to 18 passengers, sometimes ferrying clients upriver with kayaks, canoes, and rafts (see figure 3). A controversial 12-person group-size rule in wilderness has been in operation for years, but in 2006 the rule was better defined in permits and the Draft TNF Plan to mean a maximum of 12 persons on shore at one time, within sight and sound of one another.

Cabins

Twelve Forest Service public recreation cabins provide rental opportunities for visitors to experience the Stikine-LeConte Wilderness. Eight private cabins are authorized on national forest land by special use permit in accordance with the Alaska National Interest Lands Conservation Act (ANILCA), which provides for a one-time transfer of the permit before it expires. Several other cabins sit on private inholdings along the river corridor.

Figure 3—Paddlers typically charter airplanes or boats to haul gear upriver for their floating adventure back down through the Stikine-LeConte Wilderness. Photo by John Hendee.

Research and Education

Movement of the LeConte Glacier has been measured annually by a high school class from Petersburg since 1983, providing data with obvious climate change implications (U. of Alaska Fairbanks 2002). The Stikine River delta is part of the Key Coastal Wetlands, an international migratory bird initiative, which could lead to external funding for baseline monitoring. Education activities associated with the river include tracking migrating birds, studying ecological dynamics in annual student trips to the river, and speakers and activities associated with Wrangell's spring Garnet Festival.

Wilderness Designation under ANILCA

During the late 1970s, lawmakers and natural resource stakeholders puzzled over how to apply the Wilderness Act of 1964 to Alaska, where many established uses conflicted with wilderness as defined by the Act. Alaskans worried that wilderness designation would restrict traditional access to "their lands." This conflict was resolved in 1980 with passage of ANILCA, which provided for the continuation of certain existing traditional uses and access, subject to reasonable regulation, including (USDA Forest Service 2005):

- priority for subsistence taking of fish and wildlife over other uses of fish and wildlife;
- use of snowmobiles, motorboats, fixed-wing airplanes, and nonmotorized means of surface transportation traditionally used for subsistence or travel from village to village by local residents;
- permitted tent platforms, shelters, and other temporary facilities and equipment necessary for the taking of fish and game (see figure 4); and
- fishery research, management, enhancement, and rehabilitation activities, including fishways, fish weirs, egg planting, and other accepted means of maintaining, enhancing, and rehabilitating fish stocks.

Figure 4—Moose hunters can apply for special use permits to construct tent platforms for use during the season, but must then collapse the structure and may store materials on site year-round. Photo by John Hendee.

The Forest Service definition of "traditional activities" includes recreational activities such as sport fishing and hunting, boating, camping, picnicking, hiking, exploring, sightseeing, nature and wildlife viewing, mountaineering, and water play (USDA Forest Service 2005). In addition, motorized, handheld equipment is authorized where such use is a practical necessity that is directly and necessarily related to the taking of fish and wildlife. For example, a hand-portable motorized winch may be used during moose hunting season to retrieve the carcass of a harvested moose. Helicopters are not allowed in wilderness for general public access.

Stikine-LeConte Wilderness Management

Although ANILCA resolved the larger questions about traditional uses in wilderness, it still required that traditional use be consistent with the intent of the 1964 Wilderness Act. Initial implementation of Stikine-LeConte Wilderness management was controversial, and tension remains today over how to interpret, apply, and reconcile certain ANILCA provisions with the Wilderness Act. Many residents felt betrayed by wilderness restrictions they believed would not affect them as much as they have.

At the core of the frustration was a paradox. It seemed incongruous to have a "navigable river," established by treaty with Canada, roaring through the heart of the new wilderness like an international, eight-lane highway. People motor upriver with a 250-horse motor, but once on shore, the 1964 Wilderness Act expects them to find "opportunities for solitude" in an area "untrammeled by man."

Forest Service wilderness managers (such as Dave Rak, longtime Wrangell Ranger District wilderness coordinator) have worked through a series of issues in the Stikine-LeConte Wilderness over the past 26 years to address these unique historic and traditional uses of the Stikine River. The following chronology briefly describes the management processes in the Stikine-LeConte Wilderness during the period from 1980 to 2007:

1980: ANILCA designates Stikine-LeConte Wilderness (SLW) to be managed under the Wilderness Act of 1964, but subject to provisions of ANILCA allowing established traditional uses to continue.

1984: First SLW Wilderness Management Plan, established management guidelines and activities to implement ANILCA and the 1964 Wilderness Act.

1984 (November): **Provisions of SLW Wilderness Management Plan appealed.**

1985: **Resolution of 1984 SLW Wilderness Management Plan Appeal** in which the chief of the Forest Service ruled on several issues.

1990: **Analysis of the management situation for the TNF Plan Revision, including a section on the Stikine-LeConte Wilderness.** The regional forester modified the 1984 SLW Wilderness Management Plan in response to the chief's decision on the 1985 appeal.

1994: **Wilderness Implementation Schedule (WIS) for the Stikine-LeConte Wilderness.** The WIS did not make any decisions, but identified a set of management opportunities, including recommendations for administrative decisions and National Environmental Policy Act analysis.

1995: **Hand-portable Motorized Equipment in the Stikine-LeConte Wilderness Environmental Assessment.** This environmental assessment and decision notice was written in response to requests to use hand-portable, motorized equipment for subsistence purposes and authorized its use under certain circumstances.

1995: **Twin Lakes Environmental Assessment.** This environmental assessment and decision notice was written in response to continuing demand for facilities at Twin Lakes that fit wilderness criteria.

1997: **Stikine Area Outfitter and Guide Environmental Assessment.** This analysis and decision notice established overall visitor use capacity for the Wrangell and Petersburg Ranger Districts by subarea, and allocated a portion of that use to outfitters and guides (USDA Forest Service 1997).

2006: **Wrangell Ranger District, Wilderness Education Plan:** Stikine-LeConte Wilderness and South Etolin Island Wilderness. July 2006. This document was written to encourage and guide education on the values of wilderness and ethics of its use.

2007: **Wrangell Ranger District, Stikine-LeConte Wilderness Landscape Analysis (SLWLA).** The SLWLA will recommend opportunities for wilderness management, like the 1994 WIS. One of the chapters will consolidate previous management decisions into one place, creating a "wilderness management plan" as defined by individual decisions over time.

Since 1980, 10 analyses and/or decision documents have guided management of the Stikine-LeConte Wilderness, and an 11th is in preparation.

Management Actions

Since 1980, 10 analyses and/or decision documents have guided management of the Stikine-LeConte Wilderness, and an 11th is in preparation. Following is a discussion of the issues addressed in managing the wilderness, actions taken or approaches adopted, followed by discussion of the current challenges being addressed.

Wilderness Management Plan and Appeal

The U.S. Forest Service wrote an Environmental Assessment and Decision Notice for the Stikine-LeConte Wilderness Management Plan in 1984. The plan authorized continuing group use of the Twin Lakes Picnic Area, a boardwalk dock for access at Shakes Hot Springs, and use of chainsaws and chainsaw winches for special management activities. Elements of the plan were appealed to the chief of the Forest Service, who ruled in 1985 that ANILCA authorized traditional uses, but not certain equipment and facilities. Facilities such as the docks at Twin Lakes were not authorized, and blanket authority to use motorized tools for management purposes was not appropriate. The chief also ruled against the use of helicopters for public access or recreation use.

Twin Lakes Facilities and Cabin

In 1994 the Forest Service revisited the issue of facilities at Twin lakes, including the dock. The agency decision allowed the docks to remain for five years, or until they fell apart, whichever came first. The docks eventually rotted and fell into disrepair, creating a safety hazard that the Forest Service then removed. The decision also authorized construction of one outhouse, brushing of two campsites, and placement of two fire rings and logs for sitting. People using the nearby Twin Lakes cabin faced a steep, slippery climb up an active river cut bank for access to the site. Working with outfitters and guides, the Forest Service carved a ramp up the bank in 2006. Today access is manageable within wilderness challenge levels, and the river has so far been slow to erode the bank and ramp.

Figure 5—Private float houses are anchored in the navigable waterway, beyond the Forest Service uplands. Photo by Mark Hummel.

Hand-portable Motorized Equipment

In 1995 the Forest Service authorized permit holders to use hand-portable, motorized equipment in the wilderness, in accordance with ANILCA: chainsaws to cut subsistence firewood during nonpeak visitor times and motorized winches for removing legally killed moose during moose season.

Cabins and Tent Platforms

In 1995, 2000, and 2005, the Forest Service issued several decision memos that approved the continued authorization of research cabins, tent platforms, and administrative cabins allowed under ANILCA. ANILCA authorized continued use of private cabins as part of the 1980 compromise that included a one-time transfer of the permit, which then terminates upon the death of the holder.

Use of Helicopters

Although prohibition of helicopters for public access or recreation remained in force, in 1996 and 1997 the Forest Service authorized the Alaska Department of Fish and Game to use helicopters in support of Chinook salmon surveys, the U.S. Geologic Survey to service their river gauge, and Petersburg High School students to conduct glacier research on LeConte Glacier. The Forest Service also considered whether helicopter access could be allowed where traditional, pre-ANILCA use was documented. After considerable analysis, however, this proposal was denied based on ANILCA wording that specifically authorized "airplanes," not "aircraft."

Outfitters and Guides

Outfitter and guide use is authorized because of the specialized knowledge and equipment needed to access the Stikine-LeConte Wilderness for recreation and other purposes (see figure 5). When a cruise ship docks there is a flurry of day use by river guides that is important to the local economy. Activity without the cruise ships is growing as more visitors discover sites like Shakes Glacier and Lake (see figure 6). The Petersburg and Wrangell Ranger Districts conducted an area-wide analysis to establish the capacity of sites to accommodate all visitors (see figure 7) and then allocated a portion to outfitters and guides. The resulting decision allocated 10% in the areas within home range of a town to commercial outfitters and guides in wilderness and nonwilderness areas alike, and 25% in the areas outside home range of a town (USDA Forest Service 1997). Guides are currently using only 11% of their allocation in the Stikine-LeConte Wilderness.

Current Challenges

Private Group-size Limits

The 2006 Draft TNF Plan proposed a group-size limit of 12 for private parties—not just commercial—on all 18 wilderness areas on the TNF. The proposal threatened to constrain, to the point of shutting down, important activities the communities of Wrangell and Petersburg have enjoyed on the river for generations—such as spontaneous family and group gatherings at

Figure 6 (a and b)—Shakes Lake provides one of the most spectacular settings accessible by boat in the Stikine-LeConte Wilderness, including Shakes Glacier flowing from a massive ice field, icebergs, dramatic topography, and waterfalls. Photos by John Hendee and Mark Hummel.

Stikine-LeConte Wilderness managers must continue to maintain the area's wilderness qualities defined by the 1964 Wilderness Act, while providing for established traditional uses allowed by ANILCA.

favorite river locations. Local residents were extremely upset. Many Wrangell residents describe the Stikine River as the heart of the community and its residents—the lifeblood of the town, flowing through its past, present, and future (Hendee 2006). Despite strong local feelings about the issue, large-group gatherings are relatively rare. Approaches to this longstanding problem are now being explored in preparation of an SLWLA. One alternative is to designate small, area-specific exceptions to the private, nonguided group-size limit, but the braided river channel changes from year to year, with features appearing and disappearing periodically. Another alternative is to establish an exception to group limits along the entire river corridor up to a certain elevation or potential high-water mark.

Commercial Group-size Limits

For outfitters and guides, the group-size limit of 12 has been included as a stipulation in permits for years. Until recently, however, most boats only hauled six people at a time, so the group-size limit was either moot or weakly enforced. One guide described the river as a source of employment for increasing numbers of local outfitters and guides serving tourists from cruise ships and independent travelers. "The Stikine River is the key to economic growth for Wrangell," he said, "and the Forest Service should be working with us to make that happen (Hendee 2006). Outfitter and guide use is not yet near the limits established in the 1997 capacity allocation. Current policy allows them to offer more trips and take more than 12 people on their boats, but not more than 12 people at a time on wilderness land within sight and sound of one another (see figure 8).

Human Waste Disposal for Guided Visitors

Some river guides can bring up to 18 visitors at a time on their boats for three to four hours. That's a long time to go without having to "go." The result is more people digging catholes, or worse, not even digging catholes for sanitation and resource protection. Many guides would like to use the outhouses at Forest Service recreation cabins when they are not occupied. The structures are already present, they say, and often unused. However, many cabin users don't like this idea, feeling that if they pay for use of a cabin, the last thing they want to see is a line of desperate people asking to use their outhouse. Some guides would like to build an extra outhouse or two for clients, hidden along the river corridor but still easy to get to. Short of any other solution, a few guides propose anchoring float houses in the river to provide the necessary client facilities (see figure 5). The Forest Service is currently analyzing these and other alternative approaches using the Minimum Requirement Decision Guide to explore options.

Inventory, Research, and Helicopters

Air and water quality sampling will become increasingly important to monitor as land use and climate change increase (see figure 9). For example, monitoring could identify potential changes in water and air quality associated with proposed mining activity upriver in British Columbia. The Forest Service is currently considering two proposals to use helicopters in wilderness for monitoring purposes. The first proposal would allow dozens of helicopter landings in wilderness on the TNF to collect data periodically from permanent Forest Inventory and

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Figure 7—Dave Rak, Wrangell Ranger District wilderness coordinator, at the Rynda Cabin in the Stikine-LeConte Wilderness. U.S. Forest Service recreation cabins were constructed prior to wilderness designation in 1980 and were allowed to remain under ANILCA to provide recreation opportunities and emergency shelters. Photo by John Hendee.

Figure 8—Charter boats hold anywhere from six to 18 clients in round-trips that typically last three to four hours. Photo by Mark Hummel.

The Wind River Indian Tribes

BY DON ARAGON

[Editor's note: This paper was presented during the first Native Lands and Wilderness Council that convened at the 8th World Wilderness Congress in Alaska, 2005.]

Indigenous Knowledge

The World Wilderness Congresses (WWCs) have always operated on the principle that indigenous knowledge and perspectives must be included in any wilderness discussion to ensure a full understanding of the wilderness concept. This is an excellent approach to the development and preservation of wilderness areas, especially those areas that are under the control of Native American Indian Tribes.

Don Aragon at work on the Wind River Reservation, Wyoming, USA. Photo courtesy of Shoshone and Arapahoe Tribes.

The Shoshone and Northern Arapaho tribes of the Wind River Indian Reservation, at Fort Washakie, Wyoming, both through their tribal religion and their cultures believe that everything is connected and related, and that the world's environment is one. The land, the water, the air, the wildlife and animals, and humans are all related and are one in the eyes of the Creator. What happens to anyone happens to all, be it good or bad.

Nearby U.S. Federal Agency Wilderness Areas

The Wind River Indian Reservation is surrounded by wilderness areas that are designated as part of the National Wilderness Preservation System. To the west is the Popo-Agie Wilderness, which is 101,870 acres (41,243 ha) and was created in 1984. To the southwest of the reservation is the Fitzpatrick Wilderness Area, which is 198,525 acres (80,374 ha) and was created in 1976. To the northwest of the reservation is the Washakie Wilderness, created in 1964. It is the largest wilderness area in the state of Wyoming at 704,274 acres (285,131 ha). The Washakie Wilderness Area is named after the historical leader of the Shoshone tribe, Chief Washakie. Beyond the Washakie Wilderness is the Teton Wilderness, which was also created in 1964 and totals 585,338 acres (236,979 ha).

Indian Reorganization Act

The Indian Reorganization Act of 1934 (IRA), also known as the Wheeler-Howard Act, provided the tribes of the United States the opportunity to self-govern and reduce the influence of and the dependence on the Bureau of Indian Affairs (BIA) and the U.S. Congress. The act gave to the Indian tribes the power to control their own resources, to incorporate, and to hold final power of approval over the disposition of tribal monies and income-producing holdings. Even though the Wind River tribes rejected the federal government's IRA terms, the IRA program has meant continued gains in the strength of tribal governments, as well as a larger voice in dealing with the federal government. Many of the reforms in the IRA, such as tribal courts, have been adopted by the Wind River tribes, even though they rejected the constitutional option of the Wheeler-Howard Act.

Shoshone and Northern Arapaho Tribal Governance

The business council system has replaced the chief/council systems in both the Shoshone and Northern Arapaho tribes at Wind River, leading to the formation of the BIA-instituted

Land management on the Wind River Reservation includes intensive resource use as well as wildlands. These two photos show exploratory drilling for gas and oil, and large scale farming. Photo courtesy of Shoshone and Arapahoe Tribes.

Tribal Councils. Each tribe currently has a General Council composed of all members of the tribes and a Business Council of six members who deal with individual political and business affairs. The Joint Business Council of the Shoshone and Northern Arapaho tribes is made up of the six Shoshone council persons and the six Northern Arapaho council persons from each tribe.

The body of the whole in each tribe, the General Council, is considered by the tribes as the sovereign political power within the tribal governments. Through the late 1920s and early 1930s, governmental agents sought to make the smaller representative councils, especially the Joint Business Council, the more influential. This effort to deemphasize the importance of input from the whole tribe was encouraged as part of an overall detribalization effort by the U.S. government, intended to disengage Indians from their traditional forms of government and to adopt the representative democracy of the larger culture. In some cases, this erosion of Indian culture and government may have been well-intentioned or a result of simple ignorance of tribal values. It has been extensively noted that detribalization was a conscious effort on the part of federal officials to eradicate traditional Indian ways in order to gain control over the tribes and to access the valuable resources and land owned by the tribes.

Over a period of years leading up to 1934, the tribes resisted the pressures of assimilative procedures instituted by reservation agents and embraced their own as they saw fit and which met their needs. For many years the federal agents continued to pressure the Wind River tribes to adopt the IRA and form a constitution. Time after time, the two tribes' General Councils voted the IRA down. This was extremely frustrating to the federal agents, but they could do nothing about it. To this day, neither tribe has adopted the IRA, and both continue with their General Councils as the supreme body of the tribes.

Creation of a Roadless Area

In the earlier part of the 1900s, the Shoshone and Northern Arapaho tribes saw a lot of activity on the Wind River Indian Reservation. In 1905 and 1906 they saw the reservation opened up to homesteading by non-Indians. This happened in the northeastern part of the reservation, where the federal government opened what they called surplus reservation lands for homesteading.

The so-called surplus lands were open areas left over after the Dawes General Allotment Act of 1887 divided up reservation lands into individual land tracts for individual Indian families. The Dawes Act did much more than simply divide tribal lands among individual Indians. It also played a role in determining how much land the tribes would keep and how much would be open to acquisition by others, what citizenship rights Indians would have (because the bill tied land ownership to citizenship), what authority would be vested in the tribe and what in the individual, whether treaties would be honored or broken, and other similar and far-reaching policy issues. Not all of these questions were explicitly stated in the Dawes Act. But, because they were implicit in the terms of the act, the Dawes Act has had a greater impact on the history of the tribes and Indian culture than almost any other single piece of legislation.

Also, at this time in the history of the state of Wyoming, the federal government was seeking ways to open up passageways from the southern

Two views of the Milky Lakes, located high in the Wind River Range in the tribal wilderness/wildland area, and site of alpine water quality testing. Photo courtesy of Shoshone and Arapahoe Tribes.

parts of the state into the Yellowstone Park area. The eastern governmental administration felt it was important for the rest of the U.S. population to be able to travel to and see the greatness of the Yellowstone Park area and the grandeur of the Teton Range. The opening of this area would bring tourists, and the Wind River tribes were worried about their land and the invasion of tourism.

The federal government surveyed and planned a roadway over the mountains from the Wind River Reservation's northwest corner. From the small town of Dubois, Wyoming, this northwesterly roadway would pass over the Rocky Mountains at the Togwotee Pass area and drop down into Teton Park. The tribes witnessed this activity and felt that if they did not pass some kind of legislation to protect their wilderness areas, the government would build roads elsewhere over the Rocky Mountains, going through their lands. The tribes' concerns were presented to the governmental agents in the 1930s; the agents then worked with the tribes' wishes in creating a roadlesss area on the Wind River Indian Reservation. The creation of a roadless area set aside more than 188,000 acres (76,113 ha) of mountainous alpine areas and, to this day, the tribes still strongly protect it and do not allow any kind of motor-vehicle access. No roads or trails have been built in this area and none are planned.

Ironically, the same kind of concerns and activities were happening on other Indian reservations, and their activity created 12 such roadless areas and four wild areas on 12 Indian reservations across the country. The stated purpose was as follows:

"If on reservations, where the Indians desire privacy, sizable areas are un-invaded by roads, then it will be possible for the Indians of these tribes to maintain a retreat where they may escape from constant contracts with the white man."

The overall goal was to preserve some untouched land for future Indian generations. In most cases, the federal government established these areas without the consent of the tribes, and the affected tribes petitioned to have the areas declassified and redesignated as wilderness areas. The Wind River tribes did not have their roadless area declassified, nor has it been redesignated as a wilderness area; they left it the way it is, and they do not plan any kind of action in this area. At this time, the roadless area on the Wind River Reservation is classified as a Class II airshed (under the Federal Clean Air Act as amended in 1990), and the tribes have investigated the possibilities of having the airshed reclassified to Class I, which may happen in the near future.

The Wind River tribes worked with federal governmental officials and had the roadless areas set aside in 1934 and affirmed by the U.S. Congress in the same year. The Wind River tribal protection was taken well before the Wilderness Act of 1964, and the roadless area has been neither touched nor changed since the 1934 preservation by the tribes.

Industrial and Energy Development

In the state of Wyoming, the industrial development of the coal bed methane (CBM) gas and the development of ordinary natural gas drilling are serious threats to all the wilderness areas because of air pollution. The tribes have expressed their concerns about this energy development in Wyoming, and on the Wind River Reservation. The tribes have asked Devon Oil Company to complete a comprehensive environmental impact statement (EIS) to show the potential impacts of

CBM gas development on reservation lands. The EIS was being developed and was scheduled to be made public in 2006.

For the past 60 to 70 years, the Wind River tribes have depended on the extraction industries of oil and natural gas development as their bread and butter. This continues today on the reservation; the individual members of the two tribes share in the royalties that are derived from the oil and gas development. Since this is the main economy of tribes, they want the oil companies to be good partners and to protect the tribal lands the same way the tribes themselves have done. The most recent request for an EIS is the second time the tribes asked an oil company to provide one on the reservation, which shows good stewardship by the tribes.

Conclusion

The Shoshone and Arapaho tribes of the Wind River Indian Reservation have stood up against the federal government requests for them to adopt a tribal constitution and become IRA tribes. The two tribes still govern themselves, as they have for hundreds of years. Their General Councils, made up of all enrolled members of the two tribes, still make the decisions and develop the pathways for Tribal Councils to follow. **IJW**

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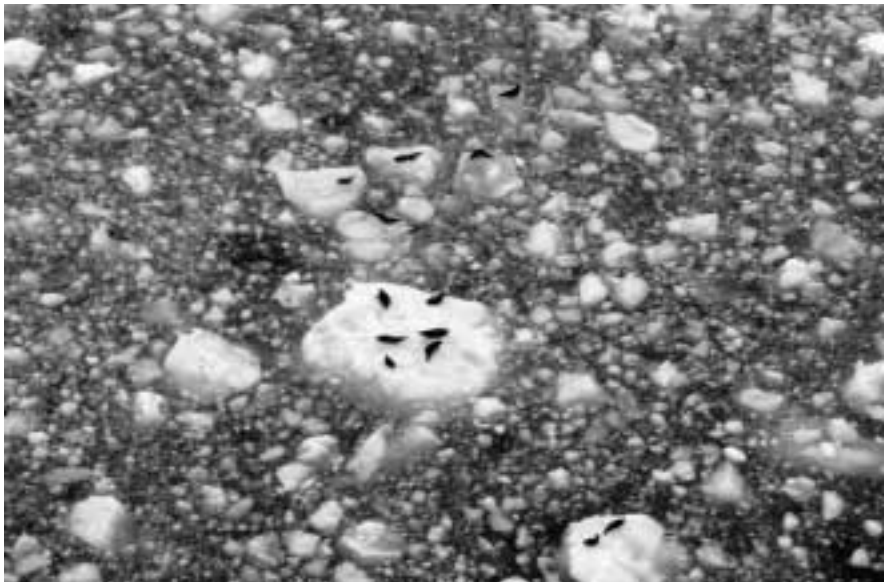

Figure 9—Harbor seals congregate on ice in LeConte Bay to bear pups in relative safety from sea lions and orcas. Photo by Mark Hummel.

Analysis plots. The second proposal would allow helicopter hovering during a four-day period to establish a detailed vegetation inventory scheme for managing and monitoring wilderness character.

Conclusion

Stikine-LeConte Wilderness managers must continue to maintain the area's wilderness qualities defined by the 1964 Wilderness Act, while providing for established traditional uses allowed by ANILCA. As issues evolve, flexibility, innovation, and public involvement will continue to be crucial in mediating the ongoing tension over how to interpret and apply ANILCA's provisions in the Stikine-LeConte Wilderness. **IJW**

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Contemporary Wilderness and American Indian Cultures

BY GREGORY F. HANSEN

Introduction

Generally speaking, there are no specific words for "wilderness" in American Indian languages. The primary reason for this is that Indian people have always lived close to the land, and what today we call "wilderness" in the United States was literally their home with which they had many relationships (Lyons 1989). Many aboriginal people, including those in the arctic north, experience

> "the environment as a whole, all the parts are interconnected in a seamless web of causes and effects, actions and outcomes, behaviors and consequences. People, animals, plants, natural objects, and supernatural entities are not separate and distinct. Rather, they are all linked to each other and to places where they reside through cultural traditions and interactive, reciprocal relationships." (Turner, Ignace, and Ignace 2000, p. 1279)

Greg Hansen.

In many cases among traditional people, this strong interconnectedness with the land is still very much alive today. The Lakota words Mitakuye Oyasin, which translates to mean "All My Relatives" (Severt Young Bear and Theisz 1994) is a good illustration of how all aspects of the universe are still referenced as "relations" in modern times.

Some of the larger reservations have open space that could possibly be set aside with a natural or wild designation, but the concept of designated wilderness does not always fit well into the modern-day agendas of Tribal Councils faced with the same real-life dilemmas of all modern societies, such as water-rights issues and natural resource utilization. As various authors have noted, there are important differences between the way Americans of European descent and American Indians think about and relate to land and resources (Krech 1999; Hansen 1992 and 1996).

Tribal Wilderness Designation

The Confederated Salish and Kootenai Tribes of central Montana set national precedent by being the first tribal group in the United States to establish what is recognized today as designated wilderness within lands surrendered to them, under governmentally sanctioned treaty decisions. The Confederated Salish and Kootenai Tribes designated the Mission Mountains Tribal Wilderness (89,500 acres; 36,235 ha) because of the importance of perpetuating culture and traditional practices:

> Wildlands or wilderness areas have always been very important to the peoples of the Confederated Salish and Kootenai Tribes for the perpetuation of culture and traditional practices. However, after the Allotment Act, the once natural and primitive lands of the Flathead Reservation became congested by settlement and development. Many sacred, cultural sites were destroyed. The only wild and untamed areas that remained were away from so-called "civilization," in the mountains where the bridge linking the past to present could be found. When these mountain lands became threatened by more development (logging, settlement, etc.), a movement was made to preserve the remaining untouched areas in their natural state. (University of Montana 1999)

The Mission Mountains Tribal Wilderness was designated in 1979 by the Tribal Council, who further defined

the geographic area and set the management direction in 1982 (Tribal Council Ordinance 79A and Resolution 82-173). In 1986 the Tribal Council established a wilderness buffer zone adjacent to the Mission Mountains Tribal Wilderness Area to further protect it from outside impacts and to preserve its ecological and cultural integrity.

The Tribal Council Ordinance 79A states:

> Wilderness has played a paramount role in shaping the character of the people and the culture of the Salish and Kootenai Tribes; it is the essence of traditional Indian religion and has served the Indian people and the culture of the Salish Kootenai Tribes; it is the essence of traditional Indian religion and has served people of these Tribes as a place to hunt, as a place to gather medicinal herbs and roots, as a vision seeking ground, as a sanctuary, and in countless other ways for thousands of years. Because maintaining an enduring resource of wilderness is vitally important to the people of the Confederated Salish and Kootenai Tribes and the perpetuation of their culture, there is hereby established a Mission Mountains Tribal Wilderness Area and this Area, described herein, shall be administered to protect and preserve wilderness values. (University of Montana 1999)

These tribal policy statements illustrate a difference between U.S. federal and tribal wilderness definitions. The tribes place the basic rationale for wilderness on preserving culture and religion while protecting the natural conditions on these lands in perpetuity, whereas the U.S. Congress focuses more on preserving some of the last remaining natural and undeveloped lands. Special considerations are given for tribal cultural and religious activities, at the same time human uses are not to interfere with preservation of the area.

All of the same management issues that face state and federal wilderness managers are inherent within tribal wilderness management as well. The following list illustrates some of the "common" issues that are identified in the Mission Mountains Tribal Wilderness Case Study:

- manage grizzly bear habitats for a sustainable bear population;
- manage endangered species and habitats for biological diversity;
- protect cultural sites;
- maintain fragile alpine ecosystems;
- manage riparian zones for water quality and wildlife protection;
- manage for municipal watershed protection;
- manage and maintain areas without trails for visitor experience quality;
- manage trail and campsite impacts caused by visitors; and
- manage fisheries to give special attention to waters containing native west slope cutthroat trout and native bull trout.

In addition to these common land management problems, there are some additional management challenges that tribal wilderness managers must address. For example, should nontribal members be allowed to enter and enjoy tribal wilderness lands and resources? The Mission Mountains Wilderness is managed primarily for tribal members, but does outline special management directions for nontribal members:

1. Use of any tribal lands or waters by nontribal members requires the purchase of a tribal conservation license and activity stamp (e.g., fish, bird hunt, or camp).
2. Nontribal group size limit of eight persons and eight head of livestock in tribal wilderness.
3. Nontribal use of a campsite for longer than three consecutive days is prohibited.
4. It is illegal for a nontribal visitor to carry or use a firearm.
5. No commercial outfitting or guiding on the tribal wilderness lands is allowed.

Although most resource and visitor use management issues transcend federal and tribal wilderness units, tribal managers are obligated to carry out strategies that solve unique issues, such as nontribal visitors. This, in some cases, makes tribal wilderness more difficult to manage than state or federally designated wilderness areas.

Reclassification of Federal Land to Tribal Wilderness

Federal reclassification and return of designated wilderness to tribal groups is rare, but it has occurred. One example is the return of Blue Lake and the surrounding area to the Taos Pueblo, which was legislated through Public Law 91-550, on December 15, 1970. The Blue Lake area, approximately 48,000 acres (19,433 ha) of U.S. Forest Service land located within the Wheeler Peak Wilderness, was returned to the Pueblo as it was one of their most important religious sites. However, legislation required the Pueblo to continue to manage the land as wilderness. The following excerpts from that legislation explain this unique wilderness management situation:

> The lands held in trust pursuant to this section shall be a part of the Pueblo de Taos Reservation, and shall be administered under the laws and regulations applicable to other trust Indian lands: Provided, that the Pueblo de Taos Indians shall use the lands for traditional purposes only, such as religious ceremonials, hunting and fishing, a source of water, forage for their domestic livestock, and wood, timber, and other natural resources for their personal use, all subject to such regulations for conservation purposes as the Secretary of the Interior may prescribe.
>
> Except for such uses, the lands shall remain forever wild and shall be maintained as a wilderness as defined in section 2 (c) of the Act of September 3, 1964 (78 Stat. 890). With the consent of the tribe, but not otherwise, nonmembers of the tribe may be permitted to enter the lands for purposes compatible with their preservation as a wilderness.

Although the government has ceded this area back to the Pueblo, both the Departments of the Interior and Agriculture remain involved in the overall management and administration of the Blue Lake area.

Conclusion

A native voice from the Alaskan village of Kotzebue renders: "It (wild-places) rejuvenates my Inupiaq spirit. It keeps my spirit alive like a vitamin for my inner strength and spirit. Reminds me of how weak and small we are compared to the powers of the land and ocean" (Watson, Kneeshaw, and Glaspell 2004, p. 6). Understanding this all-encompassing connection that American Indian people had, and still have, with the land is crucial when attempting to gain a sense of how Indian people view the concept behind modern wilderness designation. The basic concept of designated wilderness being a place one visits to escape the pressures of society is quite contrary to most traditional American Indian beliefs of natural places simply being interpreted as—Home!

Despite such varying perspectives, an effort has been made by some tribal groups to transcend these differing cultural barriers in a manner that fosters both traditional and progressive tribal people to agree on setting aside wild places under their administration. No matter what designation—wilderness, roadless, primitive, or recreation area—tribes throughout the United States have found ways to combine their traditions with the contemporary management of wildlands.

It is difficult to predict what direction tribal wilderness protection and management will take in the future, but Indian people will always have an important relationship with the natural environment. Chief Luther Standing Bear—of the great Oglala Nation—maybe said it best when he stated:

> We did not think of the great open plains, the beautiful rolling hills, and the winding streams with tangled growth as "wild." Only to the non-Indian was nature a "wilderness" and only to him was the land infested with "wild animals." To us it was tame. The Earth was bountiful and we were surrounded with the blessings of the Great Mystery.

It is within these words that one can begin to embrace the relatively conflictive ideologies that exist between American Indian cultures, and other cultures, in relation to the protection and management of wilderness.

Some tribal groups have been successful at integrating the mainstream concept of wilderness into their complex governmental organizations and, into existing contemporary American Indian cultures. For more detailed information pertaining to tribally managed wilderness, please refer to the State and Tribal Wilderness Management Toolbox and Manager's Resource Guide located on the Internet at www.wilderness.net. **IJW**

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Wilderness Day Use

Patterns, Impacts, and Management

BY J. DANIEL ABBE and ROBERT E. MANNING

Abstract: A survey of U.S. National Park Service (NPS) wilderness managers was conducted to better understand current wilderness day use issues. Findings suggest that (1) day users account for more than half of all NPS wilderness visitors; (2) NPS managers believe day users may perceive different values of wilderness, compared to overnight visitors; (3) NPS day users cause substantial resource and social impacts in wilderness; and (4) little NPS management action is directed specifically at day use impact issues.

Introduction

In some ways, the term *wilderness day use* may seem like an oxymoron. Aren't wilderness areas large and remote, requiring extended time to simply reach, much less travel through? That's certainly the conventional notion of wilderness (Nash 2001). Environmental philosopher Aldo Leopold suggested wilderness areas be large enough to "absorb a two week's pack trip" (1921, p. 719). Robert Marshall, cofounder of The Wilderness Society, argued that wilderness areas should be so large that they could not be traversed in a single day without mechanical means (Marshall 1930). Olson (1976) suggested that the psychological benefits of wilderness could be fully realized only after an extended visit. In a national assessment of outdoor recreation in the 1950s and 1960s, the Outdoor Recreation Resources Review Commission defined wilderness as areas of at least 100,000 acres (40,485 ha) (Wildland Research Center 1962). A consistent theme for wilderness has been its separation, both physically and mentally, from civilization.

Convention and reality sometimes diverge. By the time the Wilderness Act was signed into law in 1964, the minimum area size for consideration had dwindled to just 5,000 acres (2,024 ha) (Wilderness Act 1964). By the 1990s, day use was estimated to account for a large percentage of all wilderness use, perhaps as much as half or more (Marion et al. 1993). This has led some writers to call day use of wilderness "overlooked," "under-managed," and even "neglected" (Marion et al. 1993; Roggenbuck et al. 1994; Manning et al. 1996).

Dan Abbe in the Brooks Range of Alaska. Photo courtesy H. McKenny.

Robert Manning in Acadia National Park. Photo courtesy of the University of Vermont.

Growing day use of wilderness may be a function of converging trends. Population growth, of course, has continued since passage of the Wilderness Act, and much of this growth has expanded out toward wilderness areas. Population, income, and employment growth in western

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counties with wilderness lands has outpaced counties without wilderness as people search for areas with environmental amenities (Holmes and Hecox 2004). The National Wilderness Preservation System (NWPS) has also grown, and many acres of wilderness have been added that are relatively close to population centers. The Eastern Wilderness Act of 1975 was directed specifically at the need for more wilderness closer to the population (Eastern Wilderness Act 1975). The length of vacations in American society is shrinking (see figure 1), suggesting that (for better or for worse) two-week pack trips across the wilderness are being replaced with weekend getaways and day trips (Robinson 2003; Schor 1992).

The Study

This study was designed to explore the subject of wilderness day use, including its patterns, impacts, and management. The study consisted of a survey of wilderness managers in the U.S. National Park Service (NPS). The NPS is one of four federal agencies that manage wilderness, and it currently manages 43.7 million acres (17.7 million ha) of designated wilderness that accounts for 41% of the NWPS. In addition, the NPS applies wilderness management guidelines to lands that are "suitable, study, proposed, or recommended" as wilderness, and these lands total 23.3 million acres (9.4 million ha) (NPS 2000). Thus, the NPS manages nearly 67 million acres (27.1 million ha) of designated or de facto wilderness, accounting for 80% of the national park system (NPS 2006).

Figure 1—If day users have different concepts and values of wilderness (as compared to more conventional overnight visitors), then wilderness impacts may change along with more day use wilderness visitors. Selway River, Idaho. Photo by George Wuerthner.

All 87 NPS units with wilderness management responsibilities, as defined by NPS Management Policies, were included in this study (NPS 2000). These areas included all NPS designated, proposed, recommended, and study wilderness areas. Managers were sent a mailing introducing the study in October 2004. This mailing explained the purpose and significance of the study, contained a letter of endorsement from the chair of the NPS National Wilderness Steering Committee, and included instructions for accessing and completing the online questionnaire. The questionnaire was available online for approximately three months. To help ensure a high response rate, phone calls or electronic correspondence were conducted biweekly with nonrespondents. At the end of the three-month survey period, all managers had completed the questionnaire.

In an effort to maintain consistency with previous surveys of managers, the study questionnaire was modeled after a survey of NPS backcountry managers conducted in 1993 (Marion et al. 1993). However, the questionnaire had to be adapted to the issue of wilderness day use and to a Web-based format. The Tailored Design Method was used to guide question wording and format (Dillman 2000; Sudman and Bradburn 1982; Payne 1965). The questionnaire asked about wilderness day use patterns, impacts associated with wilderness day use, and management of wilderness day use.

Study Findings

Eighty-seven unit managers were contacted and since several NPS units were managed by one administrative entity, the total number of responses was 81 for a 100% response rate. Respondents to the survey included chiefs of resource management (40.5%), protection rangers (32.4%), park superintendents (16.2%), and "other" administrative personnel (10.9%). The survey of wilderness managers found that most were well educated and highly experienced. Almost all (97%) had a four-year college degree, and on average, respondents had 20 years of NPS experience, 14 years working with wilderness, and eight years in their current wilderness area. This suggests a high level of knowledge about wilderness in general and about study areas in particular.

Day Use Patterns

Managers were asked to estimate the percentage of all wilderness visitors that are day users, and this estimate averaged 57% across all areas. Nearly half of respondents (48%) reported that day users were more than three-quarters of all visitors. Three respondents reported that 100% of visitors are day users (these NPS units do not allow overnight visitors), and four respondents reported no day use. Not only do managers report a large

percentage of day use, but many report that day use extends far into wilderness areas. Managers reported that their wilderness areas include an average of 101 miles (163 km) of officially recognized trails, and that day visitors are estimated to use an average of 65 miles (104 km) of these trails.

Wilderness day use is viewed as increasing over the past 20 years. Many managers attributed increasing day use to growth in population and better access to wilderness areas. The majority of managers (60%) estimated that most wilderness day users travel fewer than 120 miles (193 km) to reach their wilderness areas. The average length of stay for wilderness day users was estimated at five hours.

Growing day use of wilderness may be a function of converging trends.

Wilderness day users were seen to be changing. When asked if they had noticed any changes in wilderness day users, 45% of respondents said "yes." The most frequently noted changes were larger groups, greater racial/ethnic diversity, more "special uses" (e.g., rock climbing), and more women. Previous analysis comparing day and overnight wilderness users at several wildernesses also reported more diversity in personal characteristics among day users (Cole 2001). Some of these changes in diversity may reflect the changing demographic character of American society (Cordell and Overdevest 2001).

The vast majority of managers (74%) reported they thought that day users had a different perception of wilderness compared to more conventional overnight visitors. A majority of these managers (62%) reported that day users had different concepts or values of wilderness (see figure 2).

Figure 2—Changing American vacation patterns may result in more wilderness use that is characterized by weekend and day trips. Castle Crags Wilderness, California. Anonymous photographer.

Impacts of Day Use

Managers were asked to review 34 potential impacts of wilderness day use, grouped into six categories. For each potential impact, managers were asked if it was a problem "in all areas" of their park, "in many areas" of their park, "in a few areas" of their park, or "not a problem" in their park. The majority of managers believed that 14 of the potential impacts were problems in at least a few areas of their parks (see table 1).

Trail Impacts

Wilderness managers reported that trail impacts from day use were relatively common and widespread. Sixty to 76% of managers reported that the four types of trail impacts included in the survey were a problem in at least a few areas of their wilderness. Soil erosion was rated as the most significant trail-related impact, and braided or multiple trails was rated as the least significant.

Litter/Fecal Matter Impacts

Litter was reported as a problem associated with day users in at least a few areas by a majority (64%) of managers. Managers reported that human fecal matter impacts were less widespread, but most managers (53%) identified this as a problem attributed to day users in at least a few areas of their wilderness.

Wildlife Impacts

A majority of managers (59%) reported that the impacts of harassment or disturbance of wildlife attributed to day users were problems in at least a few areas of their wilderness. Feeding of wildlife by day users was a problem in at least a few areas for 59% of managers. Disturbance of threatened or endangered species by day users was reported by 41% of managers to be a problem in at least a few areas.

Illegal Collecting

Illegal collection or theft of park resources represents potentially important impacts, some of which are irreversible. A majority of managers (59%) reported that collection of archaeological artifacts is a day user problem in at least a few areas, and 51% of managers responded similarly for illegal collection of plants.

Visitor Crowding and Conflicts

A majority of managers reported crowding problems attributed to day users in at least a few areas at popular features (56%) and by day use visitors in large groups (55%). The most commonly reported inconsiderate behavior problem of day users in a few areas (58%) was pets that were off of their leash. Excessive noise caused by day users was also reported as a problem in at least a few areas by a majority (51%) of managers.

Table 1. Impacts of Wilderness Day Use

	Not a problem	Problem in a few areas	Problem in many areas	Problem in all areas
Trail Impacts	%	%	%	%
Soil erosion (n=74)	24.3	54.1	20.3	1.4
Trail widening (n=75)	30.7	50.7	16.0	2.
Braided/multiple treads (n=74)	37.8	47.3	10.8	4.1
Creation of undesirable trails (n=75)	29.3	45.3	20.0	5.3
Litter/Fecal Matter Impacts				
Litter (n=75)	36.0	49.3	9.3	5.3
Human fecal matter (n=75)	46.7	40.0	13.3	0
Water Impacts				
Biological contamination (e.g., giardia) (n=73)	61.6	28.8	6.8	2.7
Chemical contamination (e.g., soaps, gasoline) (n=73)	74.0	24.7	1.4	0
Sedimentation (e.g., soil erosion) (n=73)	58.9	35.6	5.5	0
Wildlife Impacts				
Harassment/disturbance of wildlife (n=74)	39.1	59.5	5.4	0
Displacement of wildlife from important habitat (n=73)	52.1	42.5	4.1	1.4
Attraction/feeding of wildlife (n=75)	41.3	48.0	9.3	1.3
Disturbance of threatened/endangered species (n=74)	56.8	40.5	2.7	0
Illegal Collecting Impacts				
Plants (n=74)	48.6	41.9	5.4	4.1
Animals (n=73)	61.6	37.0	1.2	0
Fossils (n=73)	75.3	19.2	4.1	1.4
Archaeological artifacts (n=74)	40.5	54.1	2.7	2.7
Rocks/minerals (n=72)	56.9	34.7	4.2	4.2
Visitor Crowding and Conflicts Impacts				
Crowding				
At rest areas (n=75)	62.7	32.0	5.3	0
At popular features (n=75)	44.0	40.0	13.3	2.7
While hiking on trails (n=75)	56.0	33.3	10.7	0
While traveling in boats (n=73)	79.5	19.2	1.4	0
By people in large groups (n=75)	45.3	44.0	9.3	1.3
Visitor Conflict				
At rest areas (n=74)	73.0	24.3	2.7	0
At popular features (n=74)	63.5	28.4	5.4	2.7
While hiking on trails (n=74)	66.2	25.7	8.1	0
While traveling in boats (n=72)	86.1	13.9	0	0
By people in large groups (n=74)	60.8	33.8	4.1	1.4
Inconsiderate Visitor Behavior				
Excessive noise (n=74)	48.6	45.9	2.7	2.7
Use/abuse of alcohol (n=74)	67.6	28.4	2.7	1.4
Nudity (n=74)	82.4	16.2	1.4	0
Pets off leash (n=74)	41.9	43.2	10.8	4.1
Theft (at parking areas or in wilderness) (n=72)	62.5	30.1	2.8	0
Vandalism (at parking areas or in wilderness) (n=73)	60.3	35.6	3.7	0

Day Use Management

A list of 85 potential management actions, organized into eight categories, was presented to managers. Respondents were asked to report those actions that had been implemented—to manage day use specifically and all wilderness use more generally—in the wilderness areas they manage. Several terms were used to differentiate between direct and indirect management actions (Gilbert et al. 1972; Lime 1977; Peterson and Lime 1979; Chavez 1996). The words *encourage* and *discourage* were used to reference indirect management actions such as information and education. The words *require* and *prohibit* were used to reference direct management actions such as rules and regulations.

Of the 85 potential management actions included in the questionnaire, only eight were reported as applying specifically to day users (and not to all wilderness users) by more than 5% (up to a maximum of 9%) of managers. These management actions included (1) verbal warnings for violations of regulations, (2) closure/rehabilitation of undesired trails, (3) discouraging off-trail travel, (4) discouraging uses of unofficial trails, (5) encouraging quiet behavior/activities, (6) removing visitor trash, (7) instructing visitors not to feed wildlife, and (8) prohibiting pets. The apparent lack of focus on day use management may be a function of the general overlap of management actions that can apply to both day and overnight wilderness use. A majority of managers reported applying a total of 16 management actions to all wilderness users. Managers tend to rely more heavily on indirect than direct management practices.

Managers were asked about the issue of carrying capacity. In its most generic sense, carrying capacity refers to the amount and type of visitor use that can be accommodated without unacceptable impacts to wilderness resources and the quality of wilderness experience (Shelby and Heberlein 1986; Manning 2007). A majority of managers reported being familiar with carrying capacity frameworks; however, most managers (76%) had not estimated the carrying capacity of their areas, and less than 5% had estimated carrying capacity with the aid

of ecological or social science studies. This is in stark contrast to the fact that a slight majority of managers (51%) felt that day use occasionally exceeds carrying capacity at least at some times and locations.

The vast majority of managers thought that it is important to manage day use in their wilderness, either in all areas (32%), or only in some areas (53%); 85% of managers felt that day use of wilderness will have to be managed in the future. Most managers felt that no (28%) or some (38%) wilderness day use issues were not currently adequately managed.

Discussion and Conclusions

The Web-based data collection approach of this survey worked well. The response rate was an impressive 100%. The survey process was relatively short, and data reported by respondents were downloaded directly into a local database for analysis. This survey approach offers a relatively quick and inexpensive approach to gathering data on wilderness use and management and can be used for periodic surveys of managers of wilderness and related areas. In addition, as Internet access continues to expand, it may become feasible and acceptable to visitors to administer Web-based surveys directly to them.

Findings from this study suggest that wilderness day use visitation is an important form of wilderness use in total numbers of visitors. Wilderness day use appears to be increasing, and managers believe it now constitutes more than half of all wilderness visitors on lands managed by the NPS. Beyond increasing numbers, day use presents important and growing management challenges. Day use is penetrating farther into wilderness areas than originally anticipated. Managers attribute multiple resource and experiential impacts in wilderness to day use visitors. Many managers report a need for more management of wilderness day use, now and in the future, because current management efforts do not appear to be substantive or satisfactory. Many managers feel important day use–related issues are inadequately addressed (or not addressed at all). For example, even though many managers feel that day use contributed to exceeding visitor carrying capacity in some places and at some times, carrying capacity has generally not been analyzed, and certainly has not been supported by research. Even though day use is thought to cause many resource and social impacts, little or no management is directed explicitly at this type of use.

The vast majority of managers (74%) reported they thought that day users had a different perception of wilderness compared to more conventional overnight visitors.

Managers reported that wilderness day users themselves may be different from overnight visitors. In some ways, this may be good for public support for wilderness. More racial, ethnic, and gender diversity among day users might broaden the base of public support for wilderness and help decrease a long-standing issue of social/environmental inequity. However, in some ways, this change will also be challenging. If day users truly bring with them differing concepts and values of wilderness, then wilderness impacts may change along with wilderness visitors.

It is important to emphasize that this study is based on the *perceptions* of wilderness managers. More objective information is ultimately needed to test the validity of these findings. Many managers commented in the open-ended portions of the questionnaire that more objective data on wilderness use and users were needed.

More visitor research is needed to begin to answer the questions that logically flow from this and related surveys. Why are day use visitors believed to have such substantial impacts on wilderness and related experiences? Are they less prepared for wilderness use compared to overnight visitors? Is this lack of preparedness related to equipment, knowledge, or some other dimension? Is it related to wilderness values and ethics? Is wilderness use by day visitors wilderness dependent, and how does it compare to overnight use? How are wilderness values changing over time among overnight and day users? Considering these and related questions, should management of wilderness day use differ in any important ways from management of overnight use and, if so, how? **IJW**

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An Examination of Constraints to Wilderness Visitation

BY GARY T. GREEN,* J. M. BOWKER,* CASSANDRA Y. JOHNSON, H. KEN CORDELL, and XIONGFEI WANG

Abstract: Certain social groups appear notably less in wilderness visitation surveys than their population proportion. This study examines whether different social groups in American society (minorities, women, rural dwellers, low income and less educated populations) perceive more constraints to wilderness visitation than other groups. Logistic regressions were fit to data from the National Survey on Recreation and the Environment and used to model the probability that individuals perceive certain constraints to wilderness visitation. Seventeen structural, personal, and psychological constraints related to health, facilities, socioeconomic standing, and other personal factors were examined. Modeled probabilities were explained by age, race, gender, income, education, place of birth, and rural and regional residence. Results revealed minorities, women, lower levels of income and education, and elderly populations were more likely to perceive they were significantly constrained from visiting wilderness. However, immigrants perceived fewer constraints to wilderness visitation than was expected.

(Left to right) Gary T. Green, Ken H. Cordell, Cassandra Y. Johnson, and J. M. Bowker. Photo by Eric A. Kuehler.

Xiongfei Wang. Photo by Eric A. Kuehler.

Introduction

On September 3, 1964, the Wilderness Act was signed, placing more than nine million acres (3.6 million ha) of wildlands throughout the United States into protected preserves (Hendee and Dawson 2002). These preserves were to be "administered for the use and enjoyment of the American people" (U.S. Public Law 88-577 (2a), 1964). They were also "to secure for the American people of present and future generations the benefits of an enduring resource of wilderness" (U.S. Public Law 88-577 (2a), 1964). Today, over 105 million acres (42.5 million ha) of designated wilderness exist (Despain 2006)).

Currently more than 56 million Americans per year visit a designated wilderness or primitive area (which some

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perceive as wilderness) for activities such as hiking, canoeing, camping, horseback riding, hunting, and fishing (Bowker et al. 2006). Millions more also enjoy more passive activities such as bird-watching, photographing wildlife, or simply sitting quietly and viewing beautiful scenery (Cordell et al. 2004). Research shows (and predicts) that with each passing year more and more people are choosing to visit wilderness or primitive areas to participate in wilderness type activities. In fact, some estimates are projecting a growth of 26% in overall wilderness or primitive area recreation users by 2050 (Cordell et al. 2005; Bowker et al. 2006).

Part of this growth and interest in wilderness (or perceived wilderness) visitation is related to the benefits that are associated with these areas and their use (Cordell, Tarrant, and Green 2003). Besides clean air and water, research has shown that some people accrue physical, spiritual, and psychological benefits from visiting wilderness areas (Cordell, Tarrant, McDonald, and Bergstrom 1998; Mace, Bell, and Loomis 2004). Other research has also shown that wilderness areas are valued by many people for their historical, environmental, cultural, recreational, or religious significance (Cordell et al. 2005; Johnson, Bowker, Bergstrom, and Cordell 2004; Schuster, Cordell, and Phillips 2005; Taylor 2000).

Despite the benefits and values that people place on, and accrue from wilderness areas and their use, some studies have shown that certain segments of American society do not, or seldom, visit or recreate within wilderness (Bowker et al. 2006; Cordell, Betz, and Green 2002). Unfortunately, few researchers have examined whether different segments of American society simply choose not to visit wilderness areas or whether they instead encounter or perceive constraints to wilderness visitation.

The Problem

Significant demographic changes are currently occurring, and are projected to continue to occur, in this country (Riche 2000; U.S. Census Bureau 2000). The American population is rapidly becoming more racially and culturally diverse (Taylor 2000). Yet, in regard to visitation and use, wilderness areas remain and are still strongly associated as areas predominantly used by white males (Bowker et al. 2006; Roberts and Rodriguez 2001). If our public lands (including wilderness and primitive areas) are to continue to receive the same support from the American people as in previous years, then the views and patronage of these growing diverse groups (e.g., Hispanics, Blacks, women) could become increasingly important to the future allocation or management of our public lands (Johnson et al. 2004: Taylor 2000) (see figure 1).

The Wilderness Act (1964) recently celebrated its 40th anniversary. It seems both an appropriate and auspicious time to examine whether the wilderness areas (as well as the primitive areas) set aside for the enjoyment, use, benefit, and permanent good of all Americans are actually being utilized and enjoyed by all. This study hypothesizes that certain social and marginalized segments of American society (e.g., minorities, women, urban dwellers, immigrants, lower income and educated groups) are more likely than others (e.g., whites, men, nonimmigrants, and rural dwellers) to encounter or perceive their visitation and use of wilderness areas are constrained by factors related to socioeconomic

Figure 1—Woman and child preparing to go dog sledding in the Denali Wilderness, an area managed in Alaska by the National Park Service. Photo by Bob Butterfield (NPS).

standing, facilities, health, and other personal factors. In particular, 17 specific constraints, which may be grouped into two general categories, internal and external, are examined. Although the primary focus is on race (Blacks, Hispanics, Asian/Pacific Islanders), immigration, gender, rural and regional residence, income, age, and education were also examined. Following Henderson (1991, p. 366), an outdoor recreation constraint was defined as "anything that inhibits people's ability to participate in leisure activities, to spend more time doing so, to take advantage of leisure services, or to achieve a desired level of satisfaction." These include internal constraints such as personal skills, abilities, knowledge, and health problems; and also external constraints such as lack of time, transportation, or facilities (Jackson 1988).

This study focused specifically on perceived constraints to recreation use of wilderness or primitive areas. Constraints to wilderness access and use were reported by individuals who had visited or indicated an interest in visiting a wilderness or primitive area in the last 12 months. Individuals who had not visited or had no interest in visiting a wilderness or primitive area were also surveyed.

Benefits and Values of Our Public Lands

Enjoying our public lands and participating in outdoor recreation activities are considered fundamentally important and beneficial elements of many people's lives (Tinsley, Tinsley, and Croskeys 2002). However, despite the substantial research that indicates the benefits and values people associate with visiting and using our public lands, certain social and marginalized groups in American society (e.g., Blacks, Hispanics, women, urban dwellers, immigrants, low income or less educated populations) are typically underrepresented in terms of overall visitation and use (Cordell et al. 2004). This underrepresentation is especially apparent when considering visitation and use of wilderness areas (Bowker et al. 2006; Eller 1994).

Constraints

Research pertaining to leisure and recreational constraints began in the 1970s and was substantially expanded during the 1990s (Crawford, Jackson, and Godbey 1991; Henderson 1991; Jackson 1997, 2000). Early research focused mainly on racial or gender differences, whereas recent research has examined the effects of income, education, age, and residence on people's participation in recreational activities (Arnold and Shinew 1998; Johnson et al. 2001). Despite the growth of research on constraints, relatively few studies have examined how socioeconomic factors or other issues (e.g., access, services, transportation) combine to constrain certain groups from accessing our public lands and participating in outdoor recreational activities (Arnold and Shinew 1998; Johnson et al. 2001; Philipp 1997). And, in particular, no research has looked specifically at constraints in regard to wilderness visitation and use.

Some studies have shown that certain segments of American society do not, or seldom, visit or recreate within wilderness.

Approximately 32% of Americans (aged 16 and over) per year visit a wilderness or other primitive area for purposes of recreation, whether for hiking, solitude, or just to view nature (Cordell et al. 2004; Cordell and Teasley 1998). Historically, visitation and use of wilderness areas have been seen as activities primarily enjoyed and engaged in by white, able-bodied males with above-average education and income (Bowker et al. 2006; Johnson et al. 2004). However, recent years have witnessed an increase in the numbers of "nontraditional" users of wilderness such as minorities and women (Cordell et al. 2005; Cook and Borrie 1995). Yet despite the recent and current growth in the diversity of the American population, visitation and use of wilderness areas by marginalized groups remains relatively low (Cordell et al. 2005; Riche 2000). Subsequently, the question remains as to whether certain marginalized groups in society (e.g., women, Hispanics, Blacks, immigrants, etc.) simply choose not to visit our wilderness or primitive areas or whether these groups are encountering, or have encountered, constraints that result in them being less likely than other groups to visit these lands (e.g., white, male, rural dwellers) (Johnson et al. 2004).

However, research has indicated that various social and marginalized groups perceive greater barriers to recreation participation and access to public lands than other groups that constitute the core of mainstream American society, the latter being principally white families with middle-class incomes and values (Johnson et al. 2004). In fact, a number of studies have found that females (Henderson 1991; Henderson and Bialeschki 1991; Scott and Jackson 1996), Blacks (Floyd 1998; Philipp 1995), older people (Payne, Mowen, and Orsega-Smith 2002; Scott and Jackson 1996), immigrants (Stodolska 1998), people with lower incomes (McCarville and Smale 1993; Scott and Munson 1994), and less-educated people (Alexandris and Carroll 1997) are likely to perceive more constraints to visitation and use of our public lands.

Specific studies have established that Blacks are less likely than whites to recreate in dispersed or primitive settings or to travel to regional recreation areas (Bowker et al. 2006; Dwyer 1994; Philipp 1993). The marginality theory of recreation behavior attributes minority (particularly Black) differences in recreation behavior to social structural barriers such as lack of discretionary funds, transportation, and information about facilities (Johnson et al. 2001; Stamps and Stamps 1985). Colston and Patton (1994) also noted that many Blacks reported having reduced recreation opportunities due to poor access, information, availability, facilities, and so forth, or, in other words, constraints.

Regarding gender, Henderson and Bialeschki (1991) and Wearing

and Wearing (1988) submitted that because of familial responsibilities, in particular the role of women as caretakers, women tend to deny themselves opportunities to engage in outdoor recreational activities because they feel constrained. Henderson (1991) also argued that women's lives are structured to give greater consideration to others than to themselves. Fear of attack and harassment also represent very real psychological constraints to women's pursuit of outdoor recreation (Arnold and Shinew 1998). Women are more likely than men to feel inhibited in going to remote camping areas or hiking alone on backcountry trails because of fear of attack, rape, or other sexual harassment (Goble et al. 2003; Henderson 1991).

Recreation constraints for urban residents may be related to how marginalized populations in such areas have historically defined or perceived public lands. For instance, some marginalized groups may perceive they are unwelcome on public lands due to negative cultural perceptions, lack of positive role models, or poor marketing and outreach services by the managing agency. Also, in spite of the presence of public lands (including wilderness areas) near many cities, the mere existence of such resources does not guarantee recreational use by local populations (Loomis 1999).

Some recent studies have also suggested social-psychological factors such as place-meaning are important in understanding lack of participation by minorities (Virden and Walker 1999; Williams and Carr 1993). For instance, Johnson et al. (1997) found Blacks in north Florida were less likely than whites to recreate in wildland areas, although both groups had access to a local national forest. Lack of Black visitation to wildlands was related to the relative lack of "place attachment" that Blacks held for wildlands, compared to whites. Johnson et al. (2004) also found that immigrants indicated less on-site values (e.g., had visited or planned to visit a wilderness area) for wilderness than U.S.-born people. Asians and Latinos also indicated less on-site values for wilderness than whites.

Methodology

The National Survey on Recreation and the Environment (NSRE) is the United States's on-going, nationwide recreation survey, dating back to the Outdoor Recreation Resources Review Commission of 1960 (Cordell et al. 1996). Data for this study came from the NSRE (2000–2004) which was an in-the-home phone survey of 85,000-plus households across all ethnic groups and locations throughout the United States. Data on individual and household characteristics and information about recreation participation (activities, days, trips) were collected from everyone.

> Managers should strive to be sensitive to the fact that some people often face multiple constraints to visitation.

In examining people's use of public land Scott and Munson (1994) found that income was the main predictor of perceived constraints to visitation. Furthermore, "fear of crime, lack of companionship, poor health, transportation problems, and costs" were also found to limit usage by people of low income (p. 79). Research by Johnson et al. (2001) also discovered that people with lower per capita incomes were more likely than people with higher per capita incomes to feel they were constrained in regard to lack of funds and lack of transportation. In the same study, older people were found to be less likely than younger ones to say insufficient time, no companions, and inadequate information hindered their participation in outdoor recreation activities.

The preceding discussion indicates that minorities, women, urban dwellers, immigrants, the elderly, and low income groups face more structural, personal, and psychological challenges to public land (including wilderness areas) visitation and use than other groups.

The NSRE used stratified random sampling done in 18 versions. Each version consisted of five modules or sets of questions. Recreation activity participation and demographics modules composed the core of the survey and were asked of all people sampled. For instance, some modules gathered information about last trip profile, life style, land management agencies, environmental attitudes, recreation benefits, or wilderness constraints (Cordell et al. 1999, 2004).

The NSRE was conducted using a computer-aided telephone interviewing system with a random digit dial sample. The interviewer, upon hearing someone answer, inquired how many people in the household were 16 years or older. The interviewer then asked to speak to the person 16 or older who had the most recent birthday (Oldendick et al. 1988). Upon reaching an appropriate

person, the interviewer read the survey questions as they appeared on the computer screen. The wilderness constraints questions were included within version 11 of the NSRE; data were collected from July through November 2001.

Before reaching the wilderness constraints module, all respondents were read the following passage: "Did you visit a wilderness or other primitive, roadless area (within the last 12 months)?" Individuals who indicated that they had visited a wilderness or other primitive, roadless area within the past year (or expressed an interest or desire to visit) were subsequently asked 17 questions on constraints (see Table 1). For each question individuals were asked to indicate by "yes" or "no," whether that constraint affected their ability to visit a wilderness area.

To statistically test whether the groups of interest (minorities, women, rural dwellers, immigrants, low income, less educated) were more (or less) constrained in their visitation of wilderness areas than their counterparts, logistic regression equations were estimated for each of the constraints. Logistic regression can be used to model the probability of binary outcomes; here, whether an individual responded "yes" or "no" to perceiving a given constraint toward wilderness or primitive area visitation. For each constraint the logistic regression was specified as:

$$prob(yes) = \frac{\exp(XB)}{1 + \exp(XB)} \qquad (1)$$

where, X is a vector of explanatory variables and B is a parameter vector (Greene 2002). Both binary and continuous explanatory variables were included. A statistically significant positive coefficient on any of these variables would indicate that the probability the respective group feels constrained in their visitation to wilderness areas is higher than for those outside the group. Such a finding would suggest that the particular group was more affected than the base case (U.S. born, white, male, rural, high school educated, North), and hence the null hypothesis could be rejected.

Continuous variables included age and household income. Binary variables were used for ethnicity (Black, Hispanic, Asian/Pacific Islander), gender (female), region (South, Central, West), education (less than high school, bachelor's degree or more), immigrants (not born in the United States), and for residency (urban).

Table 1. Dependent Variables Used in the Wilderness Constraints Groupings

Personal	Don't have enough time because of long work hours or long school hours
	Don't have enough time because of family, childcare, or other home-related duties
	Can't afford the equipment needed for wilderness use
	Can't afford to travel to wilderness area
	Hiking and climbing trails are difficult and physically tiring activities
	Have a physical disability
	Don't have enough hiking, map reading, or camping skills
	My family and friends don't usually visit wilderness areas
Structural	Not aware of a wilderness area you could visit, if you wanted to
	Wilderness areas are crowded
	Don't know about the recreation opportunities in wilderness areas
	Wilderness areas lack basic services such as restrooms
Psychological	Feel uncomfortable in wild, remote natural areas
	Prefer being in places with more people
	People of my race believe wilderness areas are not safe
	My family and friends believe wilderness areas are not safe
	Concerned for my personal safety

Results

Logistic regression models for "visited a wilderness area" and each constraint were estimated using LIMDEP 8.0 (Greene 2002). Table 2 lists variable definitions, coding, and sample means. Analysis revealed that "visited a wilderness area" plus all 17 constraint regressions were statistically significant based on likelihood ratio tests (Greene 2002). Results for each explanatory variable are presented below (see table 3 for summary of results significant at $p \leq 0.05$).

Age was significant for 10 of the constraints equations. In three of the cases ("don't have enough time because of long work hours or familial duties," and "friends and family don't visit wilderness areas") the coefficients were negative, meaning that as people grew older they felt less constrained by these reasons from being able to visit a wilderness area.

Conversely, in the cases of "physical disability," "feel uncomfortable in wild areas," "wilderness areas are crowded," "my race believe areas are unsafe," "hiking and climbing trails is difficult," "lack basic services," and "concerned for personal safety," people felt more constrained by these reasons as they grew older. Furthermore, in general, as people become older they are less likely to say they visited a wilderness area.

Of the nine significant constraints equations related to gender, women felt more constrained than men in all nine. For the reasons of "not aware of wilderness areas," "physical disability," "feel uncomfortable in wild areas," "don't have enough hiking and map reading skills," "prefer places with more people," "don't know about recreation opportunities," "hiking and climbing trails is difficult," "lack basic services," and "concerned for personal safety," women felt more constrained than men from visiting a wilderness area. Furthermore, women were also more likely to say they had not visited a wilderness area.

Three constraints equations were significant for immigrants. Immigrants were more likely to say they had not visited a wilderness area, that they "prefer places with more people," and were "concerned for their personal safety." However, immigrants felt less constrained than people born in the United States for the reason of "family and friends don't visit wilderness areas."

Six constraints equations for income resulted in significant negative coefficients, indicating that people with lower household incomes felt more constrained than people with higher household incomes from being able to visit a wilderness area. Households with lower incomes felt more constrained for the reasons of "can't afford the equipment," "can't afford to travel," "have a physical disability," "prefer being in places with more people," "concerned for personal safety," and "hiking and climbing trails is difficult." Conversely, people with higher household incomes felt more constrained due to reasons of "don't have enough time because of long work hours or familial duties," and "family and friends don't visit wilderness areas." However, in general, as people's income increases they are more likely to say they had visited a wilderness area.

People with less than a high school education felt less constrained than people with a high school education from visiting a wilderness area due to reasons of "don't have enough time because of my job and family." However, for reasons of "prefer being in places with more people" and "concerned for personal safety," people with less than a high school education felt more constrained than people with a high school education. Furthermore, as people's education level increases they are more likely to know about "recreation opportunities in wilderness areas," to have "family and friends who believe wilderness areas are safe," and to have visited a wilderness area. People with a graduate degree are also more likely to "have visited a wilderness area," "be able to afford equipment," and "have enough hiking and map reading skills," than people with a high school education.

Thirteen constraints equations were significant for Blacks. Except for the reason of "have a physical disability," Blacks felt more hindered from visiting wilderness areas than whites for the reasons of "not aware of a wilderness area they could visit," "could not afford the equipment or to travel to wilderness area," "feel uncomfortable or concerned for

Table 2. Explanatory Variables Used in Constraints Model

Variable	Definition	Mean*
Age	Age of participant (Years)	42.8543
Gender	Sex of participant (Male=1)	0.4716
Immigration	Born in the United States (Immigrant=1)	0.1308
Income	Household income (Dollars)	53,369.15
Low education	Less than high school diploma or GED (Low Ed=1)	0.2348
B.S./graduate Education	Bachelor's or higher education (High Ed=1)	0.2081
Black	Self-identifies as Black (Black=1)	0.1244
Asian/Pacific Islander	Self-identifies as Asian/Pacific Islander (API=1)	0.0323
Hispanic	Self-identifies as Hispanic (Hisp=1)	0.1412
Urban	Beale Code >4 (Urban=1)	0.7971
South	States include TN, NC, MS, AL, GA, SC, FL, VA, AR, and LA (South=1)	0.2127
Central	States include AZ, NV, UT, ID, MT, WY, CO, NM, ND, SD, NE, KS, OK, and TX (Central=1)	0.1613
West	States include WA, OR, and CA (West=1)	0.1706

Note: "*" Means were weighted by poststratification using a combination of multivariate and multiplicative weights to account for age, race, sex, education, and urban/rural differences.

personal safety in wild, remote areas," "don't have enough hiking and map reading skills or know about recreation opportunities in wilderness areas," "prefer being in places with more people," "their race, family, and friends believe wilderness areas are not safe," "hiking and climbing trails are difficult activities," and "lack of basic services." Blacks were also more likely to say they had not visited a wilderness area.

Asian/Pacific Islanders were less likely to say they visited a wilderness area than whites. They were also less likely to say "they don't have enough time because of familial duties." However, Asian/Pacific Islanders felt more constrained than whites for reasons of "could not afford the equipment or to travel to a wilderness area."

Hispanics perceived many of the same constraints as Blacks to wilderness visitation. For instance, Hispanics felt more constrained than whites from visiting a wilderness area for the reasons of "feel uncomfortable or concerned for personal safety in wild, remote areas," "don't have enough hiking and map reading skills," "prefer being in places with more people," "people of their race believe wilderness areas are not safe," "hiking and climbing trails are difficult activities," and "lack of basic services." Hispanics were also less likely than whites to say they had visited a wilderness area.

Results for perceived constraints by residence revealed that urban dwellers were less likely than rural dwellers to say they had visited a wilderness area, which could be due to the proximity and location of wilderness areas in regard to urban dwellers. However, overall, there were no other significant differences between urban and rural residents' perceived constraints to wilderness visitation. This result may in part be due to the amount of urban and exurban sprawl and development of rural areas in recent years that has somewhat blurred the traditional demarcation between urban and rural communities.

The South was significant for three of the constraints equations. In all three cases ("can't afford to travel to wilderness areas," "members of their race believe wilderness areas are not safe," and "concerned for personal safety"), Southerners felt more constrained from visiting wilderness areas than Northerners. However, Westerners were more likely than Northerners to have visited a wilderness area. Westerners were also less likely than Northerners to say "their family and friends don't visit wilderness areas," or to say "they feel uncomfortable in wild, remote natural areas." Similarly, people who resided in the Central region were less likely than Northerners to say they were constrained because "they didn't know about the recreation opportunities in wilderness areas."

Overall, the most prevalent constraints to wilderness visitation were that people "felt concerned for their personal safety" and "preferred being in places with more people." People also expressed that "they felt uncomfortable in wild, remote natural areas," "did not have enough time because of familial duties," and "hiking and climbing trails were difficult activities." The least mentioned constraints were "wilderness areas were crowded" and "family and friends believe wilderness areas are not safe."

Discussion

It was hypothesized that different social and marginalized groups in society—minorities, women, rural residents, immigrants, low income, and less educated people—perceived more constraints to wilderness and primitive area visitation than their counterparts, and, thus, their relatively lower visitation rates. Results, for the most part, supported the hypothesis that minorities, women, and low income and less educated people had higher probabilities of feeling constrained than their counterparts. Results also indicated that immigrants encountered more constraints than people born in the United States, although they perceived far fewer constraints than was initially expected.

Table 3 provides a summary of significant ($p \leq 0.05$) perceived constraints by personal, structural, and psychological groupings. These groupings help to identify and separate those constraints that wilderness managers may or may not be able to potentially address.

Personal Constraints

Generally speaking, managers of wilderness areas are not usually in the position to address or alleviate several types of personal constraints (Johnson et al. 2001). However, managers of wilderness areas could possibly address the constraints of "can't afford the equipment," "hiking and climbing trails are difficult activities," and "don't have hiking or map reading skills" that were perceived as barriers to participation for older people, women, people with low income, Blacks, Asian/Pacific Islanders, and Hispanics. Wilderness managers could help to alleviate some of these barriers by striving to better inform and educate these different groups about equipment needs and wilderness use. Providing better information about easier access points and locations of easier trails

Table 3. Summary of Significant Results (p<.05) for Personal, Structural, and Psychological Wilderness Constraints ("–" and "+" = significant negative or positive results)

Variable	Age	Gender	Immigration	Income	Low Education	B.S./Grad Education	Black	Asian/ Pacific Islander	Hispanic	Urban	South	Central	West
Visited a wilderness area	–	+	–	+	–		–	–	–	–			+
Personal													
Not enough time b/c of work and long hours	–			+	–								
Not enough time b/c of family, etc.	–			+	–			–	–				
Can't afford the equipment				–		–	+	+					
Can't afford to travel to wilderness areas				–			+	+			+		
Hiking and climbing trails are difficult activities	+	–		+			+		+				
Have a physical disability	+	–		–			–						
Don't have hiking, map, reading skills		–				–	+		+				
Family and friends don't visit wilderness areas	–		–	+									–
Structural													
Not aware of wilderness area to visit		–				–	+						
Wilderness areas are crowded	+											+	
Don't know about recreation opportunities		–			–		+					–	
Wilderness areas lack basic services	+	–					+		+				
Psychological													
Feel uncomfortable in wild, remote areas	+	–					+		+				–
Prefer places with more people		–	+	–	+		+		+				
People of my race believe wilderness areas are not safe	+						+		+		+		
Family and friends believe wilderness areas are not safe					–		+						
Concerned for personal safety	+	–	+	–	+		+		+		+		

could help reduce or alleviate some constraints. Providing greater outreach services (i.e., programs that are specifically targeted to help educate underrepresented groups about wilderness use) could also help to address some of these constraints (Arnold and Shinew 1998; Roberts and Rodriguez 2001; Scott and Jackson 1996).

Many segments of our society are unaware of the different recreational opportunities or public services currently available to them (Stodolska 1998). For example, some public land areas offer free travel passes, outdoor clothing and equipment to volunteer workers, or have subsidized programs for different populations (e.g., children, disabled, unemployed, or elderly) (Pride 2004). Therefore, increasing outreach services into communities and local organizations containing low socioeconomic populations, which provide customized information (in multiple languages) concerning the availability of subsidized or free volunteer programs could help increase these groups' overall awareness of the different options available to them (Arnold and Shinew 1998; Roberts and Rodriguez 2001). Working in

cooperation with local transportation agencies and nonprofit and charitable organizations, wilderness managers could also alert local communities and key organizations (those that serve minority, female, low education or income groups) about existing volunteer or educational programs available in their areas, as well as provide this information within their regular media outlets (e.g., Web sites, brochures) (Roberts and Rodriguez 2001; Scott and Munson 1994).

Figure 2—Female hiker in the Big Branch Wilderness in Vermont, a U.S. Forest Service managed area. Photo by George Wuerthner.

Structural Constraints

Overall, one or more of the structural constraints of "not aware of wilderness areas to visit," "wilderness areas are crowded," "don't know about recreation opportunities," and "lack of basic services" were perceived as barriers to wilderness visitation by older people, women, Blacks, and Hispanics. Our natural resource areas are sometimes criticized for not providing information, brochures, or signage in multiple languages or that only depict whites males doing activities, and not women, Blacks or Hispanics. Many women and minorities point to the fact that women or minorities are often underrepresented in positions such as rangers, interpreters or guides. This underrepresentation likely promotes the perception that our natural resource areas are predominantly for white males (Eller 1994; Roberts, Outley, and Estes 2002; Roberts and Rodriguez 2001). Although the public's perception may be somewhat false, it is still a perception that needs to be addressed, and wilderness staff could receive more training regarding different minority populations' cultural perceptions and their needs. Staff should also be encouraged to help promote ways or opportunities for these groups to be able to visit and enjoy our wilderness areas (Roberts and Rodriguez 2001).

Psychological Constraints

Across most minority groups (including women), immigrants, older people, people with less education, and people with less income, the constraints of "feel uncomfortable in wild, remote areas," "prefer places with more people," and "concerns for personal safety" were perceived as barriers to visitation. One of the strengths of this study has been its examination of the existing differences between particular minority groups (e.g., women, Blacks, Asian/Pacific Islanders, and Hispanics) regarding their perceived constraints. This examination has served to reinforce the fact that more research is needed about these groups. For instance, do different groups have different perceptions of what constitutes a safety issue, such as fear of wild animals in wild or remote areas, racial conflict in outdoor areas (Virden and Walker 1999), or is it something else entirely?

In regard to women and their concerns about personal safety, one could argue that many women are constantly aware of their surroundings and their personal safety, and this concern becomes more acute when they visit remote or unlit natural resource areas (Arnold and Shinew 1998). However, research has also shown that many women adapt their behavior (e.g., don't walk alone, hike with a dog) to address their concerns, so they can continue to enjoy remote natural areas (Arnold and Shinew 1998; Henderson 1991) (see figure 2). Future research could seek to examine the ways women or minorities strive to alter their behavior to ensure continued participation in outdoor activities, and what measures, if any, could wilderness managers initiate to help alleviate or accommodate these behavioral modifications (Henderson 1991).

The questions used in this study were broad, and no attempt was made to probe deeply into the context or meanings behind some of the constraints. However, this study's findings about personal safety concerns perceived by minorities, females, low income, less educated, and older participants merit further scrutiny from researchers and public land managers. Therefore, future efforts should be made to examine in greater depth the context and actual reality (versus perception) of the personal safety concerns encountered by these groups (Henderson 1991). At a minimum, organized group or buddy programs, increased information (concerning facilities, transportation, safety, wild animals, etc.), and an increased presence of more rangers and guides from diverse backgrounds should be considered as ways to help to mitigate some people's perceptions of and barriers to wilderness visitation.

Our public lands, natural resources, and wilderness areas were designed, for the most part, for the enjoyment, benefit, and recreational participation for all. However, it appears that some segments of our society feel they are unwelcome or

constrained from visiting our more primitive public lands. Managers should strive to be sensitive to the fact that some people often face multiple constraints to visitation, and hence, a more holistic approach in the provision of their facilities, programs, and services might be warranted. **IJW**

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PERSPECTIVES FROM THE
ALDO LEOPOLD RESEARCH INSTITUTE

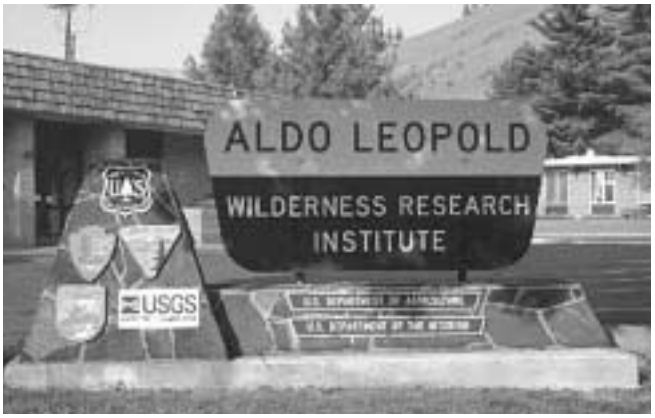
Update on Wilderness Character Monitoring

BY PETER LANDRES

When Hubert Humphrey first introduced the Wilderness Act to the U.S. Senate in 1956, he said that "the agency having jurisdiction over any area within this [Wilderness] System will have the sanction and encouragement of Congress and the legal responsibility for preserving the area's wilderness character." Now, five decades later, the U.S. Forest Service developed a protocol to monitor trends in wilderness character. This protocol, as explained in *IJW* articles published in December 2004 and December 2006, assesses whether the wilderness character of a wilderness area is improving, stable, or degrading.

The other wilderness managing agencies (Bureau of Land Management, U.S. Fish and Wildlife Service, and the National Park Service) contributed staff and funding to this Forest Service (U.S. Department of Agriculture) effort. By the end of fiscal year 2006, the agencies (primarily the Forest Service) had spent more than $500,000 and approximately 250 people were involved in developing, testing, and revising this protocol to monitor wilderness character. The processes used and products developed from this effort can be found on the Web sites http://leopold.wilderness.net/research/fprojects/F014.htm and http://www.wilderness.net/index.cfm?fuse=WC.

Despite the resources already expended, the status of wilderness character monitoring in the Forest Service is now uncertain. With seriously declining budgets and reduced staffing, the Forest Service is unable to move forward with national implementation at this time. With this decision made in February 2007, the cochairs of the



Forest Service effort (Steve Boutcher and I) will document all aspects of this work so that, should the Forest Service decide at a later time to implement national monitoring of wilderness character, it will be able to do so with minimal effort.

Building on the substantial effort of the Forest Service, a new interagency team was recently formed to develop recommendations for monitoring wilderness character across the National Wilderness Preservation System as well as recommendations for agency-specific plans to implement this monitoring. These recommendations will go to the Interagency Wilderness Steering Committee (IWSC), which is composed of the agencies national wilderness program leaders, and a representative from the U.S. Geological Service (USGS) and Forest Service Research and Development. The new team is composed of two representatives from each of the four wilderness agencies and one USGS representative. Having met for the first

This protocol … assesses whether the wilderness character of a wilderness area is improving, stable, or degrading.

time in January 2007, the interagency team will deliver its recommendations to the IWSC by February 2008. More information about this interagency team—its Operating Agreement, members, and work plan—can be found on the Web site http://leopold.wilderness.net/interagency/wcm_docs.htm.

Despite an uncertain future for wilderness character monitoring in the Forest Service, the importance of assessing trends in wilderness character seems to be taking hold across all four wilderness managing agencies. Furthermore, documents produced from the Forest Service effort provide a comprehensive and useful framework for thinking about wilderness character and what affects it. This framework is already influencing several vital aspects of wilderness stewardship. For example, it was incorporated into the Arthur Carhart National Wilderness Training Center's *Minimum Requirement Decision Guide* (http://www.wilderness.net/index.cfm?fuse=MRDG), and it is being used by wilderness managers in long-term planning efforts, in setting priorities for wilderness implementation activities, and in analyzing the effects from proposed activities. With support from the wilderness community, trends in wilderness character could be monitored across the nation, and managers would be able to assess the outcomes of their stewardship on preserving wilderness character. **IJW**

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It's a Wonderful World

BY BITTU SAHGAL

I see skies of blue and clouds of white
The bright blessed day, the dark sacred night
And I think to myself what a wonderful world.
—Louis Armstrong (George Weiss/Bob Thiele)

Imbewu Program

Ishmail, the game ranger, led us through his South African forest as a priest might show us his temple. "Here you can see where a hyena rested a while. Look! In the droppings is a hoof of an impala. Walk silently and the forest will speak to you."

Just before we reached the river, home of Nile crocodiles and hippos, the ever-smiling Isaac, also a game ranger, a friend and guide, gently pointed to the ground: "Imbewu! The seed. See it sprout from the dung of the hippo? And this is the 'wait-a-while tree' that has caught my shirt in its thorns."

We rose early after sleeping out in the cold of the bush at the Imbewu camp in the Kruger National Park, a facility dedicated to providing previously disadvantaged African children with wildlife experiences. With us on a daybreak trail were four young Kids for Tigers' ambassadors from India: Prithvi from Delhi, Shruti from Chennai, Varsha from Dehradun, and Nishant from Mumbai. All under 13, they were like fresh blotting papers, sponges soaking up information, experiences, and purpose. Keeping them company were some of the brightest young children on the planet who lived in Soweto and were part of the youth program christened Imbewu, founded by the Wilderness Foundation (South Africa) and run in partnership with South African National Parks (SANPARKS). These children were the future of South Africa. They were the future of the world.

Ever so softly Nishant whispered to me: "When I walk in wild places I feel alive. It's exactly what I want to do all my life." All the young naturalists on whom my hopes and those of hundreds of wildlife defenders are being pinned echoed his feelings.

Bittu Sahgal speaking at the 8th World Wilderness Congress, Alaska, USA.

"Want to learn about managing waste in the city? Just look at the dung beetle. It turns shit to life," said Anish Andheria, naturalist with *Sanctuary*, a photographer, and a passionate believer in kids.

"Close your eyes. Allow the Earth and its spirit to seep into you. You are safe and you belong." That was Noel de Sa, mentor and guide to us all, besides being the national coordinator for Kids for Tigers, the *Sanctuary* Tiger Programme, which encouraged 1 million Indian children to pause a while and contemplate their place in a world still populated by tigers.

Earlier, at the Botanical Gardens in Pretoria the charismatic Murphy Morobe—ex-chair of SANPARK'S board, chair of the 7th World Wilderness Congress (2001), and our host—welcomed the Indian kids to Africa, saying: "We are bonded … *this* is the nation that shaped Mahatma Gandhi. India is very special to us and so are you young tiger ambassadors. If you work together with these bright young children of Africa, you will be able to save the wildlife of both our countries and the human cultures that have evolved from our wildernesses." He spoke with passion about the Imbewu program and the hopes that the elders, including Nelson Mandela, had for young South Africa.

Imbewu … the seed. What a perfectly wonderful term to describe everything I have strived to achieve all my life … to seed future generations with the love and respect for the

The future of the world—young naturalists from both the Kids For Tigers (India) and Imbewu (South Africa) groups. Photo by Anish Andheria.

Earth, vital to their survival and that of millions of species, including the tiger. While an ignorant, arrogant generation of short-sighted adults stampeded over Earth's fragile beauty, we had to somehow protect it *and* change the ambitions of those destined to inherit the planet. And we had to sow seeds of hope, which I did by gently reassuring the children: "You are children of Mother Nature. Like the cut on your elbow or knee, she can magically heal wounds inflicted on the Earth. The turtles and crocodiles will purify your rivers. The elephants, rhinos, and leopards will help your forests to regenerate. Anemones and polyps will restore bleached corals to health. And the birds will cast fruit seeds all around to re-green your lands. But, naturally, if you keep worrying and scraping the wounds, neither your elbow, nor the Earth will be healed."

The Environmental Prophet

Mohandas Karamchand Gandhi was born 138 years ago, on October 2, 1869. Educated in India and London, he pursued a career at the bar, where acute shyness almost ruined his chances of success in the earliest stages. By the time he was 30, he was well established in South Africa, but found it difficult to stomach the way colored people were being treated by the government of the day. In protest, he gave up his law practice around 1900 to fight against the biased legislation. Within five years, he saw that the system could not be fought from within, so he opted out, gave up the Western way of life, and forsook material possessions to lead by example.

He fought valiantly for the well-being of his people in South Africa for years, using the simplest and most effective means to counter a powerful foe—*satyagraha,* or nonviolent civil disobedience. He calculated, correctly, that the South African government of the day would be unable to respond to the power of peaceful resistance and got them to agree to repeal anti-Hindu discrimination.

He returned to India in 1915 and joined the freedom movement. During World War I, Gandhi the tactician supported the British ... in the hope that this might help convince them to free India. But this was not to be. A retinue of broken promises and massacres saw hundreds of innocents butchered, forcing him to launch a series of nonviolent protests against British rule.

A phenomenal motivator, Gandhi was eventually able to weld a disparate country together in joint purpose. He led India to freedom. When he died, the politicians of India's government swore to uphold his ideals.

That promise was soon forgotten. It is still forgotten.

In 1947 Mahatma Gandhi told Jawaharlal Nehru that India should not chase the illusion of Western "development" because such dreams were built on the presumption that cheap resources to fuel material ambitions would come from other countries. He pointed out that if all Indians were to aspire to such a lifestyle, several planets would be needed to feed their demands. His kernel of advice is even more relevant today in a world on a self-destruct mission:

> Stay independent. Keep your consumption and demands low. Ask first if your plans will benefit the poorest, weakest Indian before you implement them. Let the villages determine their own destiny for they are the womb of India.

Were Gandhi alive he would surely have pointed out that even more serious than the erosion of our soils is the erosion of our value systems.

Unfortunately Prime Minister Nehru—though he loved Gandhi deeply—felt this was impractical. He, therefore, created a system that encouraged educated or well-connected Indians to step neatly into the British jackboot.

The process of stripping India bare of its natural wealth, which the British had begun centuries ago, continues apace, with rich and powerful urban Indians usurping the resources of the rural poor. Today, for instance, water for 15 million citizens in India's financial capital, Mumbai, comes from distant forests, and the clamor to drown still more forest to feed insatiable demands rises. Our electricity comes from dams built on the properties of villagers who were never compensated for their lands or houses. Mines and timber operation eat into their forests from the Himalaya to the Andaman. Our toxic wastes poison the aquifers that supply their wells.

Because their homes, forests, and fields were systematically stolen or degraded, millions of Indians began to stream into cities. Many still populate slums where they must take difficult, underpaid jobs. The overcrowding of urban India is a direct result of the fracturing of rural India. And the resultant pollution and environmental degradation robs both rich and poor of the quality of life guaranteed by India's Constitution.

An environmental prophet, Gandhi was probably wasted on India's freedom. His teachings and his leadership could have delivered us from the environmental nemesis toward which *Homo sapiens* seems so resolutely headed. Were Gandhi alive he would surely have pointed out that even more serious than the erosion of our soils is the erosion of our value systems.

Dr. Manimohan Singh, Prime Minister of India, with the children from Kids For Tigers, the *Sanctuary* Tiger Programme. The banner quotes an Indian saying: "The forest is the mother of the river."

Intergenerational Colonization

I am an Indian and proud to be one because I live in a land whose ancestors respected the Earth. The vast majority of Indians still venerate the Earth and its myriad life-forms. But we have been infiltrated. Instead of exporting our Earth-loving attitudes, we continue to import false ambitions broadcast from world bankers. And the agents of the destruction of our subcontinent are the very politicians in whose hands Gandhi trustingly placed the mantle of freedom. British colonial ambitions were immoral. But what the leaders of today are doing is far more immoral than that. They are colonizing the hopes, aspirations, and security of the unborn.

This is what Gandhi wrote soon after India gained her independence, as he watched in horror how a dream had gone sour:

> I have a few letters describing some of the dishonest means Congressmen are resorting to in order to further their selfish interest ... I do not want to live to see all this. But if they go on deceiving us, there will be such a tremendous upheaval that the golden history of our cherished freedom, won without shedding a drop of blood, will be tarnished …

Had the lines been written yesterday they could not more accurately describe the betrayal of tomorrow at the hands of the likes of present-day leaders who are in denial of climate change and are moving the planet closer to the precipice.

It is all too obvious that the teachings of Gandhi have been forgotten in the land of Gandhi's birth. Decades after his death, the virus of self-interest contrives to destroy India's fabled wealth that conquerors and colonial forces were unable to exhaust.

To put it simply, India has decided to sell its family jewels to some of the most predatory financial forces in the world. Thus Orissa's water-stocked forests and turtle-populated seas are hostage to iron ore companies, Gujarat's pristine coastline is being pillaged by petroleum

Those of us who value and are prepared to defend wildernesses, anywhere in the world, are confronted by crucial and complicated questions that have not, thus far, been adequately addressed.

interests, Andhra Pradesh's thick forests are being mined for uranium, Karnataka's Western Ghats are under assault by dam builders, Madhya Pradesh's tigers are being forced to retreat before invading industrialists, and fragile Himalayan glaciers, together with Earth ice everywhere, are in advanced stages of melt.

India has some of the finest environmental laws in the world. It is also a democracy. This is why the Supreme Court of India has consistently upheld environmental appeals against the destruction of our forests, often castigating the most powerful leaders in the country for their shortsighted ambition. Such politicians have not seen Al Gore's *An Inconvenient Truth*, but they epitomize the despair contained in the quote of Winston Churchill that Gore used to such telling advantage: "The era of procrastination, of half-measures, of soothing, and baffling expedience of delays is coming to a close. In its place, we are coming to a period of consequences." Had Indian politicians seen Gore's film, they might have realized that in an era of advanced climate change it was suicidal to castrate India's Forest (Conservation) Act, 1980, and its Wildlife (Protection) Act, 1972, by passing the new and lethal the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, which (ostensibly to benefit forest dwellers) is a thinly disguised ploy of politicians to counter Supreme Court judgments by dismantling the protective laws that prevent the powerful from trading in wilderness real estate for cash and votes.

If Tomorrow Comes

Today in India (and across the world), forests, estuaries, mangroves, wetlands, grasslands, mountains, and even deserts—ecosystems that should be jealously protected to sequester carbon in the decades ahead—are being set upon by commercial forces that have historically snatched land from the poor and unempowered (in whose name the lands have now been transferred).

Ironically, these were the very assets that Gandhi wished to save from the clutches of the British … for the security of the children of the Ganges. It saddens me to see how far India has drifted from the teachings of Gandhi, who reminded us that "a worthy heir always adds to the legacy that he receives."

Mohandas Karamchand Gandhi will have died in vain if we do not wake to the realization that the erosion of our soils is a direct result of the erosion of our value systems. "The demands of equality supersede the letter of the law," he chided the British, when they attempted to take shelter behind one-sided legislation.

Would that he were alive to repeat the advice for the benefit of those who continue to push to build nuclear reactors right next to the Sundarbans Tiger Reserve, the Nagarjunasagar Tiger Reserve, and the Kanha Tiger Reserve. He would have opposed the World Bank–funded Sardar Saroval Project, part of the infamous Narmada Project that, like China's Three Gorges Dam, eventually plans to displace 1 million humans.

I am not by any means a "Gandhian,", because my lifestyle is not nearly austere enough. But the more I read his works, the more I become convinced that the "Father of the Indian Nation" was not born to deliver India from the yoke of the British, but rather to deliver the Earth itself from foul human ambition.

He would surely have insisted that it should become the purpose of all development to restore health to our ravaged land, restore quality to the water we drink, and productivity to our soils. But this miracle is unlikely to unfold until the consequences that nature delivers force us to act to survive.

With our water and food security on the verge of collapse, we will ultimately be coerced to turn away from present industrial goals of development. We will be forced to improve generation and transmission capacities of existing power infrastructures, rather than build new projects. We will have to resurface roads, repair culverts, and strengthen shoulders rather than build new highways. We will have to reline canals and improve the condition of the catchment forests of existing dams before building new ones. And we will perforce move to alternate energy options from our druglike dependence on carbon fuels.

The truth is such options make good long-term economic sense as well, so the sooner we start the long climb back to environmental sanity the better.

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Announcements

COMPILED BY GREG KROLL

Wilderness Writing Award Honors Bittu Sahgal

The WILD Foundation and Fulcrum Publishing have presented the second Wilderness Writing Award to Bittu Sahgal, editor of India's *Sanctuary* magazine. The award recognizes a meaningful and significant body of publications and other work that protects wilderness, honors the spirit of wild nature, and recognizes the needs of human communities. WILD Foundation president Vance Martin told Sahgal that "while the award addresses your lifetime of work and commitment, it was precipitated by the very recent piece, 'It's a Wonderful World,'" which is published in this issue of *IJW*. (Source: http://www.wild.org.)

Germany to Host Aldo Leopold Symposium

American conservationist Aldo Leopold led the movement to establish the first protected wilderness area (New Mexico's Gila, in 1924) in the United States, served as the first professor of game management at the University of Wisconsin, and authored the groundbreaking *A Sand County Almanac* in 1948. In 1935 Leopold visited Germany on a research grant hosted by the University of Tharandt–Dresden. While there, he came to understand that "progress" is often achieved at the expense of wilderness and wildlife, a realization that helped him identify practical and ethical tools for dealing with such dilemmas. That same university, in concert with the Bavarian State Ministry of the Environment, Public Health and Consumer Protection, is hosting the Aldo Leopold Symposium for Wilderness, Value and Economics in Munich, November 8 to 11, 2007. Organized by the Aldo Leopold Forum for Environmental Ethics, the congress will focus on ways to blend the needs of wilderness, wildlife, and people. A preconference field trip (November 1–7) will visit national parks in Germany, Czechoslovakia, Switzerland, and Italy. The postconference field trip (November 11–14) will experience Berlin, Dresden, and the sites that Leopold visited while in Germany. Simultaneous English translation will be available throughout the symposium and on the field trips. Symposium registration costs US$175, and all field trip bus transportation through Germany and neighboring countries costs an additional US$375 (the price of accommodation and flights is not included). Symposium and field trip modules can be booked separately. For information and registration, contact susanne.anton@aldo-leopold-symposium.com.

Mexico Commits to Wilderness Designation

Establishing a wilderness protected area category in Mexico is a complex undertaking for several reasons. First, within Mexico's land tenure system, half of Mexico's land base is in communal rural holdings (*ejidos*), 40% is in private hands, and only 10% is public property. As a result, creating new protected areas usually means setting aside private or communal lands, which requires complex negotiations with the landholders. The Mexican government can exercise eminent domain over any lands, but it rarely does so because creating a protected area does not extinguish the underlying land ownership. The second complication is that protected area definitions must conform with Article 27 of Mexico's Constitution, which has a strong utilitarian focus, and which might be perceived to be inconsistent with wilderness protection.

To bypass these difficulties, Mexico has elected to establish a voluntary system of wilderness certification. Mexico's National Protected Area Commission will provide official recognition of Wilderness Zones (Zonas Silvestres) on private or communal properties, ensuring the highest level of ecological integrity and fewest perceivable human impacts. Wilderness certification provides incentives to landowners such

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as payment for ecosystem services from watershed-based forest conservation, biodiversity conservation, and carbon sequestration. Landowners have the option of bypassing government certification and instead obtaining certification from a consortium of national and international nongovernmental organizations and academic institutions. These Wildlands Zones (Tierras Silvestres) are held to the same standard as wilderness, but do not provide access to government incentives. Finally, landowners can choose to obtain both certifications. Owners of certified lands must commit to wilderness protection for a minimum of 50 years.

Because the majority of Mexico's private property lies in the arid north, that region is likely to receive most of the voluntary wilderness designations. The proposed 80,000-acre (32,400-ha) El Carmen Wilderness (within the immense El Carmen-Big Bend Transboundary Megacorridor) is owned by CEMEX, the huge Mexican cement company, and constitutes the first official wilderness in Mexico.

(Sources: *National Geographic Magazine,* February 2007; and J. Bezaury "Mexico" chapter, in *International Wilderness Law and Policy: A Handbook for Practitioners,* ed. C. Kormos, Fulcrum Publishing, Golden, Colorado, in press.)

Zambezi Valley Wilderness Training

The Zambezi Society, in partnership with the Wilderness Action Group of South Africa, held the first Zambezi-based training course in Wilderness Concepts and Practice in September 2006. The highly successful course was attended by 15 Parks Authority participants from Zimbabwe, and five from Zambia, countries that share a common boundary. The Zambezi Society is devoted to the protection of the Zambezi River basin, which encompasses sections of eight countries, and contains wetlands, riverine woodlands, montane forests, dry forests, savannas, and aquatic ecosystems. (Source: http://www.zamsoc.org.)

Pikas Suffer Effects of Climate Change

Wilderness users in the mountains of the western U.S. and Canada are frequently entertained by the peculiar short "squeaks" of pikas, rodentlike mammals that are related to rabbits. Living exclusively in rockslides, usually near timberline, they are active during the day and build visible stacks of vegetation. But they may disappear from much of their traditional habitat in coming decades, according to National Park Service scientist Erik Beever, who has been studying pikas in the Great Basin region of the United States since 1994. He has found that pikas have disappeared from seven of 25 sites where they were known to have existed. Most likely the consequence of climate change, the lowest elevation at which the animals have been detected has risen significantly, with 75% of the change occurring in the last eight years. Since pikas are highly vulnerable to high temperatures, and since traveling long distances to better habitat isn't an option, they are being forced to higher terrain. They are, in essence, becoming stranded on mountaintop islands that disappear as temperatures rise. (Source: *Aspen Times Weekly,* February 15, 2007.)

Wilderness Webcam?

The U.S. Fish and Wildlife Service (USFWS) announced in February 2007 its intention to install a streaming video system in Arizona's Kofa Wilderness in order to broadcast images of wildlife in their natural habitat over the Internet. The system was viewed as a way to "bring the refuge to the people," and was to be located at the Adams Well watering hole, which is frequented by bighorn sheep, gray fox, mountain lions, mule deer, and red-tailed hawks. The USFWS expressed the hope that eventually the refuge would have more cameras set up at different high-interest spots, "bringing the refuge and its wildlife to those who may never get a chance to see it for themselves." The second largest refuge in the continental United States, the Kofa National Wildlife Refuge was established in 1939 and encompasses 665,400 acres (269,300 ha) of pristine desert. The conservation community immediately reacted to the proposal, reminding the USFWS that the Wilderness Act specifically prohibits unnecessary installations in wilderness. Additionally, there was the concern that streaming real-time video footage of wildlife gathered at the watering hole could facilitate poaching on the refuge. Based on these concerns, refuge manager Paul Cornes decided to cancel plans to install the video camera within the refuge wilderness. Instead, a camera will be installed outside of wilderness at an undisclosed location. (Sources: http://www.fws.gov/news/NewsReleases/showNews.cfm?newsId=A73ED03F-BCC5-003A-8DCDCEE699BCFFF3, and http://www.wildernesswatch.org.)

Silver Iodide and/or Human Ashes over Wilderness?

U.S. wilderness areas face ground-based challenges, but two new proposals could affect wilderness from above.

The Wyoming Water Development Commission has allocated $9 million for a five-year cloud seeding research program that would affect the

Popo Agie, Fitzpatrick, and Bridger wilderness areas. The experiment, which would be carried out by the National Center for Atmospheric Research, would employ 12 cloud seeding generators placed in the Bridger-Teton National Forest (BTNF), in addition to five generators already in place on private and state lands. Silver iodide, a salt, is dissolved in acetone, then ignited using propane, spreading the resulting aerosol up the sides of mountains and into the clouds. The goal is to increase the winter snowpack. The five-year study could pave the way for a permanent cloud seeding operation that proponents say would benefit agriculture and municipal water supplies. However, conservationists question whether cloud seeding is compatible with the Wilderness Act's requirement that wilderness areas be preserved in their "natural condition." Even the Forest Service's policy manual states, "Do not permit long-term weather modification programs that produce, during any part of successive years, a repeated or prolonged change in the weather directly affecting wilderness areas." Eric Winthers, soil and water program manager for the BTNF, said the forest administration is considering a categorical exclusion for the project, which would allow it to proceed without an environmental study. However, the project's proximity to designated wilderness areas could trigger the need for a detailed environmental impact statement. (Sources: *Jackson Hole News and Guide,* January 2, 2007; and *The Casper Star-Tribune,* March 16, 2007.) [**As we go to press:** Forest Service Regional staff and the U.S. Dept. of Agriculture's Office of General Counsel have decided that Wyoming officials can modify weather over federal wilderness areas without environmental review as long as they don't touch the ground.]

Meanwhile, a less high-tech proposal has been turned down by officials of Region I of the U.S. Forest Service, which covers Montana and Idaho. A Montana-based business, Ladies in White, applied for a special use permit to spread the cremated remains of its clients over some of western Montana's wildlands. For $390, Ladies in White offers to scatter a client's ashes, provide a ceremony, a photograph, journal notes, and Global Positioning System coordinates of the final resting place. According to Gordon Schofield, group leader for land use in Region I, the Forest Service has a firm policy against commercial scattering. The Wilderness Act also prohibits commercial enterprises in designated wilderness. (Source: *New York Times,* March 30, 2007.)

Proposed Guzzlers Stir Controversy

The California Department of Fish and Game (DFG) is seeking approval from the federal Bureau of Land Management (BLM) to construct six new artificial water sources, called big game guzzlers, in the Sheephole Wilderness in California's southern Mojave Desert. Intended to bolster declining populations of bighorn sheep, they would be part of a network of 93 guzzlers proposed by DFG, many in designated wilderness areas. According to the 67-page Environmental Assessment released by the BLM in February 2007, bighorn sheep have suffered declines throughout the California desert as a result of past unregulated hunting, spread of disease from livestock, and habitat fragmentation by highways, railroads, and canals. The BLM says that bighorn will not cross interstate highways, which excludes them from permanent springs and other traditional water sources. The first proposed guzzler would consist of a 50-foot-wide (15 m) concrete diversion dam across a wash; a 30-foot long (9 m), 10,000 gallon (38,000 lt) storage tank; a 2,500 gallon (9,500 lt) "drinker' tank, where wildlife would access the water; and a concrete apron that would direct water into the tanks. DFG would need vehicular access into the wilderness area for construction and maintenance purposes, reopening an abandoned mining road. But, even guzzlers can threaten bighorn populations. According to the *Hi-Desert Star*, there is an infamous case in which a bighorn lamb fell into a guzzler and drowned in the Mojave National Preserve. As its body decomposed, the water in the tank became poisoned, ultimately killing 38 other bighorn that drank from it. (Sources: *Hi-Desert Star*, March 13, 2007; and, for the EA: http://www.blm.gov/style/medialib/blm/ca/pdf/needles/range.Par.75277.File.dat/SD_Guzzler_%20EA_Final_2.14.07.pdf.)

International Nonprofit Defends Environment

Founded in 1996, the Interamerican Association for Environmental Defense (Asociacion Interamericana para la Defensa del Ambiente—AIDA) is a coalition of nonprofit legal organizations in the Americas whose mission is to "promote the ability of citizens to protect their health and environment through development and enforcement of national and international environmental laws." According to AIDA's Web site, the organization applies international environmental treaties, pursues cases simultaneously in the legal systems of more than one country to address common problems, and appears before international tribunals to protect citizens and the environment. (Source: http://www.aida-americas.org.)

Book Reviews

Aldo Leopold's Odyssey

By Julianne Lutz Newton. 2006. Washington, DC: Island Press. 504 pp. $26.25 (cloth). 1718 Connecticut Avenue, NW, Suite 300, Washington, DC 20009-1148, USA.

It is always something of an irony to me that those who write about Leopold usually do not write as well as Leopold. This is understandable: Leopold had the luxury of simply presenting his own arguments and thoughts and, being Leopold, presented them clearly and in a very accessible manner. Endless practice and revisions left him a beautiful writer available to a wide range of audiences, from scientists to laypersons.

Those writing about Leopold tend to present an analysis of his thought, and that seems to require considerably more wordage in a less accessible format. Most works about Leopold seem written for the academic crowd, not the average farmer or conservationist Leopold hoped to reach with his work. This book is no exception. Clearly drawn from Newton's dissertation, *Aldo Leopold's Odyssey* is heavily footnoted and has an extensive bibliography, including unpublished works by Leopold, through which the author analyzes his philosophy. I persist in my theory that perhaps the best way to come to understand Leopold is to simply read the man directly and skip the intermediaries. However, should one wish to read others' interpretation of what Leopold had to say, Newton's book offers some interesting insights.

This work is not a biography of Leopold, although it touches upon his history. Rather, this is an exploration of Leopold's thinking as it evolved through his experiences and through the social and political context of his time—an intellectual biography, if you will. The book does a good job of placing Leopold's thinking within the development of the early American conservation movement and key events such as the dustbowl era. Although following something of a chronological order, the book does move back and forth to demonstrate how certain logic lines began and developed through time. The book offers a thorough discussion of Leopold's key ideas, including land ethics, wildlife conservation and land health; explores some of his efforts to link philosophy to action; and notes the barriers to our ethical treatment of the land that Leopold identified, barriers that still exist today.

Newton's work reminds us of the significant contributions Leopold made toward understanding and promoting conservation through a land ethic, and also reminds us that Leopold did not come to his philosophy full blown: he struggled to make sense of conflicting data, incomplete understandings, and the average citizen's indifference toward the natural world. For those developing their own philosophies, theories and actions, it's a useful reminder.

The average reader will probably not wish to wade through the denseness of this work, but perhaps doesn't need to, as Leopold's work is readily available. But for those wishing for an academic analysis of Leopold's thinking, this is a useful addition to review.

Reviewed by ANNIE BOOTH, who has published multiple works on the influence of Leopold's legacy and is an associate professor in the Ecosystem Science and Management Program at the University of Northern British Columbia, Prince George, BC, Canada; email: annie@unbc.ca.

Wild: An Elemental Journey

By Jay Griffiths. 2006. Jeremy P. Tarcher Publisher, 374 pp. $35.95 (paperback). Penguin Group (USA) Inc., 375 Hudson Street, New York, NY 10014, USA.

This book comes with a clear warning: do NOT read if easily offended. Within its pages, Jay Griffiths takes aim at the Western view of wilderness. Little is safe from her acerbic and profanity-laden narrative, with religion, missionaries, big business, and governments all coming under attack. The pen is indeed mightier than the sword, and this one comes with infrared telescopic sights and armor-piercing rounds. *Wild* is a raw, no-holds-barred journey of personal exploration into the meaning of all that is wild or wilderness, and follows her earlier work *A Sideways Look at Time*. The book is a "journey" in the

sense that it is both a personal voyage of discovery, and it is ' "elemental' in that its contents are organized into a collection of mini-essays covering the essential wild elements of earth, ice, water, fire, air, and mind.

All this sounds conventional enough, but the above warning is justified considering its content, since the text deals with controversial topics such as drugs, sex, politics, multinational corporations, genocide, religion, war, and terror—more often than not in the same sentence. Christianity, the Bible, and missionaries are a favorite target, although Islam and the Qur'an are noticeably—one might say sensibly—free from criticism. Western governments get hammered for their imperialistic history and continued support for the commercial exploitation of the natural environment, and exploration is dealt a swift knee in the groin for being male dominated and laden with references to sexual and military conquest. As a geographer with interest in the application of Geographical Information Systems (GIS) to mapping wilderness areas, my own research is not immune to criticism: "Wastelands are manufactured by measurement—the anthropologists measuring human heads and penises (yes, they did), the Australian deserts measured in fences, the Amazon measured in weight of timber. Measurement destroys wildness both actually and conceptually" (p. 348). She has a point, but I would respond by saying that the powers she rails against know nothing but numbers—dollars, board feet of timber, barrels of oil—so much so that strong wilderness advocacy needs to be based on strong quantitative as well as qualitative reasoning.

Over the seven years it took the author to collate and write the book, she traveled around the world. Wherever she went, stories told by indigenous people indicate "cultural genocide" by Christian missionaries, oppression by imposed governments and foreign settlers, and economic exploitation by multinational corporations—all this in lands typically described by Western writers as wilderness. The most powerful message in the book is that humans are essentially animals, and whether we are from a "primitive" or "civilized" culture, we have our roots in wilderness, a fact we shouldn't forget in our dealings with the planet and with each other. I consider myself pretty broad-minded, and so found this provocative book easy enough to read. I would, however, express caution for the more conservative in choosing this as your next "must read" wilderness text.

Reviewed by STEVEN CARVER, a senior lecturer in geography at the University of Leeds, England, specializing in GIS and its application to wilderness and landscape modeling; e-mail: S.J.Carver@leeds.ac.uk.

Wilderness Medicine, 5th ed.

Edited by Paul S. Auerbach. 2007. Mosby/Elsevier Publishing. 2,336 pp. $199.00 (cloth). Elsevier, Health Sciences Division, 1600 John F. Kennedy Boulevard., Suite 1800, Philadelphia, PA 19103-2899, USA.

As more people become involved in backcountry outdoor recreation, international ecotourism travel, wilderness travel, rock and mountain climbing, high risk outdoor activities, and adventure recreation, there are more reasons to be prepared and educate yourself in health and medicine so you can aid both yourself and others in remote areas or when help does not arrive quickly due to remote conditions. Paul S. Auerbach, MD, is a well-published author and editor of emergency and wilderness medicine and is a clinical professor of surgery in the Division of Emergency Medicine at Stanford University School of Medicine. He has compiled an amazing reference book and compendium with 97 chapters, more than 2,300 pages, 2,107 illustrations, and weighing in at more than 10 pounds (includes a DVD with bibliographic references).

The book contains 13 sections on all kinds of health and medical issues, accidents, weather, survival equipment, natural disasters, and more. The 13 sections deal with: (1) mountain medicine related to avalanches, high altitude, and lightning; (2) thermoregulation, hypothermia, frostbite, and heat-related illnesses; (3) information on wildland fires, sunburn, and radiation; (4) injuries and medical interventions regarding injury prevention and management due to a wide variety of injuries (e.g., pain management, bandaging, trauma, surgical emergencies, wound management, equipment improvisation, chronic diseases, and mental health issues in the wilderness); (5) rescue and survival information about wilderness emergency medical services and response systems, search and rescue, essentials of wilderness travel survival in difficult and harsh environments; (6) animals, insects, and zoonoses and the preventions, treatments, and interventions from their bites, attacks, injuries, illnesses, and diseases; (7) plants and their seasonal and acute reactions as well as some plant-derived medical therapy; (8) food and water situations that require disinfection, dehydration, and rehydration, as well as information on nutrition, malnutrition,

starvation, and living off the land; (9) marine medicine regarding safety and survival, submersion incidents, emergency oxygen administration, and diving medicine; (10) travel, environmental hazards, and disaster medical information and risk management; (11) special knowledge on wilderness preparation, equipment, clothing, navigation, and medical supplies; (12) special populations and considerations for children, women, elders, persons with special needs and disabilities, and wilderness medicine education and ethics; and (13) the wilderness environment and wilderness management and preservation.

The book is for health care professionals, wilderness emergency technicians, wilderness first responders, search-and-rescue workers, wilderness program leaders, field researchers, field scientists, backcountry recreationists, and international travelers using remote areas of the world. This is not a first aid manual for beginners; it is a serious, comprehensive, and well-documented educational reference book that covers diverse topics, problems, and situations that are about health and medicine. If you only have one reference book on your shelf, in your emergency vehicle, or in your classroom, this is a must own, read, and practice book that will save lives and help you stay healthy while you and others enjoy nature on the wild side.

Reviewed by CHAD P. DAWSON, managing editor of *IJW*; email: cpdawson @esf.edu.

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Those of us who value and are prepared to defend wildernesses, anywhere in the world, are confronted by crucial and complicated questions that have not, thus far, been adequately addressed. In which direction does our development destiny lie? How should we balance the needs of people with the imperatives of protecting nature? How can we change our heroes so that protectors, not marauders, occupy our pedestals?

Trekking through the mountainous Western Ghats forests of Bhimgad in Karnataka, I paused to take in the wilderness vista before me. I was high up and thick forests stretched to the horizon all around me. I had just visited the only recorded site in the world of the endangered Wroughton's freetailed bat *Otomops wroughtoni*, and the walk back was hot and strenuous. A rushing crystal pool beckoned, and in no time at all the cool waters had washed away dust, sweat, and tiredness. As I bathed, I drank the sweet water and thought to myself how blessed we were. This was the land that Mohandas Karamchand Gandhi had fought to free from the clutches of colonial rule. This was the land that had originally attracted conquerors from afar. This was the land I was born to protect. **IJW**

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