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WILDERNESS DIGEST

Front cover photo of pink Lady Slipper orchids and inset photo of Kahshahpiwi Lake, Quetico, Ontario, Canada, both © 2000 by Kevin Proescholdt.

International Journal of Wilderness

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Editorial Perspectives

Issues in the Quality of U.S. Wilderness Management

BY PERRY BROWN

Introduction

Few topics are of greater concern to the *IJW* than wilderness stewardship. U.S. wilderness management agencies, their practices and policies, are under increasing scrutiny. Are our agencies willing and able to handle the new millennium challenges of wilderness stewardship?

The wilderness agencies are struggling to respond to increased demand for access by commercial outfitters, private visitors, and not-for-profit and educational groups. At the same time, the ecological integrity of wilderness is at risk from increasing use, trespass by ATVs, noxious weeds, global warming, and unnatural fuel buildups from fire protection and the associated risk of conflagrations. Wilderness solitude and wildness are threatened by a plethora of insidious impacts from civilization including global positioning systems, microcomputers, and visitors who buffer their experiences with cell phones, thereby feeding demand for invasive satellites and repeater towers. Further complicating stewardship is an escalating battle over the designation of additional wilderness areas and a demand for weaker restrictions. The list could go on.

In response to these and other concerns, current U.S. wilderness management agencies are undergoing rigorous evaluation by a select committee of experts. This process is a precursor to hearing the concerns of all wilderness stakeholders and addressing possibilities for renewed efforts and/or policy changes. *IJW* will be following this process closely. In this issue we welcome comments by Dr. Perry Brown, chair of the Select Panel to Evaluate the Quality of U.S. Wilderness Management, on the initial efforts and processes of the committee's inquiry.

—John Hendee, Editor-in-Chief

In November 1999 the Pinchot Institute for Conservation (PIC) announced the formation of a select panel to examine the quality of management of the U.S. National Wilderness Preservation System (NWPS). The panel, led by Forest Service Chief Mike Dombeck, is developing background information that will help support a new strategic agenda to ". . . strengthen and insure that proper wilderness stewardship occurs . . ." and to ". . . bring together government and nongovernmental interests to strengthen trust among players and identify wilderness actions that can be successfully addressed through collaborative efforts" (see Dombeck, *IJW,* December 1999).

The Panel and Its Approach

I am honored to have been selected to lead this distinguished panel. Its members include: Bill Meadows, president of the Wilderness Society; Joe Sax, professor of environmental regulation at the Boalt Hall Law School of the University of California–Berkeley; Norman Christiansen, dean of the Nicholas School of the Environment at Duke University; Hanna Cortner, professor in the School of Renewable Natural Resources of the University of Arizona; Deborah Williams, executive director of the Alaska Conservation Foundation; Stewart Udall, former U.S. secretary of interior; George Siehl, retired member of the Congressional Research Service; William Reffalt, retired chief of refuges for the U.S. Fish and Wildlife Service; and Thomas Kiernan, president of the National Parks and Conservation Association.

Building on the 1995 Wilderness Strategic Plan adopted by all the wilderness managing agencies (see Barnes, IJW, March 1997), the purposes of the panel are to (1) assess the management of the NWPS in contemporary society;

and (2) to make recommendations regarding the future of wilderness management and the sustainability of the system. The panel has interpreted these purposes as understanding how the system currently is managed and then recommending how it should be managed as we enter the 21st century.

The panel first met in Albuquerque, New Mexico, in December 1999 to gather background information on the current state of NWPS management and research from a variety of federal managers and researchers and selected wilderness interests. The wilderness coordinators from the four federal wilderness management agencies offered their perspectives on the state of the system. Dr. David Parsons, director of the interagency Aldo Leopold Wilderness Research Institute, and Dr. Ken Cordell of the Southern Forest Experiment Station of the USDA Forest Service, reviewed wilderness statistics, public perceptions, and research needs. Historical perspectives on the wilderness system were offered by Bill Worf of Wilderness Watch, Dick Sellers of the National Park Service, and Ted Zukoski of the Land and Water Fund of the Rockies. Wilderness specialists from all the agencies also attended to provide additional supporting information.

A second meeting of the panel is planned around the May 17, 2000, National Wilderness Summit in Washington, D.C., convened by the PIC on behalf of the four federal wilderness managing agencies. The panel will use the summit as a listening session to hear the issues and concerns of many of the voices interested in the future of the wilderness system.

Wilderness Management Issues

We had wide-ranging discussions at out first meeting in search of a few broad wilderness management concerns that might impact the quality of management. We wanted to identify those concerns with high leverage that, if addressed, might bring about important structural changes and therefore improvements in the quality of wilderness management.

We will make recommendations later; first we wanted to assess current management.

Some of the key issues emerging from our initial discussions include

1. The degree of importance of wilderness in the four federal land management agencies—is wilderness being taken seriously enough?
2. The organizational location and level of wilderness management in the agencies—is it properly positioned for real strength?
3. The level of funding and staffing allocated to wilderness management—are enough resources being committed to wilderness?
4. The degree of collaboration, cooperation, and consistency in wilderness management across the agencies—is everyone working together toward the same kind of management?
5. The kind and level of service being provided to wilderness users—are wilderness clients being well served?
6. The quality and topics of wilderness management training and research being provided in support of wilderness management—can training of managers and wilderness research be improved and better focused?

Over the next several months the panel will consider and debate these issues and others prior to making recommendations for future management of the NWPS. We will complete our work in early 2001. *IJW* readers with ideas, suggestions, or opinions for the panel to consider are invited to submit them to me (see below). **IJW**

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Soul of the Wilderness

Natural, Wild, Uncrowded, or Free?

BY DAVID N. COLE

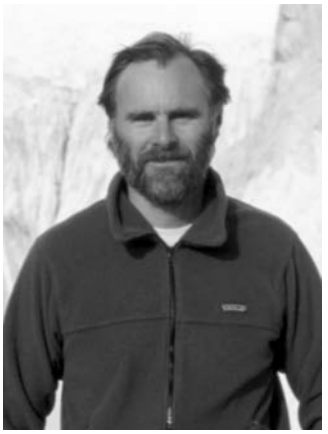
Abstract: The most important and desirable attributes of wilderness are that it is natural, wild, uncrowded, and free. However, these attributes come into conflict with each other as society faces difficult decisions about wilderness management. This article discusses these attributes, ultimately suggesting that the value of wilderness might be optimized by embracing a diverse wilderness system, a system in which wilderness values are maximized or minimized in different areas.

Images of wilderness are as diverse as the value systems of those who hold wilderness dear. Yet different people find different attributes important in their ideal image of wilderness. A wilderness landscape is natural, retaining its primeval character and influence. Wilderness is wild, a contrast to the rest of the world, and is not intentionally controlled and molded to human purposes. Wilderness is uncrowded, a place where human presence and evidence is localized and subtle. Finally, wilderness is free. People seeking appropriate kinds of wilderness experiences should ideally be free to visit wilderness, with a minimum of behavioral restriction.

Each of these four desirable attributes of wilderness is codified in the language of The Wilderness Act (TWA). The word "natural" is used several times, as in wilderness is to be "managed so as to preserve its natural conditions." Natural is usually taken to mean that the influence of post-Columbian peoples should be generally absent. The notion of wild is conveyed by the word "untrammeled," frequently misinterpreted as meaning something similar to natural. Instead, untrammeled is synonymous with unfettered and unrestrained. It suggests freedom from human control rather than lack of human influence. The idea that wilderness should be uncrowded is implicit in the definition of wilderness as a place that "has outstanding opportunities for solitude." Finally, the desire for wilderness to be free is clear in statements that it should "be administered for the use and enjoyment of the American people," and is a place for an "unconfined type of recreation."

Wilderness Attributes in Conflict

There is little reason to think that the framers of TWA saw substantial conflict between wilderness as natural, wild, uncrowded, and free. However, changes in scientific understanding, societal values, and the wilderness system itself suggest that these goals have become contradictory. To keep wilderness from being crowded, some managers deny access to visitors and severely restrict behaviors. Other managers, to avoid restrictions, have allowed wilderness to become quite crowded. Should wilderness be uncrowded or should it be free? The need to make this tragic choice has been aggravated by continual increases in wilderness recreation use and by societal decisions to designate lands popular with recreationists (often near metropolitan areas) as wilderness. Recently designated wilderness, rather than being remote and conducive to the "two-week pack-trip" ideal of Aldo Leopold and Bob Marshall, is primarily used for short day-trips by proximate urbanites with little free time. In such places, the conflict between uncrowded and free is pronounced.



Article author David Cole.

We face a similar conflict between natural and wild wilderness. Several decades ago managers and policymakers assumed that natural conditions could be perpetuated by leaving nature alone. Today, this assumption is untenable. Contemporary human activities and influences (fire suppression, climate change, and much more) are altering conditions in all wilderness areas. Some wilderness managers have adopted restoration programs to compensate for this loss. Yet restoration, despite its admirable intent, is a form of control over wilderness conditions. Other managers, to avoid this

Wilderness in Alaska is relatively uncrowded and unaffected by human activities. Even here, however, choices must be made between naturalness and wildness, lack of crowding and freedom. Photo courtesy of David N. Cole.

"trammeling" of wilderness, have eschewed hands-on management, leaving wilderness wild and untamed but allowing human influence to expand and intensify.Again, choosing between natural and wild wilderness is aggravated by demands for more wilderness and for wilderness to serve more purposes. Increasingly, societal voices are asserting the need for a wilderness system that includes representative samples of all biotic communities and is managed to preserve native species and processes. Such values differ from those that led early wilderness advocates to preserve sublime landscapes. Many recently designated wilderness areas are small, fragmented, substantially altered, and surrounded by threats to their integrity. In such places, the conflict between the natural and the wild is pronounced.

Tragic Choices

Since we cannot simultaneously maximize naturalness and wildness, or uncrowdedness and freedom, we must choose between these attributes. How should we do this? One option is to emphasize one or the other. The obvious drawback to this approach is that society must forgo the other attribute. If we decide to emphasize uncrowdedness and wildness, for example, society will lose important benefits that can only be obtained from a wilderness experience as well as benefits that accrue from preservation of natural conditions and processes. This would be a reasonable decision if these latter benefits are relatively less important or can be provided elsewhere. For each attribute, let's examine benefits that might be lost and the potential for those benefits to be provided elsewhere.

Losing Naturalness

At the time TWA was passed, few recognized that naturalness would be lost if wilderness ecosystems were not intentionally manipulated. There was surprisingly little discussion of the desirability of preserving representative examples of all ecosystems in wilderness or of the importance of preserving biotic diversity. Today biotic conservation is widely considered to be among the most important values of wilderness. Designated wilderness areas are the "building blocks" of reserve networks that maintain viable populations of native species. Widespread and severe erosion of the naturalness in wilderness areas would reduce their scientific value. For some native species and processes, small nature reserves will suffice, but for animals that require large areas, there is no substitute for wilderness.

Losing Wildness

Wilderness represents "self-imposed restraint in a society that generally seeks to dominate and control all of nature" (Noss 1991). TWA can be interpreted as an attempt to declare some lands to be off-limits to human engineering. Ironically, we are now thinking about reversing our decision to be self-restrained and molding the last unengineered lands into our image of naturalness. If we do so, the wildness of wilderness will be diminished. The scientific value of wilderness will be compromised, because there will no longer be any unmanipulated land, no "controls" for assessing the success of wilderness restorations. More important, humans will lose their ability to experience life as part of a biological realm that is self-willed and self-ordered, rather than human controlled. It is hard to imagine lands beyond wilderness where such selfrestraint will be exercised.

Losing Uncrowdedness

Uncrowdedness is not entirely satisfactory as a descriptor of the wilderness condition that is conducive to solitude, contemplation, personal challenge, and communion with nature. Opportunities to experience wilderness in these ways diminish as more people visit wilderness areas. Although many wilderness trails and popular destinations are already crowded, it is unlikely that the most remote, inaccessible places will ever be crowded. It is equally unlikely that all nonwilderness land, much of which is unattractive to most recreationists, will become crowded. The problem with increased crowding, then, is that people lose the ability to experience solitude in recreationally attractive, relatively accessible locations. Since most people seek out these opportunities, this represents a significant loss.

Losing Freedom

The ability to benefit from wilderness experiences when people need and desire them is among the foremost values of wilderness. Another value is the freedom to behave spontaneously with few of the shackles of daily life. Such freedoms are lost when access to wilderness is limited and behavioral restrictions are implemented. Anyone wanting to float the Selway River through the Selway-Bitterroot Wilderness, for example, must apply for a permit with only a 3% chance of success (unless they go with

an outfitter). To spend a week hiking a trail in the Mount Rainier Wilderness, one must reserve a campsite each night of the trip and camp adjacent to other hikers. Again, it is unlikely that use limits and behavioral restrictions will be necessary in unattractive, inaccessible places. But loss of freedom will diminish benefits for wilderness visitors who prefer more attractive and accessible locations.

Some argue that demand for recreation experiences should be provided on lands outside wilderness (Lucas 1980). A "backcountry" land designation could provide the benefits of free access, making it possible to emphasize uncrowdedness in designated wilderness. Proposals for such complementary land designations, including one by Bob Marshall (1933), have fallen on deaf ears. Consequently, there is no system of nonwilderness lands capable of accommodating demand for wildernesslike recreation experiences. Instead, we have a wilderness system that is twice as large as the "outside maximum" of 50 million acres mentioned by Howard Zahniser, the principal architect of TWA (U.S. Congress, Senate 1961). For the most part, wildernesslike recreational benefits must be provided by designated wilderness or not be provided at all.

Compromise between Attributes

To me, each of these four attributes is vitally important. I cannot imagine the loss of any of them, nor can I imagine how they could be compensated for outside wilderness. Some colleagues suggest my all-or-nothing arguments are too rigid. There is some truth to their complaint. Indeed, none of these attributes will be entirely lost, regardless of what we do. Nor is it possible, in the pluralistic society we live in, to avoid compromise between competing value systems. In fact, the most likely outcome of the conflict between attributes will be a compromise in which each attribute is diminished, a system in which most wilderness areas are substantially altered, frequently manipulated, crowded in some places, and restricted in others.

> . . . choosing between natural and wild wilderness is aggravated by demands for more wilderness and for wilderness to serve more purposes.

We are already well down this path. Consider places where controlled burning has been used to reduce fuel buildup and thin dense thickets of trees resulting from fire suppression. Management goals may refer to restoring naturalness. However, fires typically are not ignited with the frequency or timing needed to restore natural conditions. Rather, enough fire is applied to reduce the fuel loadings and the risk of wildfire. The result is wilderness that is neither very natural nor very wild.

Consider the places where managers have dealt with heavy recreation demand by limiting the use of popular trails and destinations. One result is that spontaneity and freedom of access are reduced. Often, use limits in popular places have displaced visitors to locations that had not been crowded before. Unless limits are set at low levels, crowding problems grow without significant alleviation of crowding in the most popular places. The result is wilderness that is neither very uncrowded nor very free.

Embracing Diversity

How might we preserve a diversity of wilderness values? The alternative to compromising every attribute everywhere is to compromise different attributes in different places. We could emphasize naturalness, using manipulative restoration, in some wilderness but not in others. Obvious candidates for emphasizing naturalness would be small wildernesses surrounded by developed lands, representative examples of every ecosystem type, and places that harbor critical species or ecosystems endangered or threatened by human disturbance. Large remote wilderness areas would be good candidates for emphasizing wildness. We could plan for a broad range of recreation use levels and allow heavy visitation in selected wilderness locations, while ensuring that use levels remain low on most wilderness lands. Such an approach would maintain most of the wilderness system in an uncrowded state, while being responsive to increasing demand for wilderness experiences.

Conclusion

Much has changed in the decades since TWA was passed. The population of the United States has grown in size and diversity as has the wilderness system and the demands placed on that system. Now we must decide how to respond to the conflicting

Backpackers in Alaska, which has some of the most natural, wild, uncrowded, and free wilderness in North America. Photo courtesy of David N. Cole.

demands of conservation biologists, humanists, recreationists, educators, and therapists. If we continue with traditional, site-specific, decentralized decisionmaking, the future wilderness system will be the result of countless independent decisions made over many years by hundreds of different individuals—a classic example of "the tyranny of small decisions" (Kahn 1966). The likely result is a relatively homogeneous system of wilderness that is neither highly natural, wild, uncrowded, or free.

I suggest, instead, that we take a proactive, coordinated approach to decisionmaking. Society should debate the pros and cons of different attributes and plan for a system that optimizes legitimate wilderness values. This might mean deciding on a systemwide emphasis on one or another of these opposing values. Alternatively, it might mean allocating separate lands to each opposing value and embracing diversity. **IJW**

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Blooming

If it weren't for the wildflowers,
I wonder if I'd begin life anew,
find the strength to stretch
like a child upon waking,
to extract the damp fingers
that cling, try to root me.

In this dazzle of petals and bees
and sweet pungent flood
I vision my reveries realized:
me floating just above everything
more heart-filled and moon-fed
each blooming.

Once I marked the passing
of my dreams.
Now my dreams mark me.
Yarrow and tiger lily
cloak my shoulders,
the meadow rises from the center of a soul
which whispers the lessons
it longs to live
with a passion
resplendent, crazy, free,
and here.
Undeniably here.

—Sharon Brisolara

WILDERNESS IN THE 21ST CENTURY

Visitors, Activities and Technology, and Future Roles

COMPILED BY ALAN EWERT

The richest values of wilderness
lie not in the days of Daniel Boone,
nor even in the present, but rather in the future.

—Aldo Leopold

Introduction
by Alan Ewert

Most of us have heard the cliché that the only thing constant is change, and in some ways the concept of wilderness epitomizes this idea. All ecologically based systems relatively uncontrolled by humans undergo both periodic and random transformations, usually at micro and meso levels (e.g., changes in vegetative structures), but also at macro levels (e.g., large-scale land transformations through fire, floods, etc.). But it is also true that wilderness represents continuity and stability. For much of the public, the wilderness environment is a place that remains unchanged and unaffected by human actions. Thus, it represents an antithesis to the urban setting, the place most of us live. Within that framework, wilderness becomes a place the individual can depend on. Whether wilderness is a place of change, continuity, or both, there are a number of major trends and potential changes that will impact the wilderness resource in the 21st century.

This issue of the*IJW* brings together a broad spectrum of researchers, scholars, and wilderness managers to address the role of wilderness in the new century.

This special section has been divided into three parts: Visitors; Activities and Technology; and Future Roles. In the first section, Debbie Chavez of the USDA Forest Service (USFS); Bill Hammitt and Rudy Schuster of Clemson University, and Joe Roggenbuck of Virginia Tech. comment on who wilderness visitors are and will be, their perceptions and desires, and what values they hold regarding wilderness.

In the second section, John Shultis of the University of Northern British Columbia, Les Wadzinski, a recreation and wilderness program manager with the USDA Forest Service, Doug Knapp of Indiana University, and Glenn Haas and Marcella Wells from Colorado State University address the impact of technology on wilderness experiences and activities likely to engage 21st-century wilderness visitors. Another important question—how will these activities and technologies impact the wilderness and wilderness management?

In the final section, Ken Cordell and Jerry Stokes of the USFS, Dan Dustin of Florida International University, and Leo McAvoy of the University of Minnesota look at the future roles of wilderness in society. Of primary consideration is how wilderness values will be integrated into the larger mosaic of our culture.

The authors were asked to comment on these issues from a personal point of view rather than strictly a management or scientific perspective. Not surprisingly, these commentaries may generate more questions than they answer. Readers may disagree with some of the opinions here, but this disagreement can be positive if it helps open dialogue about the role of wilderness in the 21st century. **IJW**

VISITORS

Wilderness Visitors in the 21st Century

Diversity, Day Use, Perceptions and Preferences

BY DEBORAH J. CHAVEZ

The future belongs to those who believe in the beauty of their dreams.
—Eleanor Roosevelt

Two of the most important questions wilderness managers ask are: Has recreational use of individual wilderness areas increased in the past, and is it likely to increase in the future? According to Cole (1996), the answer to both questions appears to be "yes." Other questions that managers should ask are: Who will visit wilderness areas in the 21st century? What will their recreation patterns be? And will their perceptions and preferences for wilderness be different from current visitors?

Diversity

Despite population growth in urban areas and increasing diversity nationwide, there appears to be little diversity among wilderness visitors in the United States. Frequent users are almost exclusively white (Chavez 1993a; Ewert 1998; Hendon 1991; Parker and Winter 1998), male (Chavez 1993a, 1993b; Ewert 1998), between 30 and 40 years of age on average (Chavez 1993a; Cole et al. 1997; Ewert 1998), well educated (Chavez 1993a, 1993b; Hendon 1991; Parker and Winter 1998; Roggenbuck and Watson 1989), and from urban areas (Roggenbuck and Watson 1989). According to Walker and Kiecolt (1995), the "semi-autonomous class" (educated white males) predominantly defines the meaning of wilderness, works to obtain designated wilderness, and uses wilderness. However, they suggest that social class may not be the sole or even primary determinant of wilderness use, that gender, life-cycle stage, and ethnicity may affect wilderness use even more.

We know very little about wilderness visitors outside this "semi-autonomous class." To learn more we need to examine what is known from other studies about racial and ethnic groups, people with disabilities, older people, women, and at-risk youth and apply those findings to wilderness use. For example, Hispanics (one of the fastest growing groups in the U.S.) prefer the social aspects of recreation (Hutchison 1987), tend to travel with family and friends (Chavez 1993b; Parker and Winter 1998), and wish to participate in more outdoor recreation activities (Chavez 1999), including those appropriate to wilderness such as horseback riding, camera safaris, and natural history hiking. However, there is no indication of demand for use of designated wilderness by people from diverse groups, thus use of wilderness could decrease in the future as demographics shift.

Day Use

While backpacking is expected to grow 155% by 2040 (Cordell et al. 1990), it is day-hiking that may define wilderness use in the 21st century. Several studies noted a significant amount of day use (Chavez 1993b; Cole 1996; Cole et al. 1997; Cordell and others 1990; Ewert 1998; Roggenbuck and Watson 1989; Watson, Cole, and Roggenbuck 1995). But, will it continue? The literature suggests that time is a factor (Lucas and Stankey 1988). People want recreational destinations that are accessible and close to home (Chavez 1993b, 1999; Cole et al. 1997; Ewert 1998), so it appears we can expect this day-use trend to continue.

Why is this important? Day users are more likely to be repeat visitors than overnight campers (Chavez 1993b; Cole et al. 1997). They typically have visited more wilderness areas in their life, spent more days in wilderness during the past

Preparing to catch big northern pike in the Boundary Waters Canoe Area Wilderness. Photo courtesy of John Roggenbuck.

year, and make more wilderness visits per year (Cole et al. 1997).

Perceptions and Preferences

Studies indicate that current wilderness visitors go backpacking, observe wildlife (Chavez 1993a), day-hike, and go sightseeing (Chavez 1993b). They prefer pristine areas with beautiful scenery, want to be close to nature, and desire an absence of human-made objects (Chavez 1993a; Ewert 1998). They want to slow down the mind, escape the routine, and have freedom from rules (Ewert 1998). Will this continue? As Noah benShea notes, "People climb mountains because mountains are there. As long as there are mountains, folks will want to climb them" (1999, p. 12).

Some visitors say they would like to have more information about nearby areas and other recreation sites (Chavez 1993b). Where do people get their information? Some seek family and friends, others may use secondary sources, including malls and the Internet. People may use resources like the American Wilderness Experience (located in the Ontario Mills Mall in Ontario, California) where they can "hike the redwood forest, trek the high Sierras, and come 'whisker to whisker' with native critters in the re-creation of their natural ecosystems" (American Wilderness Experience brochure 1996), all within the mall boundaries. They may "travel" to an electronic wilderness in cyberspace (Walker and Kiecolt 1995). However, "virtual reality may soon be a fact of life and still have nothing to do with the facts of life" (benShea 1999, p. 10).

We need to educate the country's diverse population about wilderness. Managers should provide staff training on diversity (Henderson 1997) and involve diverse participants in decisionmaking. The future of wilderness depends on it. **IJW**

We need to educate the country's diverse population about wilderness.

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Many people prefer to travel to nearby destinations with family and friends. USDA Forest Service photo.

VISITORS

Wilderness Use in the Next 100 Years

BY WILLIAM E. HAMMITT and RUDY M. SCHUSTER

The density and diversity of wilderness use will increase during the next 100 years. However, these increases will not be uniform throughout areas and activities. The three primary influences will be (1) a shift in the type of wilderness user (2) diverse and efficient recreation uses, and (3) niche/experiential use.

Wilderness Users Will Change

Demographic shifts forecast that the U.S. population will double within the next 100 years and that immigration will account for a large portion of it. Today, 72% of the population is white; less than 50% will be white in 100 years. Americans, Asians, Hispanics, and others who were previously unaware of wilderness, as well as international recreationists, will account for a larger portion of wilderness users. These new users will bring epistemologies that are incongruent with the "American Wilderness Ethic" that was originally used to found the Wilderness Preservation System. Increased cultural pluralism will result in an expanded Wilderness Ethic. While "purists" will maintain the Wilderness Ethic, new users will adapt the ethic to be congruent with their epistemologies. New user groups with varying demands will attempt to (1) pressure administrators to ease wilderness regulations (2) de-list some existing wilderness areas, and (3) enact less rigorous regulations in future areas added to the system.

Will the future wilderness visitor venture only as far as Video Adventure? Photo by Alan Ewert.

Llamas and other pack stock may serve more and more visitors in the wilderness of the 21st century. Photo by Alan Ewert.

The structure of the average work week is changing in the United States. "Rising competitiveness … with low job security provides a powerful incentive for workers to acquiesce to employers' demands for long hours … this results in less time for other pursuits" (Bell, 1998, pp. 57–58). As a result of increased popularity of wilderness activities and a decrease in time to pursue leisure activities, day use will account for the largest increase in wilderness use by volume. A certain portion of the new users engaging in day use of wilderness will be short-term participants and quickly replaced by other new users. Other new users will continue to participate and move toward more specialized activities. As a result of this process, day use will continue to increase, and more involved wilderness activities, such as overnight use and extended trips, will have a delayed increase.

Wilderness Use/Intensive Management

The perceptions and desires of wilderness users will change considerably over the next 100 years. Users will demand more efficient use of their limited time when visiting wilderness and more intensive management of resources to facilitate that use, resulting in easier accessibility and less effort and self-reliance.

Users will maximize leisure time through extensive trip-planning methods, including computer/Internet sources (e.g., topographic maps on CD-ROM, National Park websites, BWCA trip planning sites), guidebooks, videos, and a fast-expanding telecommunications network of wilderness information. Wilderness trip planning, and actual trips, may take on the efficiency of "pseudo AAA—planned for you" visits in the future. The decrease in leisure time, increase in wilderness information, and accessibility will interact resulting in users opting for more structured wilderness adventures.

Wilderness users will increasingly rely on outfitters, guides, and outdoor education services to facilitate ecotourism and wilderness adventures. Facilitated wilderness adventures that are "sold" using photographs, detailed

accounts of what will be encountered, and other marketing techniques will be a significant factor altering the character of the traditional wilderness experience. Senior citizens, day users, families, and organized groups will find these aided, userfriendly wilderness trips desirable. These "wilderness clients" will find it difficult to differentiate between experiences provided by outfitters and guides and more traditional, self-reliant wilderness experiences. Users engaging in this type of wilderness recreation will have high and specific expectations of what they will receive for their money. In addition, the effort required to gain the experience necessary to participate in specialized wilderness activities will decrease as access to facilitated experiences increases. Traditional socialization methods for novices to acquire knowledge and skill will continue, but increased outfitter and guide socialization and facilitated experiences will produce a quantitatively and qualitatively different wilderness user.

Niche/Experiential Use

More wilderness users desire to enhance the "wild" in wilderness by engaging in high-adventure, high-risk activities. These adrenaline related activities require certain niche resources in wilderness. They are valued by their users, may be genetically motivated, and will only increase in the future. High-adventure, high-risk experiences in wilderness may be as dominant in the next 100 years as backpacking solitude is today.

High-adventure, high-risk experiences in wilderness may be as dominant in the next 100 years as backpacking solitude is today.

In conclusion, the density and diversity of wilderness use will change during the next 100 years. The challenge for wilderness managers and policymakers will be to meet the needs of these new users, while ensuring the health and protection of wildlands. **IJW**

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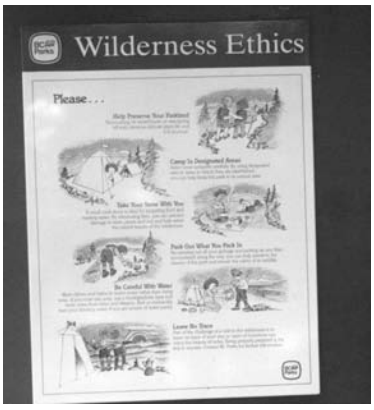
Some of the finest solitude in the NWPS is now found in the desert wilderness in the Southwest. Photo by Marilyn Riley.

Nothing beats the beauty and solitude of the wilderness. Photo by Alan Ewert.



Signs and posted regulations are increasingly common in wilderness areas. Photo by Alan Ewert.

VISITORS

Meanings of Wilderness Experiences in the 21st Century

BY JOSEPH W. ROGGENBUCK

The way in which Americans learn about and relate to nature (especially wild nature) is changing in the 21st century. Demographic trends, such as an aging population and increased ethnic diversity, will affect the kinds of people who visit wilderness, as well as what they expect, what they bring, how they behave, and what experiences they have in wilderness. Ultimately, all these changes will alter the meaning of wilderness itself. Wilderness policymakers and managers have little control over these changes, but their actions in response to them will help redefine the National Wilderness Preservation System in the 21st century. The wilderness community needs to talk about the most appropriate responses to these forces of change.

The meaning of nature changes in all cultures, and the United States is no exception. The definition of wild nature in the United States is undergoing rapid change, especially among its youth and young professionals. The change appears to be less shaped by living on the land and science, and more by the virtual reality of television, the mall, Disney, and the web. More American homes today have TV sets than indoor plumbing (Price 1999). Television watching is the number-one use of leisure time in America (33% of our free time). And nature sells on TV; its proliferation on TV in recent decades amounts to a green revolution (Price 1999). TV magnifies and accelerates nature. It captivates us before we change channels. For example, lions on TV are shown tearing apart wildebeest after wildebeest, even though lions mostly sleep, sniff, and scratch.

Nothing matches the solitude and freedom of paddling a wilderness lake. Photo by Alan Ewert.

Disney and megamalls have become symbols of the United States. International tourists from Australia and Japan list Disney as their number-one destination. For many families in America, a journey to Disneyland has become more important than a trip to Yellowstone. Children (and parents) encounter a nature at Disney that is carefully "imagineered " for leisure and aesthetic consumption (Archer 1996). Charismatic fauna are lured by feeding, the risk of a stumble or bite is virtually eliminated, and the role of human management is hidden.

For many, shopping is now a dominant leisure activity, and consumerism is a primary means to build, test, and augment self-identity. For many people in America, the mall is more than a place to shop, it's a place to hang out and create identity. This is not lost on the designers and entrepreneurs of the mall, nor is it lost on the sellers of nature. For example, the Mall of America in Minneapolis receives more visitors than the Grand Canyon and Disneyland combined. It has a Nature Company store; a theme park with a Minnesota woodland motif; and a "wilderness hut" and a rainforest café with live animals, a waterfall, fog, and even a "star-filled" sky. The mall has become a teacher of nature, providing an opportunity to purchase a piece of it for home display and worship.

Dinnertime on Little Saganaga Lake in the Boundary Waters Canoe Area. Photo courtesy of John Roggenbuck.

The New Nature

But what kind of nature does TV, the web, the mall, and Disney teach, and how will these entities shape wilderness visits and visitors in the future? I believe that the new nature is packaged and convenient (above all else, Americans want their leisure and nature to be convenient), and divorced from time and place. Free time for leisure and learning in America is available in smaller and smaller chunks. If we have no time to travel somewhere, we travel nowhere. We click through TV channels or explore the imagineered nature of Disney or the megamalls.

The new nature of the masses is clean, comfortable, safe, and sanitized. It is not messy. It has no sting. Nature in the mall or at Disney doesn't bite. There are no real mosquitoes or lions. Bears don't rob us of our dinner in the night. If we start to sweat, we can rest on a convenient bench, or better yet, pop into the store behind the bench, buy some deodorant, and quench our thirst with bottled water from a "natural spring."

Nature is increasingly vivid and exciting. The human designers of the new nature control its flow. Hiking trails are short, strategically sprinkled with scenic vistas. Stores attract us with the smell and music of nature. Arousal and attention are manipulated through vertigo, interpretive signs, or mysterious, curving trails. The new nature has the proper level of stimulation and arousal; the new nature is entertaining. But if by chance science and technology get it wrong, or the experience becomes too crowded, too cold, or too boring, we just click the mouse. And this is another descriptor of our new nature: We can leave it. Nature is separate from humans.

Mountain biking is one of the relatively new technological threats to wilderness areas. Photo by Alan Ewert.

Finally, nature and the nature experience have become increasingly commodified. A family today can spend thousands of dollars at Disney World. We purchase TV nature at home for a monthly fee. At malls, we purchase mementos of nature. At bookstores, we find nature adventure stories and scenic calendars. At superstores, "gearheads" purchase expensive outdoor paraphernalia to smooth the bumps, soothe the itches, and light the darkness of wild nature. All they ask is that these products or services be convenient, comfortable, and exciting, and that the goods enhance their identity as nature lovers.

Wilderness Use in the 21st Century

How will this redefinition of nature affect wilderness use and users in the 21st century? I'm guessing first of all that the easy access to virtual nature will only increase the demand for wilderness protection. Second, I don't believe it will cause a decline in actual wilderness visits, at least not in the foreseeable future. I'm guessing that for every potential wilderness visitor who gets lost and fulfilled in the simulation of nature, another will be provoked to try out the "real thing." The wild is still deeply ingrained in the American spirit.

Getting ready for a trip into the wilderness. Photo by Alan Ewert.

But I do think future visitors will expect and ask for quite different experiences in wilderness and make very different demands on wilderness managers. To be sure, a few John Muir types will still go to the wilderness alone, with only a sleeping bag and a bag of beans in a pack. But an increasing number will want to buy a "wilderness experience package." Tour operators in "somewhere" places such as Los Angeles, Chicago, and Baltimore, or in "nowhere" places on the web, will compete to meet the new market demand. Entrepreneurs will offer wilderness experience packages, each tweaked at the edges for distinction from its competitors.

But I'm guessing the prototypical wilderness experience will likely be one that can be bought and sold at the spur of the moment. It will be long on image and identity-formation potential, so the Bob Marshalls and the Boundary Waters will remain popular. But repeat visits will likely drop drastically, as the new wilderness clientele struggles with the slow rhythms of nature and seeks ever more novel and adventurous experiences. With few returning visitors, wilderness will become less and less a place of attachment imbued with personal history.

The new nature of the masses is clean, comfortable, safe, and sanitized. It is not messy. It has no sting. Nature in the mall or at Disney doesn't bite.

Expectations of Future Wilderness Visitors

In part because the future wilderness visitors will pay for nature, they will likely demand greater service quality. And what will the new nature lovers demand? They probably will want convenient, fast, and efficient care. Gone will be the days when outfitters rummage through storage rooms to put together food packs, find backpacks or paddles, or blow up rafts while customers wait. The outfitter will provide menus and vacuum-packed food, conveniently packaged in individual meal bags, just like the mall, and all before the visitor arrives.

New wilderness visitors will also expect their tour operator, leisure counselor, outfitter, or guide to mediate or interpret wild nature. Potential clients will access this information on the web, discovering when the fish bite, the flowers bloom, or the lions mate. At base camps at the edge of wilderness, outfitters and rangers will suggest possible routes that avoid the scars of past fire and storms, that offer the best views, and that permit the quickest escape if boredom, danger, or disappointment strikes. Clients may even rent global positioning systems so they know where they are, and perhaps even where the bears are.

Paddlers load a canoe in the Boundary Waters Canoe Area. Photo courtesy of John Roggenbuck.

The Role of Outfitters and Guides

In the 21st century, adventure programs, outfitters, and guides will likely lead a greater and greater percentage of wilderness visitors through the experience. This permits visitors to find their desired experience most quickly. Visitors coming from the mall, TV, and Disney will want picturesque nature; they will have little interest in ecological or evolutionary nature. So trip guides will lead them to waterfalls, grizzly bears (at a safe distance), and sunsets, and lead them away from nature's wrath. The guides will also mediate their clients' adventure. They will assess their clients' interests and abilities, match challenges with their competencies, and lead them beyond boredom and anxiety.

Finally, the nature experience of wilderness in the 21st century will be clean, comfortable, and safe. In the name of Leave No Trace (LNT), outfitters will put down carpets in wilderness to catch crumbs during dinner and protect feet from biting ants. Wilderness visitors will minimize the size of campsites and remove fire rings rather than "improve" the sites through human ingenuity. The art of building a cook fire may be lost, giving way to the ecological lessons of what critters live in and under firewood, what wood burns best, and how ancestors and pioneers lived in nature. Adventure schools will teach greater and greater numbers of people to live comfortably in the woods. Nature stores will sell food containers so that bears and lions don't rob people in the night. They might even sell bear-proof containers to sleep in so that visitors will be safe!

Alan Ewert on the trail. Photo courtesy of Alan Ewert.

The power of the forces of change are all but irresistible. People want nature. It's aesthetic. It's healthy. It sells. The market will respond not only to meet demand, but advertise, promote, and further redefine nature. The market will increasingly demand quick, convenient, intense, scenic, and sanitized experiences in wilderness. Public land managers will tend to respond to the market by charging fees, promoting LNT, and cleaning up when nature or people leave a mess.

Should the Market Define Nature?

But should management be guided by polling? Should we allow the market to decide the ideal or normative wild nature experience? Or should we resist the market trends and return to

the romantic ideals of solitude and primitivism advocated by Thoreau, Muir, and Olson? Should we advocate the "living in the woods" skills advocated by Leopold and Marshall? Should we slow down the wilderness experience and encourage Muir's meditation on the slow rhythms of a flower?

A new or revised wilderness ideal may be needed to serve as a guide for the future management of wild nature experiences. The wilderness community needs to actively engage in a dialogue about its qualities. I have long valued the ideals of solitude, primitivism, and the sublime, but this view of the wild nature ideal is coming under increasing criticism (e.g., see Cronon 1995; Callicott and Nelson 1998). I agree with recent wilderness critiques that any change or revision in wilderness ideals should recognize and promote nature as evolutionary and ecological. Humans should immerse themselves deeply in nature. How future recreational visitors develop deeper ecological and evolutionary connections with nature in wilderness is a matter the profession must discuss and debate. **IJW**

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ACTIVITIES AND TECHNOLOGY

Gearheads and Golems

Technology and Wilderness Recreation in the 21st Century

BY JOHN SHULTIS

The Issue

The Golem is a mythological creature in the Jewish faith/culture magically created from clay and water to help human beings in their work and protect them from enemies. In stories, the Golem becomes more powerful and clumsy every day, turning into "a lumbering fool who knows neither its own strength nor the extent of its clumsiness and influence" (Collins and Pinch 1998, p. 1), and ultimately threatening to destroy the very creatures it was created to protect: human beings.

Society has long feared the possible power of technology to destroy humankind or the Earth itself (e.g., nuclear weaponry). This fear is a favorite theme in science fiction. Paradoxically, humans have also embraced almost every form of technological innovation producing a classic love-hate relationship. An often forgotten paradox is that wilderness is embedded within a similarly ambiguous relationship with technology: While wilderness recreation is about living a simpler life unencumbered with the trappings of "civilization," we increasingly require technology to enjoy wilderness. Further, the appearance of the cultural constructs of wilderness and parks are reliant upon the technological innovations.

Wilderness managers have been relatively silent on the impacts of recreation technology on (1) backcountry recreationists (2) outdoor recreation activities, (3) the wilderness setting, (4) wilderness experiences, and (5) wilderness management. Years ago, the automobile was briefly opposed in national parks in North America. But automobile proponents won the day, arguing that automobiles facilitated park use and generated demand, public support, funding, and even new parks.

These old battle lines may soon be drawn again. The rate of technological change in outdoor recreation is growing exponentially, and recreation

Entering the John Muir Wilderness. Photo by Alan Ewert.

…wilderness managers will be increasingly called upon to control and limit the growth of recreation technology.

managers are becoming frustrated with new technology. From the irresistible vantage point of the year 2000, it seems safe to assume that wilderness managers will be increasingly called upon to control and limit the growth of recreation technology. Technology drives too many cumulative impacts on recreationists, the setting, wilderness experiences, and management practices for neutral decision making.

However, the rate of technological change makes controlling the use of recreation technology extremely difficult. Perhaps the only solution is not to identify the specific activities that are allowable (too many new activities will appear), but to further clarify the range of experiences suitable for specific settings. Yet technology may have already changed the very essence of the wilderness experience and setting, so even this approach may not be an appropriate long-term solution.

"No technology" or "low-technology" zones, such as the previously suggested "no rescue" zones (McAvoy and Dustin 1981), do not yet appear to have widespread public or political support. But as environmental and social impacts from recreation technology accumulate in wilderness, will support for these types of zones be far behind? It is interesting that technology has become so pervasive in outdoor recreation that a counterculture of "low-tech" or "no-tech" recreationists is emerging. One recent example is Swedish climber Goran Kropp, who cycled unassisted from his home in Sweden to Mount Everest, climbed the world's highest peak solo without oxygen, and then cycled back home.

Mining equipment operating in a wilderness area in British Columbia, Canada. Photo by Alan Ewert.

A wilderness sign vandalized by ungrateful visitors. Photo by Alan Ewert.

What Is Needed?

While a growing number of authors are discussing the impacts of technology on wilderness recreation, most studies use an intuitive approach because little empirical information is available. Both quantitative and qualitative approaches are needed to expand knowledge on this subject. For example, we need to ask recreationists to share their understanding of how the use and nonuse of recreation technology affects their wilderness experience and then identify optimal management strategies.

Solitude can be found in wilderness. Photo by Alan Ewert.

Change is inevitable, and as the complexity and range of technological advances in recreation equipment increases, these new technologies will affect the experiential and biophysical attributes of wilderness and its management. Whether recreation technology becomes another Golem, destroying the wilderness it is designed for, or it helps create a new, more temporally and culturally relevant form of wilderness is not yet known. It behooves us to work harder to understand technology's past, present, and future impacts on wilderness and outdoor recreation. **IJW**

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ACTIVITIES AND TECHNOLOGY

Wilderness Activities in the 21st Century

A Commentary

BY LES WADZINSKI

What will people be doing in wilderness in the next century? Will wilderness activities stay the same as they are today because the wilderness concept doesn't change, or will we see new activities because of a change in public sentiment and perceptions about wilderness. Picture these two scenarios:

> *October 23, 2098: Bill hits the trail in the long established Charles C. Deam Wilderness with his new "wilderness certified" magnetic compass. He thanks his lucky stars Congress recognized the value of wilderness and finally prohibited electronics and all other technology less than 100 years old. Nothing like a quiet hike among the trees to get close to nature.*
>
> *October 23, 2098: Bill hits the trail in the recently designated Central Park Wilderness on his laser board. He thanks his lucky stars that Congress finally got with the 22nd century and lightened up on those silly restrictions. Nothing like an 80 mph glide between the trees to get close to nature.*

Ridiculous? Who knows. But it is possible that future generations will interpret wilderness laws differently, or public sentiment could change the laws altogether. A simple vote and subsequent stroke of the pen by an elected official could allow future forms of motorized travel in wilderness. We have already seen examples where special exemptions have been written into wilderness legislation for airstrips and outboard motors.

On the other hand, as long as wilderness laws remain intact in the United States, one could speculate that activities would not change drastically. After all, the wilderness laws basically dictate what folks can and can't do. My hope is that recreation activities will remain simple because facilities will be forever minimal and new technology won't be allowed. New activities coming along, such as extreme sports, often require some sort of gadgetry and infrastructure that I feel should continue to be prohibited in wilderness.

If the wilderness concept and its laws work, maybe wilderness protection will outweigh new recreational activities. I see the wilderness concept as a way to not change wildlands, except for the way nature changes it, one millenium at a time. Walking will still be walking 100 years from now, and hopefully it will still be possible in special places called wilderness. **IJW**

A paddler finds solitude on Crooked Lake in the Boundary Waters Canoe Area Wilderness. Photo courtesy of John Roggenbuck.

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I see the wilderness concept as a way to not change wildlands, except for the way nature changes it, one millenium at a time.

ACTIVITIES AND TECHNOLOGY

Technology and Wilderness in the 21st Century

BY DOUG KNAPP

It was 3:00 A.M., and I had a couple of inches of water in my tent. The lightning had subsided and the storm had passed, but it would be a long while before I dried out from the downpour. This was day three of my trek into the Pintlar Wilderness in southwestern Montana. I was 21, poor, and this was my first solo backpacking trip. I bought my supplies at the Sears store in Dillon, Montana, including my $40.00 nylon tent. I walked out of the wilderness the next day, a bit worse for wear, but grateful for the experience.

Twenty years later I traveled to the Beartooths to wander through the myriad mountain lakes and streams. I was 41 and financially secure. It rained the entire last night of my trip, but I was dry and warm in my $300.00 Sierra Designs ventilating mesh, swift clipped, Meteor Light CD tent, and my Mountain Hardware, Polarguard HV high void continuous filament sleeping bag.

Signs and posted regulations are increasingly common in wilderness areas. Photo by Alan Ewert.

Still, my fondest camping memory is that fateful night 20 years ago and the three steel tent poles that bent from the force of the rain. That damp experience still gives me feelings of deep attachment to that place and time. It is difficult to recall the events of my warm and comfortable nights out in the Beartooth. The truth is clear: The comforts of technology have deadened my experiences with the wilderness.

The notion of technology and wilderness seems a paradox. The idea that we must exist in the most primitive of environments with the most futurist technology demeans the experience. It seems to me an odd notion that we attempt to get away from it all by entering the wilderness wrapped in layers of Polartec microfleece. As I grow older (and hopefully wiser), I have more respect for the Paul Petzdolts of the world who will just as well climb the Tetons in cowboy boots and a Stetson hat. Foam gripped antishock staff be damned!

As our Mountain Dew generation takes to the trails, I sometimes think that the wilderness was actually a grand scheme developed by the North Face company so people will buy transversely bored sleeping pads and ABS polymer food containers (with stainless steel locks). This cynicism stems from the absurdity of these products and the societal discrimination they encourage. The newer the technology, the higher the price.

We are cut off from our wildlands by gadgets, gizmos, and outerwear. The Wilderness Act of 1964 enabled us to protect our natural treasures from "an increasing population, accompanied by expanding settlement, and growing mechanization." I would add to this landmark legislation that wilderness not be entered if accompanied with any piece of equipment that has more than three technology patents.

My perception of technology and wilderness in the 21st century are two separate ideas. As my colleague Les Wadzinski suggests in his commentary, "Wilderness Activities in the 21st Century," the wilderness is not a place to change or to be a witness to change. It is a place that remains primitive, no matter what unfolds in our high-speed society.

Stepping into wilderness requires a new approach that sheds technology at the trailhead. So take back that Taslan Gore-Tex gear and head for the nearest Army-Navy store to grab a canvas bivouac. Disrobe the technological veil that protects us all from the touch of the Earth. Forward trekkers! Go into the past! **IJW**

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ACTIVITIES AND TECHNOLOGY

A More Pristine Wilderness

BY GLENN HAAS and MARCELLA WELLS

Our system of parks, wilderness, and protected lands and waters in the United States will be different in the 21st century. We speculate here about three major forces that will bring about a more pristine and highly prized wilderness.

A Reordering of Wilderness Values

The decline of the wilderness recreation patriarchy is underway. The wilderness system, as with all land classification systems, is a sociopolitical delineation of public values. Historically, most have equated wilderness solely with recreation. Yet research on the nonrecreational values of wilderness found that the public recognizes other values as more important than recreation (e.g., opportunities for future generations; protection of air, water, and wildlife; etc.). Furthermore, animal protection interests, biomedical discoveries, preserving biodiversity, and new concepts such as ecosystem management will elevate the scientific, educational, human health and wellness, and intrinsic values associated with wilderness.

The reordering of these values will be propelled by a continuation of "Chernobyls." Environmental disasters, both natural and human caused, will continue to raise the ire of humanity toward environmental ignorance and greed and will heighten the respect and value for wilderness.

The public reaction to these events will stir action by the "environmentally educated generation." The environmental movement of the 1960s and 1970s began a nationwide environmental education effort consisting of thousands of curricula, teacher training programs, wilderness courses, literary works, television specials, nature centers, friends groups, and projects. A large segment of our youth have had environmental education exposure and will respond.

The major unknown in the reordering of wilderness values will be ethnic parity by 2050 and the neutralizing of Euro-American domination. What values will Hispanics, Asian Americans, and African Americans bring to support wilderness? Will the "Puritan work ethic" and Christianity's "dominion over nature" be balanced by other perspectives? Is the low visitation by ethnic minorities to the outdoors a signal of detachment and disinterest, or is there a latent demand that will emerge with ethnic parity?

Recreation Supply Is Expanding, and Demand Will Follow

Popular literature implies a static supply of public outdoor recreation lands and waters in the United States. The data do not support this perspective. In 1998, some 200 public referenda across the United States resulted in 7.5 billion dollars of land acquisition and

Wilderness solitude high in the mountains. Photo by Dave Mennitt.

easements. In Colorado, a state rich with federal lands, the Great Outdoors Colorado Trust allocates approximately 40 million dollars annually to land acquisition and stewardship. Urban and regional riverways, open space networks, community and state parks, natural areas, farms, ranches, restored landfills, and trails are expanding the supply of outdoor recreation opportunities within a short distance of urban America. These local experiences with nature will satisfy some of the wilderness demand.

In the future, we will increasingly view the "real" wilderness experience to be outside the continental United States. Today's wilderness recreationists will be tomorrow's adventure travelers and ecotourists. This global industry is exploding, and the ability of Americans to experience the wildness of northern Ontario, Peru, China, Antarctica, Greenland, old Soviet Russia, and many other locales will also reduce wilderness demand in the U.S. Advances in air transportation, low air

There will be a new awakening for lands and waters we have forgotten, the lands we never viewed as recreation resources, and lands we exploited and can restore.

fares, Internet marketing, and the international tourism infrastructure will further propel this worldwide wilderness market.

There will be a new awakening for lands and waters we have forgotten, the lands we never viewed as recreation resources, and lands we exploited and can restore. These lands include prairies, grasslands, deserts, caves, wetlands, underwater resources, wildlife refuges, tribal reservations, military lands, intercoastal zones, and desecrated urban rivers, lakes, and harbors.

Finally, virtual reality and new technologies will expand the supply of recreation opportunities. Virtually experiencing wilderness will satisfy some enthusiasts. Likewise, new technology will allow us to experience wilderness from the air, underground, under water, and galactic travel will open an entirely new wilderness frontier.

Though located near millions of people, this site gets little overnight use. USDA Forest Service photo.

Restraint of Wilderness Freedoms Will Sustain Wilderness Experience

Without restraints on recreation liberties, our national wilderness commons will be lost. Restraints will help ensure a sustained supply of high-quality wilderness experience. More recreationists are visiting wilderness; more types of recreationists want to have their own unique experience; more communities and private businesses are dependent on wilderness tourism; more nonrecreational values and uses are increasingly important; more publics and professionals are concerned about the integrity of wilderness.

Demand Is Exceeding Supply, without Restraints We Lose Supply

Wilderness is moving into an era of allocation. This is most apparent today among the commercial outfitters, guides, and educational permittees. More than 100 years ago, recreational hunting managers began to determine hunter capacities, number of hunting days, number of kills, type of equipment, how to hunt (no large game drives), when to hunt (no spring or Sunday hunts), licensing and training certification, fees, and so forth. Some people were outraged that the government would restrain their recreational liberties and rights. In 1905, five Pennsylvania game wardens were killed because of the tension. Demand exceeded supply, and values associated with wildlife clashed. The destiny of wilderness recreation may be similar, yet hopefully more civil.

Public recreation planning and management will move to a multijurisdictional and regional systems approach (e.g., southern Appalachia, Four Corners canyon country, greater Yellowstone). Local, state, and federal recreation agencies will inventory, manage, and coordinate their supply of recreational opportunities to better help the public match their desired experiences with available opportunities. Agencies will have measurable management objectives that clearly define the recreation experience and area, quality standards for biophysical and sociocultural attributes, a prescribed carrying capacity, and a corresponding management program. Wilderness managers will clearly define their recreation supply or market niche and then manage with appropriate restraints to assure quality experiences and resources.

In conclusion, three forces (an increase in biocentric values associated with wilderness, an expanding supply of global and techno-wilderness experiences, and recreational capacity restraints) favor a more pristine and highly prized wilderness system by 2050. **IJW**

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FUTURE ROLES

The Social Value of Wilderness

A Forest Service Perspective

BY KEN CORDELL and JERRY STOKES

The 21st century is here. The human population of this country, and the world, is exploding. For many of us, more people in more places makes those few places yet protected as natural preserves ever more valuable and special. As places for personal wilderness experiences and to appreciate natural scenery, there is little doubt that protected wilderness on our public lands is more and more appreciated by U.S. society.

Wilderness Is More Than a Recreation Opportunity

Wilderness is far more than a patchwork of places where one can go for backcountry recreational experiences. It is more than majestic natural scenery to be viewed in the distance from high mountain roads. The role of wilderness in modern society increasingly emphasizes clean air and water, havens for threatened wildlife, and sanctuaries for undisturbed ecosystems from which we can learn about natural processes. Increasingly wilderness provides places to study the structure and function of natural systems and to monitor changes occurring naturally, and indirectly as a result of the human alteration of climate. In our efforts to better understand the legally mandated concept of sustainability in natural resources management, we are finding those naturally functioning ecosystems that define wilderness are priceless in comparison to managed landscapes, where human judgment substitutes for the wisdom of nature. Wilderness will likely serve more and more as a "laboratory" for learning how to sustain natural systems in an increasingly unnatural world.

Wilderness Has Multiple Values

The study of wilderness values helps us better understand the importance of wilderness in U.S. society. Research centering on the benefits humans derive from wilderness shows that Americans value our wild area protection system. Among the multiple values that wilderness provides, people put some above others in importance.

National Forest Wilderness

The United States National Wilderness Preservation System (NWPS) includes 628 congressionally designated areas (about 105 million acres) on lands managed by the Forest Service (FS), the National Park Service, the Fish and Wildlife Service, and the Bureau of Land Management. The FS portion of this system contains approximately 35 million of the total acres, and 400 of the 628 individually designated areas. These 400 areas are scattered across 39 states. Although the FS manages only 33% of the total NWPS acreage, it manages 62% of the acreage in the 48 contiguous states. Many of these areas are near portions of the country where high densities of population exist, all of which are growing rapidly. Obviously, close proximity to population growth and land development puts strains on the natural systems within wilderness areas.

Backpacking into the snowy backcountry. Photo by Alan Ewert.

Importance in Air Quality Monitoring

While offering recreational, aesthetic, existence, and ecological values, FS

Clearly, Americans value wilderness more for its natural value than for its use value.

The Charles C. Deam Wilderness on the Hoosier National Forest. Photo by Alan Ewert.

wilderness also offers enormous potential as a national system for monitoring environmental health. Of particular significance is the role FS wilderness can play in the implementation of the Clean Air Act (CAA). Amendments to the CAA passed in 1977, designated 88 wilderness areas in the National Forest System as Class I Areas for special protection for clear visibility. Along with these specially designated Class I Areas are all other wilderness areas for air quality monitoring. Reduced visibility is an excellent lead indicator of the existence of particulate and gaseous pollutants transported over long distances and impacting vegetation, soil, and water.

Air pollution impacts can include unnatural changes in plant communities and associated micro and macro fauna. They can also include alterations of water chemistry, which in turn can severely impact dependent fish and wildlife populations, and even species survival. There are many examples where air quality deterioration over and around wilderness is occurring. For example, the Alpine Lakes and Goat Rocks Wildernesses in Washington State, which are adversely affected by pollution from a coal-fired power plant in Centralia. Other examples are the San Gorgonio Wilderness near Los Angeles, affected by air particulates from the surrounding urban area; the Mt. Zirkel Wilderness in Colorado, which is affected by a power plant in Hayden; and the James River Face and St. Mary's Wildernesses in Virginia, impacted by industrial pollutants from the Ohio Valley.

The Multiple Values of Wilderness

We asked a sample of Americans to tell us how important each of 13 values of wilderness are to them. These values were included in the National Survey on Recreation and the Environment (NSRE), the ongoing survey series begun in 1960 to track Americans' use of the outdoors and their attitudes about the environment. Of those 13 values, approximately 75% selected protection of water quality (the top-rated value), wildlife habitat, air quality, and endangered species, along with protecting wilderness so we can pass it on to future generations, as the top five values of wilderness. Between 50% and 75% selected preservation of natural ecosystems, scenic beauty, having the option to visit wilderness in the future, and just knowing we have preserved some of our natural heritage as the four next most highly rated values. Least rated in importance were the more utilitarian values including use for scientific study, recreation, places for spiritual inspiration, and attractions for the tourism industry. Clearly, Americans value wilderness more for its natural value than for its use value.

The ranking our society has placed on wilderness values must play a very prominent role in our agency's decisions about management of this irreplaceable system of natural places. NSRE 2000, the most current of the ongoing national surveys, is underway and will sample 50,000 people. Wilderness values, knowledge of the NWPS, attitudes toward land preservation, wilderness use, and public feedback on a number of other key wilderness issues are featured in this comprehensive survey. Combining peoples' values and knowledge of wilderness with lifestyle, demographic, and environmental attitudes, will enable us to segment the American public relative to the role of wilderness in their lives. This process will provide information for more effectively extending opportunities for involvement in the future of the NWPS in the United States. **IJW**

Wilderness will likely serve more and more as a "laboratory" for learning how to sustain natural systems in an increasingly unnatural world.

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FUTURE ROLES

Of What Avail Are Forty Freedoms?

The Significance of Wilderness in the 21st Century

BY DANIEL L. DUSTIN and LEO H. MCAVOY

It has been almost 20 years since we first proposed the idea of no-rescue wilderness (McAvoy and Dustin 1981). The impetus for our proposal came from an article in the Sierra Club Bulletin by William Leitch entitled "Backpacking in 2078" (1978). Leitch's story read like science fiction. He envisioned a future when heavy recreational use of the public lands coupled with an "insurance mentality" would force resource managers to employ every technological weapon in their arsenal to protect the environment from people and people from the environment. But to us, the prospect of Big Brother looming over outdoor recreationists, however good the intentions, was horrifying. We wanted to create an alternative to Leitch's scenario, a place where people would be free to interact with nature on its own terms, a place where privacy and solitude would hold sway. Wilderness was the perfect place.

In retrospect, Leitch's story now reads less like science fiction than science fact, and our no-rescue wilderness proposal is more timely than ever. In the intervening years, the impact of advancing technology has penetrated our lives from home to workplace to recreation setting. By and large, there is no escaping it. From computers to cellular phones, from biomechanics to bioengineering, our lives are increasingly wired. For example, at the recent Social Aspects and Recreation Research (SARR) Symposium in Tempe, Arizona, Alan Ewert demonstrated several new technological "breakthroughs" that have been designed to make outdoor recreation environments more accessible and hospitable while, at the same time, making outdoor recreationists more comfortable and safe. There are even compact discs now that preview backcountry trails so "adventurers" can see beforehand exactly what's in store for them (Ewert, Shultis, and Webb 2000).

It's hard to argue against comfort and convenience. To do so goes against the grain of most everything our culture holds dear (Dustin 1999). It is also hard to argue against providing increasing amounts of information to recreationists in advance of their outdoor pursuits. Yet these are the exact arguments that must be made if we are to safeguard the idea of wilderness. We are a species intoxicated by our own ability to change the nature of things, and, as Bill Mckibben laments in The End of Nature (1989), there may no longer be anyplace left on Earth that is really free from the impact of human hands. Guided by the overarching values of comfort, convenience, and economic efficiency, we busily go about insulating ourselves from the very ground of our being. Left unchecked, the application of these values and their corresponding technological manifestations to wilderness may soon elevate Leitch's cautionary tale to the level of prophecy.

The technology that takes us into nature can also separate us from it. Photo by Rob von Adrichem.

To our way of thinking, it is more important than ever that wilderness retain its aura of remoteness and unpredictability, that it stay a landscape of question marks, that it be

Wilderness must be seen as a sanctuary within which we take refuge from the relentless advance of our own tools, from everything modern and mechanical that we have created in the name of progress.

Wilderness will be for thinking uninterrupted thoughts, for reflecting upon our place in, relationship to, and responsibility for the larger living world.

treated, in Aldo Leopold's words, as a "blank spot" on the map. Wilderness must be seen as a sanctuary within which we take refuge from the relentless advance of our own tools, from everything modern and mechanical that we have created in the name of progress. It must continue to be a respite from technology. Wilderness must also remain that special place we visit when we feel the need to remind ourselves of our human frailty, a place to which we return again and again to gain a healthier perspective on our lives. Historian T. K. Whipple said, "All America lies at the end of the wilderness road, and our past is not a dead past but still lives in us … Our forebears had civilization inside themselves, the wild outside. We live in the civilization they created, but within us the wilderness still lingers. What they dreamed, we live; and what they lived, we dream" (Whipple 1930). Increasingly, wilderness will be called upon to serve as a mirror to ourselves. It will be for looking in as well as looking out.

In The Transparent Society (1998), David Brin predicts that advancing technology will soon force us to choose between privacy and freedom. We cannot have it both ways, he says. Our lives will be increasingly open for others to see, and if we value freedom we must learn to welcome this openness. The best we can hope for, he suggests, is a "reciprocal transparency" that allows us to look back at Big Brother even as Big Brother looks at us. If this future comes to pass, wilderness will be one of the last domains where we can experience a sense of privacy and solitude that eludes us in the rest of our lives. Wilderness will be for thinking uninterrupted thoughts, for reflecting upon our place in, relationship to, and responsibility for the larger living world. Indeed, for this purpose, for this humbling, insightful purpose, wilderness remains our last best hope. **IJW**

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The Eagle Cap Wilderness Permit System

A Visitor Education Tool

BY TOM CARLSON

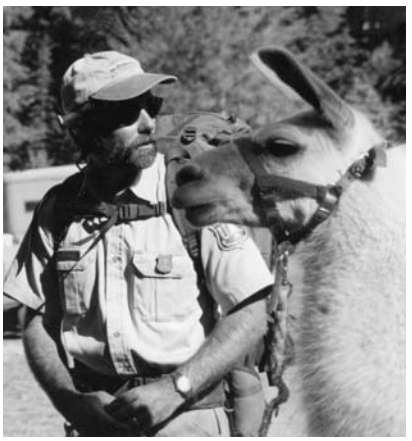
The Eagle Cap Wilderness on the Wallowa-Whitman National Forest in northeastern Oregon is the state's largest wilderness at 365,000 acres. It attracts an average of 33,000 people annually, and yet it is one of Oregon's most pristine landscapes with its long forested valleys, subalpine lakes, and spectacular peaks. The visitor permit system is now one of the tools Eagle Cap Wilderness managers use to help educate visitors about wilderness conduct and stewardship.

Eagle Cap Permits for Data

The permit system was implemented in the Eagle Cap in the late 1970s and early 1980s. The Forest Service required visitors to obtain a free permit through an agency office or at trailhead entrance stations operated by volunteers. The permit did not limit use. It was a valuable visitor contact and educational method for wilderness managers and provided valuable use data.

In 1983 the permit system was discontinued because the number of wilderness visitors had leveled off, or at least the rate of increase had slowed, while camping ethics and skills had improved (Hendee et al. 1990). Studies conducted in 1965 and 1993 indicate that knowledge and awareness of impact minimizing techniques had improved in the Eagle Cap (Watson et al. 1995).

In 1993 the Wallowa-Whitman began work on a new management plan for the Eagle Cap Wilderness. Accurate visitor use data had not been collected since the permit system was discontinued, so the forest implemented a new mandatory permit system that requires one person from each party to obtain a self-issued, free permit at a trailhead. The permit does not restrict where and when visitors travel in the wilderness, but any party without one may be cited.



Article author Tom Carlson and Lou the llama. Photo courtesy of Tom Carlson.

The permit was designed by Kevin Cannon of the Gifford Pinchot National Forest for the Pacific Northwest Region of the National Forest System. It consists of a two-part carbonless tag with an elastic loop for attaching to a backpack or saddle. Consolidated ordering with other wilderness areas keeps the cost down to $0.05 per permit. Other costs include a trailhead information board with posters describing the permit system and a permit box providing blank permits and a depository. The boxes are serviced once or twice per week, depending on use levels. Permit data is coded and entered into a database at a cost of about $3,000 per year.

The permit system worked well for three years (1994–1996). Managers used the data to determine where capacity and Limits of Acceptable Change standards were being exceeded and to establish patterns of use, origin of visitors,

The visitor permit system is one of the tools Eagle Cap Wilderness managers use to help educate visitors about wilderness conduct and stewardship.

The Eagle Cap Wilderness on the Wallowa-Whitman National Forest in northeast Oregon. Photo by Tom Carlson.

and group size information. Following completion of the Eagle Cap Wilderness Stewardship Plan, some managers felt that the permit system had served its purpose and was no longer needed. Others found the system a valuable visitor education and information tool to help implement the new plan.

The plan implemented 13 regulations designed to be as light-handed as possible, while still protecting the resource. Admittedly, it is challenging for visitors to remember and comply with all these regulations. But since the free permits have the regulations printed on them with brief descriptions and management goals, as well as the words "Leave No Trace," visitors are better informed and can help protect the wilderness from unnecessary impact. Wilderness rangers say that contact with visitors is easier and more effective with the permit system because visitors have no excuse for not knowing the regulations.

A young backpacker issues himself a Wilderness Use Permit before entering the Eagle Cap. Photo courtesy of Tom Carlson.

Eagle Cap Permits Now for Education

The benefits of retaining the permit system far exceeded those of discontinuing it, so the system is still in operation in the Eagle Cap Wilderness. Today the system is mostly noncontroversial because it is free, easy to use, and nonrestrictive. Average compliance rates over a three-year period (1995–1997) are 78% for hikers, and 62% for visitors with recreation livestock. Compliance with wilderness regulations has steadily improved despite reductions in management budgets and staff. The permit system will help educate visitors and protect the Eagle Cap for years to come. **IJW**

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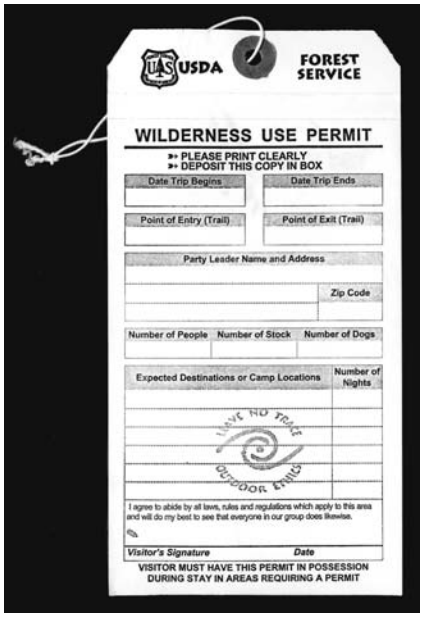
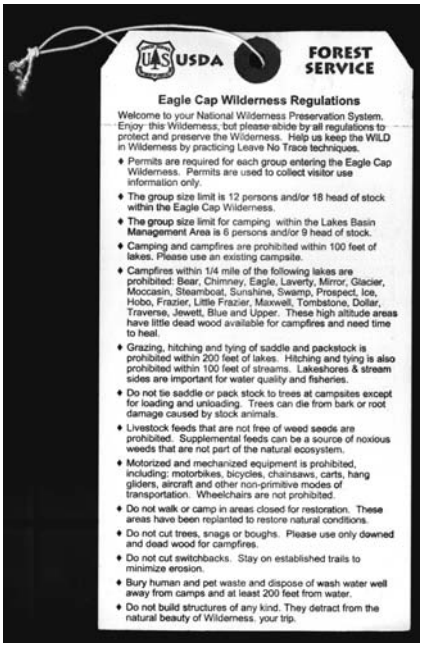


The free Wilderness Use Permit (shown from the front). Photo courtesy of Tom Carlson.



The back of the Wilderness Use Permit with printed regulations to help educate visitors. Photo courtesy of Tom Carlson.

Encounter Norms for Backcountry Trout Anglers in New Zealand

BY CARL WALROND

Abstract: Roving creel surveys on the Greenstone and Caples rivers in the New Zealand backcountry document tolerable encounter levels of three anglers per day and preference for one angler per day. Comparisons with other studies suggest that encounters are more important to trout than salmon anglers. The study documents that low-density encounter levels are important to backcountry anglers on these rivers, suggesting that such experiences may be important to backcountry management in New Zealand.

Introduction

New Zealand's backcountry trout fisheries are world renowned, and demand for this recreational experience has increased over the past two decades. Potential overcrowding makes it important to develop sustainable tourist and fisheries management plans. Managers now understand that angling is a multidimensional activity with numerous factors (apart from catch) contributing to the quality of the experience (Driver and Knopf 1976; Martinson and Shelby 1992; Fedler and Ditton 1994; Hunt and Ditton 1997).

Research has shown that on low-density, low-impact wilderness rivers, encounters are particularly important to user satisfaction, and more so to anglers than to other recreationists (Shelby 1981; Shelby and Vaske 1991). On four rivers in Vermont, Manning (1979) found that trout anglers had lower tolerance for encounters than other river users such as boaters and swimmers. On the Brois Brule River in Wisconsin, Herbelein and Vaske (1977) also found that trout anglers were less tolerant of encounters with other river users (primarily canoeists and float tubers) than with other anglers. Based on research on New Zealand wilderness fisheries, user satisfaction is classified on the following criteria: (1) remoteness, (2) lack of road access, (3) beauty and solitude, and (4) low usage (Teirney et al. 1982).

Leisure researchers have long recognized that encounters impact many recreational experiences, especially in backcountry settings (Vaske et al 1986; Shelby and Herbelein 1986). The present study explores appropriate angler encounter levels for New Zealand backcountry river trout fisheries by measuring actual, tolerable, and preferable levels of encounter on two backcountry trout rivers, the Greenstone and Caples in Otago, New Zealand.

Article author Carl Walrond fishing in a backcountry river. Photo by Daniel Agar.

Methods

Study Areas

The upper Greenstone River in Otago flows through a large open valley. Anglers must walk at least three hours from a

(PEER REVIEWED)

New Zealand's backcountry trout fisheries are world renowned, and demand for this recreational experience has increased over the past two decades.

road to access the upper valley. The Caples is the main tributary and can be accessed in an easy half-hour walk. Some anglers also gain access by helicopter. There is little sign of development in the valleys. Department of Conservation huts and track systems follow the valley floors. Angling pressure is highest for residents at the start of the season (November) when postspawning rainbow trout are most abundant. Brown trout are also present, although they typically make up less than 10% of the population (Kroos 1997). Nonresident anglers dominate use in the summer months, January through March (Kroos 1997). Fishing occurs along the length of the upper Greenstone River with some 16 kilometers (17.49 miles) of fishable water, and 12 kilometers (13.12 miles) in the Caples.

Martinson and Shelby's (1992) research on the salmon rivers, the Klamath in northern California, and Rakaia (upper and lower) and Waimakariri on the South Island of New Zealand, is presented in this article to illustrate differences in encounter norms for trout and salmon anglers. Easy access on the Klamath River promotes a high level of use when salmon are running. The Rakaia and Waimakariri also receive high levels of use during salmon runs. The upper Rakaia gorge is undeveloped and accessible by boat or walking.

The quarry—wild brown trout. Photo by Carl Walrond.

Roving Creel Survey Methods

Anglers were interviewed on the river at the end of their angling day on the Greenstone (1994–1995) and Caples (1996–1997) valleys over the entire November 1 to May 30 fishing season. Roving creel surveys are rarely used for social surveys. Their main advantage is the high capture and response rates due to personal contact (Pollock et al. 1994).

Survey Design

The questionnaires addressed actual encounters that occurred and norms for tolerable and preferable levels of encounters compared to actual encounters. Up to eight questions explore angler demographics, motivations and expectations, preferences, and tolerances for encounters, based on examples of similar research in North America by Shelby and Herbelein (1986).

For reported encounters, anglers were asked how many other people they saw on the river during their fishing day. Tolerances for encounters, or encounter norms, were determined by asking anglers the number of encounters they would tolerate before their experience was "significantly downgraded." For preferred encounters, anglers were asked how many encounters they would prefer compared to their actual encounters. A "don't know" option was included.

Statistical methods developed in previous studies (Shelby 1981; Vaske et al. 1986; Martinson and Shelby 1992) are used to present data in several ways. There is some debate in the literature as to what measure of central tendency should be used to define norms (or if measures of central tendency can be used to define group norms). The median has been chosen here as the mean can be skewed by outliers and the mode only represents the greatest consensus for one value (Shelby and Vaske 1991).

At the median, 50% of anglers would tolerate that number or higher levels of encounter, but 50% of anglers would also not tolerate that number or higher levels of encounter. It is difficult to synthesize individual norms into a group norm, as any measure of central tendency will be reflective of only a portion of the samples. It is important to view the distributions. Encounter norms are represented here as curves showing the cumulative percentage of anglers that would tolerate each encounter level. In Figure 1 (see page 31) a median line is drawn at 50%, and the points where this intercepts the cumulative percent curves are median values.

Results and Discussion

When asked for a tolerable number of encounters before their experience was significantly downgraded (see Table 1 page 31, Figure 1), the majority of anglers said more than zero encounters per day and tolerance dropped off quite steeply (see Figure 1). Reported encounters on backcountry trout rivers are much lower than on the salmon rivers with medians of two and one on the Greenstone and Caples, respectively (see Table 1). Tolerable limits are also much lower, the median being

three on both rivers, while preferred levels are lower still at one for both rivers.

Salmon anglers showed less agreement (flatter, wider distribution) on appropriate encounter norms than trout anglers (see Figure 1), referred to as low norm crystallization (Martinson and Shelby 1992). Statistical testing between the Caples and Greenstone and Upper Rakaia and Klamath rivers was not possible due to different methods of measuring encounters.

Interestingly, preferences for encounters were universally low (see Table 1), indicating that anglers tolerate much higher encounters than they prefer, and that optimal angling densities are low for all the rivers. For the salmon rivers actual encounters were higher than preferred and tolerated levels, while on the two backcountry trout rivers actual encounters were similar to preferred levels.

Figure 1—Tolerance encounter norms

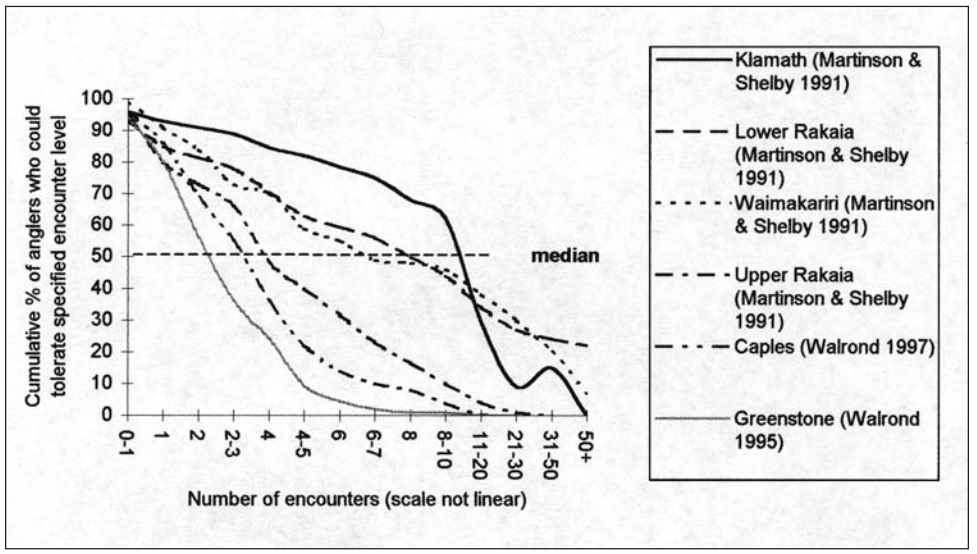


Figure 1—Tolerance encounter norms for high-use density salmon anglers (Klamath, Lower Rakaia, Waimakariri), low-use density salmon anglers (Upper Rakaia) and low-use density backcountry trout anglers (Caples and Greenstone).

Discussion

Angler Encounter Tolerances

The results suggest several conclusions regarding encounter norms for trout anglers in backcountry settings. First, encounter norms for trout anglers appear to be lower than for salmon anglers. This confirms earlier studies that indicate that for trout anglers, tolerable levels of encounter are less than seven per day (Herbelein and Vaske 1977; Manning 1979). For salmon anglers on the Waimakariri and lower Rakaia rivers, median-tolerable encounter values were approximately 7 to 10 anglers at one time, and 13 per day for the Klamath River. For the Greenstone and Caples, the median was three per day, while the upper Rakaia was three to four per day. Interestingly there wasn't a large difference between salmon anglers in the more remote upper Rakaia River and trout anglers on the Greenstone and Caples. This suggests that setting may have stronger influence on encounter

Table 1—Number of encounters considered tolerable or preferred.

Species: ◄——► Salmon ◄——————————► ◄——► Trout ◄——►

Landscape: ◄——► Developed ◄——————► Undeveloped ◄——► Backcountry ◄——►

Encounters	Klamath	Waimakariri	Lower Rakaia	Upper Rakaia	Greenstone	Caples
Reported	15.5 (51)	46.6 (119)	28 (68)	(69)	2 (154)	1(178)
Tolerable	(27)	(73)	(46)	(45)	3 (146)	3 (171)
Preferred	/	3.6 (86)	3.5 (43)	1 (56)	1 (153	1 (172)

Encounters on the Waimakariri and Lower Rakaia were measured as "anglers visible at one time."

Table 1—Number of encounters with bank anglers that salmon and trout anglers considered tolerable or preferred. Numbers are medians, meaning that 50% of the anglers considered that number tolerable, or preferred fewer encounters per day. Numbers of angler responses for each category are in parentheses.

Helicopter access is one of the major issues facing backcountry trout fisheries in New Zealand. Photo by Carl Walrond.

norms than species sought, although many other factors such as difficulty of access, level of demand, stream size, harvest availability and catch rate could also influence encounter norms. Martinson and Shelby (1992) propose that the lower encounter tolerance in the upper Rakaia gorge is due to the relatively remote, undeveloped setting and traditional low-use levels, conditions that fit New Zealand's backcountry trout fisheries.

The latest research from North America shows that not all backcountry users can specify norms, or there is not sufficient consensus regarding appropriate encounter levels (Williams et al. 1992; Patterson et al. 1990; Hamitt et al. 1991; Hamitt et al. 1995). However anglers in New Zealand have normative agreements regarding appropriate encounter levels on less developed, more isolated rivers. Use-densities in these studies of backcountry users were medium to high. While consensus on the Greenstone and Caples is not universal, there is definite evidence of low tolerable encounter levels for backcountry trout anglers and even lower encounter preference levels (see Table 1). Trout anglers appear to be more sensitive to encounters than other recreational users. Why is this so?

A helicopter is readied for flight. Photo by Carl Walrond.

Differences in the Trout Fishing Experience and Consequences of Encounter

Social norms define the boundaries of acceptable encounter levels for an activity. This range is affected in part by the consequences the encounter has on the group's ability to achieve its desired goals. Encounters between trout anglers on New Zealand backcountry rivers can greatly reduce their ability to achieve their desired goals. For example, on a small wilderness river an encounter may totally displace fishing opportunities because angling activity disturbs the fish for arriving anglers. But if the river has plenty of fishable water, anglers can informally make room for each other. Compare this to an encounter on a trail, which usually lasts a few seconds as hikers pass by. Crowding conjures images of anglers standing shoulder to shoulder. This occurs on the lower reaches of Canterbury salmon rivers (Rakaia and Waimakariri) and on the Tongariro (a winter trout river). However, as fly anglers on backcountry rivers move upstream, fish are either caught or spooked, thus affecting the water behind them for several hours, or possibly even days (Hayes et al. 1997). "Anglers also look ahead to the next good fishing hole; someone disturbing that spot may also encroach on their activity" (Shelby and Herbelein 1986, p. 141). When anglers meet, there is not only the psychological impact of another person in the wilderness, but also the fact that other anglers are competition. In contrast, salmon angling involves fishing turbid water with heavy spin fishing tackle. The high concentration of anglers motivated by harvest is a highly sociable experience. Arguably, the consequences of encounters for trout anglers are greater than for salmon anglers, hikers and other backcountry users.

Conclusions and Implications

The lower preferences (medians of one per day) for encounters when compared to actual encounters on the Greenstone and Caples illustrate that optimal preferred levels are well below tolerable levels. Current levels of use result in median encounter levels equal to preferable levels of one per day on the Caples and above the median of two per day on the Greenstone. This illustrates that these rivers are possibly at optimal levels of use.

Backcountry trout angling is a wilderness-dependent activity in that the resource and social conditions define the experience as much as the activity. That is, these experiences are largely setting and solitude dependent.

Research such as this is useful as it (1) gives managers an understanding of use and encounter levels, (2) provides insights into what factors make up quality angling experiences, and (3) provides information for fisheries and tourist resource managers for use in strategic planning processes.

Acknowledgments

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Backcountry trout angling is a wilderness-dependent activity in that the resource and social conditions define the experience as much as the activity. That is, these experiences are largely setting and solitude dependent.

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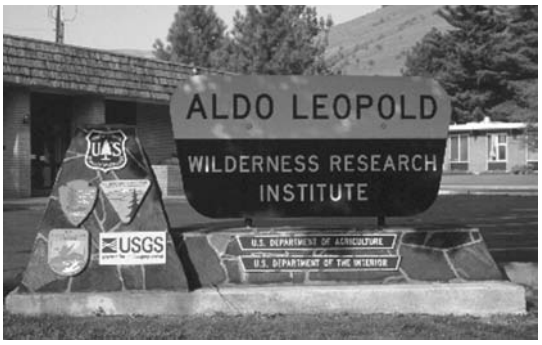

PERSPECTIVES
from the Aldo Leopold Wilderness Research Institute

Science for Wilderness, Wilderness for Science

BY DAVID J. PARSONS

Science provides knowledge upon which to make informed decisions about the protection and management of wilderness. In addition, wilderness provides opportunities for scientific understanding that is often not available in other, less protected areas. Thus, science is important to wilderness and wilderness is important to science.

The protection of wilderness requires understanding of wilderness ecosystems, the biological and social impacts of human activities on those ecosystems, and the effects of different policy and management alternatives. The value of science in understanding wilderness is well documented in the literature. Programs to restore fire to wilderness are guided by scientific understanding of fire history and plant succession coupled with the use of scientific models of fire behavior. The management of visitor access, use of wilderness for therapy and personal growth, restoration of damaged recreation sites, and the removal of exotic or reintroduction of extirpated species are other examples where science provides the basis for wilderness management actions. The importance of science to wilderness management decisions will only increase as our remaining natural areas become increasingly influenced by human activities.

The relative lack of human disturbance and the protected status of wilderness provide unique opportunities to learn about the natural world. Wilderness provides a laboratory for understanding natural processes that have been disrupted elsewhere, a baseline for comparison with more human-altered ecosystems. The importance of wilderness to science was clearly recognized at the Sierra Club's 1959 Sixth Biennial Wilderness Conference, titled "The Meaning of Wilderness to Science." Following a presentation by Luna Leopold (son of Aldo Leopold) on the value of the proposed wilderness system for hydrological research, Howard Zahniser, chief architect of the Wilderness Act, cautioned that the increased recreational use expected to follow wilderness designation might "interfere with the establishment of … installations for scientific purposes." Zahniser clearly sees science as an important value of wilderness.

The 1964 Wilderness Act established "scientific use" as one purpose of wilderness. The 1994 California Desert Protection Act reinforced this, stating that a primary purpose of wilderness is to "retain and enhance opportunities for scientific research in undisturbed ecosystems." Recent studies of the effects of global change have clearly benefited from baseline information derived from wilderness, and we now also realize that wilderness is a valuable laboratory for studying human behavior. The value of wilderness to science will only increase as an expanding population infringes on our remaining natural areas.

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Issues Surrounding Entrance Fees as a Suitable Mechanism for Financing Natural Areas in Australia

BY GAMINI HERATH

Abstract: Australia's national parks, nature reserves, and wilderness areas protect biodiversity and other ecosystem values while offering opportunities for ecotourism and recreation. Tourism and recreation demands have increased dramatically, while land managers struggle with inadequate staff and funds, thereby jeopardizing the economic and social value of these protected areas. The growing use of user fees in Australia has increased revenues and improved management, but it raises questions about distributive justice and commercialization of Australia's natural areas.

Introduction

User fee systems, although controversial, have been adopted by most nature conservation agencies in Australia. Fees are charged for entry to protected areas, campgrounds, recreational facilities, use of interpretive services, and other facilities and services. Opponents of fees argue that conservation of natural resources is a community service obligation, and access to natural areas should be available to all socioeconomic groups at no cost. Proponents say that public agencies restrict access and control visitor numbers to reduce environmental damage. Declining budgets require agencies to explore alternative sources of funding, and entry fees provide one such source (Driml and Common 1995; ANZECC 1998).

The objectives of this article are to (1) review the history of development of natural areas in Australia, (2) review existing Australian fee programs, and (3) evaluate the issues pertinent to entry fee controversies.

History of Protected Areas in Australia

Europeans first settled along the east coast of Australia about 200 years ago. Economic progress was dependent solely on the use of new land resources, and settlers cleared much of the virgin forest for agriculture. By 1920, exploitation, along with the introduction of exotic plant and animal species changed the composition of the country's flora and fauna (Common and Norton 1992).

Article author Gamini Herath. Photo courtesy of Gamini Herth.

The first national park in Australia was south of Sydney established in 1879. The early movement to create national parks was motivated by the need to preserve native forests for forestry enterprises (Dargarvel 1987). Some areas were simply declared national parks because there was no competing land use. This was known as the "Worthless Lands" approach (Hall 1989).

Since the 1960s, Australia's natural environment has become a major tourist attraction (Hall 1994). In the year 2000, 5.8 million international tourists are expected to visit

(PEER REVIEWED)

Dorrigo National Park, Australia. Photo by Geff Bennett.

Australia, and that number will rise to some 8.8 million by the year 2006 (Tourism Forecasting Council 1997). The number of Japanese visitors alone increased from 352,300 in 1988 to 670,900 in 1993 (Bureau of Tourism Research 1994). More than 50% of all international tourists visit national parks and other natural areas (Blamey 1995). Domestic demand for recreation and ecotourism grew rapidly in the 1970s. A survey in 1988 and 1990 in Tasmania shows that hiking has risen from 59.7% of the total recreational activities in 1988 to 75.8% in 1990.

In the early history of Australia's parks and reserves, little attention was paid to the overall status of the ecosystems. By the 1950s progressive conservation efforts led people to value nature beyond commodity production, and by the 1970s preservation had become a legitimate and valuable land allocation. Several conservation groups, such as the Australian Conservation Foundation, the Australian Wilderness Society, and the Victorian National Parks Association, pressured the government for better legislation. As a result, Australia's nature reserves rose to about 30 million hectares, or 4% of the country's total land area. By 1993, 10.6% of the total land area was reserved under national parks. Disputes occurred where nature conservation objectives conflicted with alternative land uses. For example, in the 1970s environmental groups fiercely opposed a proposal by the Hydroelectric Commission of Tasmania to flood Lake Pedder. The environmentalists lost Lake Pedder, but the issue was a turning point for Tasmania and the conservation movement (Kellow 1989).

The Rationale behind Entry Fees to Natural Areas

The rapid growth of Australia's tourist industry coupled with fiscal conservatism has pressured management agencies to generate revenue. The desired outcomes of user-fee systems are cost-effectiveness, improved park management, better visitor facilities, and a positive attitude toward protected areas management (ANZECC 1998).

Public opinion remains divided on use fees. The arguments favoring fees are that they achieve efficiency in resource allocation, alleviate congestion, and help recover costs and provide revenue for maintenance, thereby mitigating adverse environmental effects (Cullen 1985). Those against fees argue that they can create adverse distributional consequences, and that public resources should allow equal access for all. Use fees, opponents say, constitute double taxation.

Use fees are often determined administratively rather than by the market. Table 1 (see page 37) shows the diversity of use fees to national parks in Australia based on mode of travel and their capacity. Visitors can buy a daily pass, and in some cases annual passes are available. Different fees are charged for adults and children, and concessions are made for certain disadvantaged visitors. Table 2 (see page 38) shows fees collected from several World Heritage Areas in Australia. In three of these sites, fees covered less than 5% of management expenditures. In Kakadu, fees covered less than 10% of expenditures. Only in Uluru do use fees constitute upward of 65% of the management budget (Driml and Common 1995). Neither efficiency nor cost recovery is achieved in existing fee programs.

Demand/Supply Analysis for Natural Areas in Australia: The Status Quo

Quantitative assessments of the supply-and-demand parameters for natural areas are critically important to achieve optimal pricing schemes. The estimation of demand for resources such as national parks and wilderness areas is not direct since these goods are not marketed. Economists have developed several techniques, which include the Travel Cost Method (TCM) and the Contingent Valuation Method to estimate demand. Ulph and Reynolds (1981) used the TCM to estimate the recreation use value of the Warrumbungle National Park to be around $100/ visitor day. Knapman and Stanley (1991) measured the recreation value of Kakadu National Parks. Beal (1995a) studied the demand for the Girraween National Park in Queensland and estimated a choke price of $47.23. Beal (1995b) also studied the Carnarvon Gorge National Park in Queensland. These studies

provide demand curves that can be used in determining optimal pricing in conjunction with the supply curve. The inadequacy of formal demand studies is obvious here.

In Australia, demand studies are more numerous than supply studies. For estimating supply functions, information on variable costs such as compliance checking, garbage collection, implementing use fees, user-induced maintenance, and clean-up are required. Beal and Harrison (1997) estimated the supply function for the Carnarvon Gorge National Park in Queensland, which, in conjunction with the demand curve, yielded a market clearing price of $3.17 for day visitors and $15.00 for camping visitors. They found the optimal prices for day and camping visits to be $1.13 and $8.00 for the Girraween National Park in Queensland. In some cases the cost of collection could not be covered by the use-fee program. The paucity of supply studies constrains a formal evaluation of existing pricing schemes.

Use fees raise unresolved equity concerns, but equity is a matter of personal and philosophical values. Economists can suggest ways of achieving efficiency and describe equity considerations, but ultimately what is fair must be determined by political process.

Revenue Argument

Another argument for use fees is to enhance revenue. The total revenue collected depends on the price elasticity of demand. If demand is price inelastic, increasing the price will lead to higher revenues. Knapman and Stoeckl (1995) estimated the price elasticity of demand for Kakadu National Park and Hinchinbrook Island National Park to be highly inelastic. In Australia, the demand elasticity varied between 0.033 and 0.041, with 0.07 being the typical elasticity of demand. Beal (1995a) also found the elasticity for day visits and camping to be 0.055 and 0.087 respectively, both highly inelastic. Bennett (1996) estimated the demand elasticity for recreation in the Dorrigo and Gibraltar Range National Parks to be around 0.0842 and 1.693 respectively. Overall, Australian studies indicate that demand is generally inelastic, suggest-

Table 1—Magnitude of entry fees for selected parks in Australia (in Australian dollars).

STATE	PARK	BUS	CAR	MOTORCYCLE	PERSON
NEW SOUTH WALES	Kosciusco (daily) Kosciusco (annual)	4.00 (adult) 2.00 (child) NA	12.00	3.50 NA 60.00	NA 30.00
VICTORIA	Selected parks (daily)	21–44 (30 seats 14–25 (29 seats)	4.50–9.50 3.00	1.50–2.00	NA 8.00 (adult) 4.00 (child) 18.00 (family)
	Point Nepean (daily)	NA	NA	NA	
	Mt. Buffalo (annual) Off-season	130.00 (30 seats) 75.00 (29 seats)	33.00	NA	

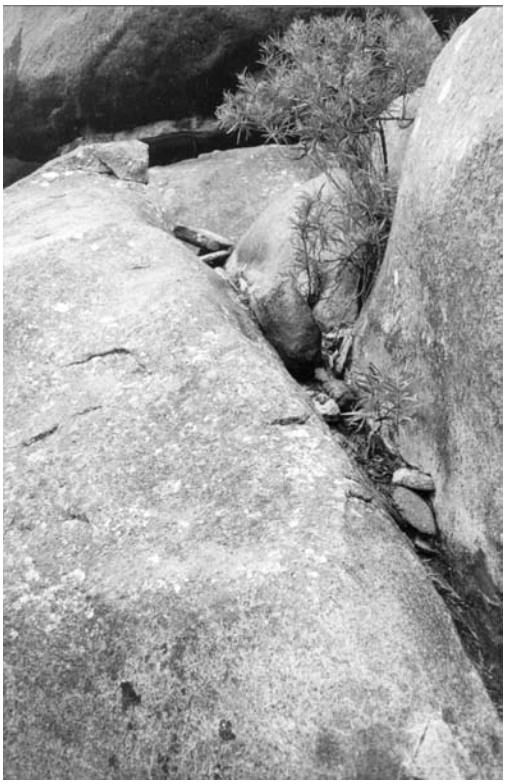
Source: Compiled by the author from data in ANZECC 1997.

Table 2—Management budgets and revenue from user fees for selected locations in Australia, 1991–92 (in millions, Australian dollars).

World Heritage Area	Total Management Expenditures	Total Fees Collected	Fees as Percent of Expenditure
Great Barrier Reef	18.1	0.79	4.0
Wet Tropics	12.1	0.30	2.5
Kakadu	10.8	1.02	9.4
Uluru	2.9	1.85	63.8
Tasmanian Wilderness	4.8	0.20	4.2
Total	48.7	4.16	8.5

Source: Driml and Common 1995.

ing that higher prices would lead to higher revenues. But empirically the question is whether pricing is too high or too low and whether any variation of price leads to an increase or decrease in total revenue. Again, the paucity of elasticity estimates for most natural areas in Australia constrain answers to this question.



Rock outcropping in Gibraltar Range National Park, Australia. Photo by Geff Bennett.

Equity Argument

Equity is an important concern in Australian society. Economists often pay lip service to equity in pursuing efficiency goals. The main objection is that fees discriminate against low-income groups. Governments often attempt to redress equity issues through concessions to needy groups and families through fee structures that charge per vehicle or per campsite rather than per person (ANZECC 1998). Recreation areas in Australia are highly subsidized, and only 30% of costs are recovered through user fees. Further studies on equity will reveal its importance to the financing of natural areas. Recent emphasis on sustainable development has encouraged the need to recognize intergenerational equity.

Concluding Remarks

Continuous changes in management structure and reductions in budgets present difficulties for managers of natural areas in Australia. Among these difficulties are a reduction in resource protection and maintenance and an increase in personnel workload. The government encourages use fees primarily to generate revenue, yet they cover a small percentage of management expenses. The fees are not determined by application of market mechanisms and bear no relationship to either supply or demand.

Use fees raise unresolved equity concerns, but equity is a matter of personal and philosophical values. Economists can suggest ways of achieving efficiency and describe equity considerations, but ultimately what is fair must be determined by political process.

Concern about fees and commercialization of natural areas ignores the essential basis upon which a protected area system is established. Still, funding issues are important and cannot be ignored. If economists are to obtain a more receptive audience for their efficiency concerns, more work is necessary on equity and issues of social justice. The guidelines for 2000, which set fees on a full cost recovery basis and introduces the goods and services tax from July 1, 2000, will have significant implications in Australia. Fees help raise revenue that supports the protection of natural areas, but alone they are not sufficient to provide all the needed funding.

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The desired outcomes of user-fee systems are cost-effectiveness, improved park management, better visitor facilities, and a positive attitude toward protected areas management.

Announcements & Wilderness Calendar

Environmentalists Sue to Stop Military Overflights

Anyone who has ever been buzzed in wilderness by a low-flying Air Force jet will tell you the experience was deafening and intimidating. Environmentalists and ranchers from nine western states teamed up in January to file suit against the Defense Department to end such low-level training flights until their environmental impact is determined. The lawsuit states that in the West alone the Air Force conducts training flights over more than one million square miles of open country, most of it public land, at speeds up to 645 miles per hour and at altitudes as low as 100 feet. The suit charges the Air Force with intentionally underestimating the environmental impact of such flights.

Panel Finds Canada's National Parks System Near Collapse

The Panel on the Ecological Integrity of Canada's National Parks recently reported that Canada's national parks service must make radical changes if it is going to avoid a total collapse of the nation's entire parks system. At least 22 of Canada's 39 national parks face severe environmental dangers. But the state of Canada's parks is less about global environmental problems and more about the failure of the managing body. Panel Chairman Jacques Girin said that the situation is so serious that increasing budgets will do little or nothing for Canada's protected areas until the organization makes profound changes in the way it operates.

Failure to implement planning, poor organization and management, and a lack of scientific knowledge were among the panel's major criticisms. Out of 2,100 staff members working for Parks Canada, only 11 hold Ph.D.s and 40 have masters degrees. The panel also found that park staff often did not understand the definition of environmental integrity and commonly ignored the health of park ecosystems in decisionmaking. The panel strongly supports hiring more scientists and placing at least one in a position of power. This is a critical time for Canada's parks system and its role in the ecological integrity of the Earth.

Env. Groups Demand Reduction and Regulation of ORVs on Public Lands

More than 100 environmental groups called on federal agencies to dramatically reduce off-road vehicle use of national parks and forests. The coalition reported that "off-roading" is destroying and polluting those lands. Another 85-group coalition, led by The Wilderness Society, petitioned the USDA Forest Service to end off-road vehicle use on the national forests unless they implement a system for stricter regulation. And another 66 environmental groups asked the National Park Service to ban off-road access to national parks all together.

Australia Ranks among Top Five Land-Clearing Nations

The Australian Conservation Foundation reported that Australia is clearing its forests faster than any other industrialized nation. In three years alone it cleared about 2.5 million acres of forested land. The country now ranks as the fifth largest land-clearing nation in the world.

Roadless Areas on Lolo National Forest Protected from Snowmobilers

Montana's Lolo National Forest recently closed 400,000 roadless acres to motorized access in response to the threat of a lawsuit by the Montana Wilderness Association if the forest did not enforce a 1986 management plan.

The Montana Snowmobile Association along with the Blue Ribbon Coalition (an Idaho motorized recreation group) and the town of Superior, Montana (which depends on snowmobiler dollars), challenged the closure charging that the Forest Service failed to hold public hearings before implementing the ban. But Judge Donald Molloy ruled that snowmobilers attended public hearings during preparation

of the 1986 plan, and that the Forest Service was overdue in enforcing the ban. The decision means that, following public input, national forests must enforce their land management plans.

Clinton Administration to Propose New Category of Protected Lands—National Landscape Monuments

Interior Secretary Bruce Babbitt announced that the Clinton Administration plans to create a new category of protected public lands called a National Landscape Monument. Some 4 million acres in the West are under consideration, including Oregon's Steens Mountains, parts of Montana's Missouri River, and Colorado's Canyon of the Ancients. If Congress does not protect these areas, President Clinton could declare them National Landscape Monuments. The Bureau of Land Management will manage these new protected areas.

Leave No Trace Principles Take Root in Germany

Anne-Katrin Henkel is helping to build a national outdoor ethic in Germany. Last April, Henkel gathered public relations specialists, preserve rangers, and staff in Germany's Rhon Biosphere Reserve to discuss the Leave No Trace Program (LNT) in the United States. Some LNT principles were readily accepted, such as "Pack It In, Pack It Out." However, despite the human waste problem in many natural areas in Germany, participants would not discuss proper disposal and sanitation. Henkel said she was labeled "crazy" for packing out her toilet paper on backpacking trips in the States. Still, Henkel affirms, every initiative begins with small steps. For more information contact Barbara Miranda at: barbara_miranda@nps.gov. *Adapted from Central and Southern Sierra Wilderness Education Project's winter 1999/2000 newsletter*.

Africa Losing Forests Due to a Combination of Factors

The U.N. Food and Agriculture Organization reported that between 1980 and 1995, Africa had an annual deforestation rate of 0.3%, or twice the world average, losing an estimated 10.5% of forest land. Logging, overgrazing, clearing land for agriculture, and civil unrest have all contributed. The report found that in many countries, forest management and national parks programs have been disrupted by political and military conflicts, while firewood needs are increasing in sub-Saharan Africa due to the growth of both population and poverty.

Study Says Saving World's Species Is Not a Losing Battle

A British-American research team reported in the journal *Nature* that a third of the world's plant and animal species live on only 1.4% of the Earth's land mass. The team concluded that by focusing on 25 "hot spots," it is possible to save a large portion of the world's species from extinction. These "hot spots" include tropical rainforests in Brazil, Madagascar, the Andes, Borneo, Sumatra, the Caribbean, and other Southeast Asian islands. *IJW*—Could wilderness be part of this strategy?

Oregon Campaign Calls for More Wilderness

The Oregon Natural Resources Council is leading dozens of organizations in the new "Oregon Wild" campaign, which demands protection for another 4.9 million acres of roadless areas in Oregon's national forests. The campaign is working on a proposal for the state's congressional delegation. Oregon currently has 2.1 million acres of designated wilderness.

Great Grizzly Search Underway in Salmon-Selway-Bitterroot Ecosystem

A group of scientists and conservationists have joined efforts to search for grizzly bears in the Salmon-Selway-Bitterroot Ecosystem in Idaho and Montana. The group believes that grizzlies do live in this vast area, and that the U.S. Fish and Wildlife Service should document their numbers and habits before proceeding with any grizzly recovery plan. The group offers an observation booklet to help the public identify grizzlies and document sightings. For more information or to report a sighting, write to Great Grizzly Search, P.O. Box 8983, Missoula, Montana 59807, USA.

Albertan Environmentalists Disappointed with Chinchaga Protection Plan

The Alberta Wilderness Association (AWA) joined the Canadian Parks and Wilderness Society to announce its disappointment with the province's decision to protect some 800 square kilometers of a proposed 5,000 square kilometer area in the Chinchaga wilderness region of northeastern Alberta. Environmentalists argue that the area is too small and is mostly peatland and unproductive, burned-over deciduous forest. The area is home to important nesting sites for trumpeter swans as well as at-risk woodland caribou and grizzly bears. The AWA denied reports

that it intends to "go radical" in its efforts to protect more of the Chinchaga. For more information or to voice your opinion, write to AWA, P.O. Box 6398, Station D, Calgary, Alberta, T2P 2E1, Canada. E-mail: a.w.a@home.com.

BLM Rangers Attacked in Algodones Dunes

BLM rangers were attacked by an "unusually unruly" crowd in southern California's Algodones Dunes during the 1999 Thanksgiving weekend. Rangers observed illegal off-road vehicle (ORV) activity in Areas of Critical Environmental Concern (ACEC) and wilderness areas in Imperial County. Reports of 60,000 to 110,000 holiday campers and ORV enthusiasts flooded Algodones Dunes, and a local newspaper reported drunken driving, alcohol and drug violations, riots, and attacks on law enforcement officers. Vehicles repeatedly ignored, removed or destroyed BLM signs restricting motorized travel in ACECs and "Limited Use Areas." *Adapted from Desert Survivors Monthly Discussion Group Report.*

New Study Reports Two Times as Many Species in U.S., but One-Third Imperiled

A new study by the Nature Conservancy (touted as the most comprehensive study of biodiversity ever undertaken in the United States) reports that the country is home to more than 200,000 native species of living things, double the number previously thought. To temper that figure, the study says that at least a third of all these species are imperiled. In response to this crisis, the Nature Conservancy will launch a 1 billion dollar campaign over the next five years to protect wildlands. It is, they say, the greatest investment in conservation ever by a private organization.

Two Listserves Help Environmental Organizations Share Information and Resources

Grassroots organizations are a tremendous tool for shaping U.S. environmental policy in the 21st Century. That's why Steve Holmer and Stu Dalheim started "americanlands-list," an extensive computer network of more than 2,500 activists and organizations who share information over e-mail to help them be as effective as possible in their efforts to protect the United State's natural heritage. Members are encouraged to post information and alerts as well as receive information from other individuals and organizations. Holmer and Dalheim strongly believe that each individual voice makes a real difference, and that collectively environmentally minded groups are having a very "significant cumulative impact" on the health of the natural world. For more information, please contact American Lands at wafcdc@americanlands.org, or call 202-547-9105.

Wilderness Watch! maintains a similar listserve called WILDNET. The organization encourages subscribers to share information toward building a better wilderness system. To subscribe, address a message to: wildnet@wildrockies.org. For information, contact the list administrator, Glenn Marangelo, at: wild@wildernesswatch.org.

American Rivers Presses for Dam Breaching on the Snake

The environmental organization American Rivers is pressuring the Clinton Administration to breach four dams on the Snake River to help recover threatened salmon runs. For the second consecutive year, the organization has declared the Snake the most endangered river in the United States. Activists supporting dam breaching delivered 120,000 letters and cards to Vice President Al Gore's office. The four dams in question provide only 5% of the region's electric power, while destroying 90% of the salmon. The federal government is completing its study and plans to make a recommendation later this year. Seems the future of salmon runs in western rivers depends not on high-tech fish ladders, but on restoring waterways to free flowing states.

National Mountain Conference in Golden, Colorado

"Stewardship and human powered recreation for the new century" is the theme of the National Mountain Conference to be held September 14–16, 2000, in Golden, Colorado. Registration is $110.00. For more information, contact National Mountain Conference Coordinator, c/o AMC Research Department, P.O. Box 298, Gorham, New Hampshire 03581, USA. Telephone: 603-466-2721, x184. E-mail: melhov@landmarketnet.net.

Sierra Club Files Suit against Shopping Mall at Grand Canyon

The Sierra Club filed suit to stop development of Canyon Forest Village, a 330-million-dollar project that would include up to 1,140 hotel rooms, 2,375 housing units, and 250,000 square feet of commercial space at the main entrance of Grand Canyon National Park. The group contends that building "Arizona's largest shopping center at the entrance to

Grand Canyon" is a bad idea. Beyond spoiling one of the most beautiful landscapes in the world, of primary concern is the development's demand for groundwater. For more information, contact the Sierra Club at 85 Second Street, Second Floor, San Francisco, California 94105, USA. Telephone: 415-977-5500. Website: www.sierraclub.org.

National Wilderness 2000 Conference in Denver, Colorado

Celebrate wilderness at the National Wilderness 2000 Conference, September 8–10 at the Hyatt Regency Hotel in Denver, Colorado. Under the conference theme, Protecting America's Wild Places in the 21st Century, activists will find opportunities to address present and future challenges and formulate a wilderness agenda for the next century. Conference organizers say they want to broaden the kinds of people advocating for wilderness protection and so encourage attendance by nontraditional allies such as artists, writers, musicians, religious groups, business leaders, hunters, anglers, and young people. For more information or registration, write to Sara Scott at The Wilderness Society, 7475 Dakin Street, Suite 410, Denver, Colorado 80221, USA. Telephone: 303-650-5818, x107. E-mail: Wild2000@tws.org.

Website Follows Expedition of Young People Promoting Wilderness Awareness

A new wilderness-based education website, www.arcticyear.org, will follow an expedition of young people spending an entire year (August 2001 to July 2002) on the Norwegian Island of Svalbard. The expedition is administered by British Schools Expeditions. Svalbard, often described as Europe's last wilderness area, is far from a pristine environment. Converging air and water masses transport pollutants to the area, and scientists have recently discovered polar bears with levels of pollutants 20 times that of bears in Alaska. Later this year, lesson plans for teachers will be added to the website to encourage young people worldwide to consider the threats facing Svalbard and the value of wilderness. For more information, contact Mark Evans, British School, P.O. Box 85769, Riyadh 11612, Saudi Arabia.

Michelle Mazzola Leaves *IJW* Managing Editor and Production Editor Positions

Michelle Mazzola, who has been *IJW's* production editor since its inception in 1995, and managing editor for the past two years, is leaving the journal to focus on new professional challenges. Director of the Foster Creek Conservation District in Washington State, Mazzola recently received a major grant from the National Fish and Wildlife Foundation to develop a model habitat conservation project. Editor-in-chief John Hendee will reassume the position of managing editor, and Kurt Caswell (see below) will become production editor. *IJW* will miss you, Michelle. Thank you for your many and steady contributions. Good luck in your future endeavors.

Kurt Caswell Joins *IJW* as Production Editor

Kurt Caswell, chair of the English department at Cascade School near Whitmore in rural northern California, is *IJW's* new production editor. Caswell will work with the editor-in-chief to copyedit and organize all IJW materials for submission to Fulcrum Publishing.

***IJW* Production Editor Kurt Caswell in southern Utah's Grand Gulch. Photo by Sunny Weir.**

Caswell, age 30, grew up in a Forest Service family in the Cascade Mountains of Oregon and on the Snake River Plain in southern Idaho. He holds a bachelor's degree in English from Boise State University, and a master's degree from the Bread Loaf School of English at Middlebury College in Middlebury, Vermont. He has taught in Hokkaido, Japan, on the Navajo Reservation, and on a working cattle ranch in Arizona. At Cascade School Caswell specializes in teaching Shakespeare, Native American literature, and Romantic poetry. He leads wilderness trips for students during the summer. He has published stories, articles, and essays in numerous magazines and journals, including *Left Bank*, *Boise Magazine*, *West Wind Review*, and the Orion Society's anthology *Stories in the Land*. A frequent contributor to the *Chico News and Review*, he lives with his wife, Suzanne. Welcome aboard Kurt!

Letters to the Editor

Use Fees Constitute Wilderness for Sale

Dear *International Journal of Wilderness,*

Congress is pushing federal agencies to institute user fee programs. To increase the incentive, congress is telling managers they can keep all or a portion of the fees collected to run the program. Congress launched the Recreation Fee Demo program in 1996 to test this concept. At first glance, this makes a lot of sense. However, I have some very serious concerns.

Proper stewardship of public lands (especially wilderness) often requires limitation of use. My 33 years in the U.S. Forest Service tells me exactly what will happen if you say to any bright manager, "Sell the resource and you can and keep the proceeds to enhance your program!" This is exactly how the Recreation Fee Demo Program works. It provides a powerful incentive for managers to avoid anything that will limit use, because the more use they can generate the greater their budget. Raising money soon drives the program instead of proper resource stewardship.

In addition to wilderness users, wilderness benefits millions of Americans who will never set foot there, millions of Americans yet unborn, and millions of animals great and small. How do you collect user fees from them? How do you put a price on outstanding opportunities for solitude? Any fees that are collected must go directly to the treasury and there must be no relationship between fees and the funds appropriated for stewardship.

Congress must provide the funding to maintain and protect our wilderness treasures for future generations. It should not tell wilderness stewards they must sell the resource to pay their salary.

Bill Worf
President of Wilderness Watch
6315 Hillview Way
Missoula, Montana 59803
406-251-6210

Medberry Supports Roadless Area Policy

Dear *IJW,*

Jay O'Laughlin and John Freemuth oppose the proposed For est Service policy to protect the remaining 40 to 60 million acres of national forest roadless lands from road construction and logging (see "Roadless Area Policy, Politics, and Wilderness Potential," *IJW,* April 2000). They argue for current planning processes and assert that the proposed roadless policy ignores people's opinions by being the centerpiece of a politically driven agenda. I disagree!

The roadless issue has a long history of active, public debate. In the 1970s and 1980s the Forest Service performed two major roadless area studies (RARE I and RARE II). In the 1980s and 1990s, wilderness legislation was proposed, debated, and passed or killed, and these debates continue today, sometimes in policy wrangling over forest health, salvage logging, fire policy, endangered species, and water quality, all of which affect roadless area management. But it is in project level decisions (such as timber sales) where the fate of many roadless areas are settled. It is in the arcane, jargon-packed, convoluted, policy never-never lands of passionless, mind-numbing, bureaucratic documents where many roadless areas meet their fate. In Idaho, we've lost a million acres of potential wilderness through "existing policy processes." Enough is enough! The proposed policy would protect roadless areas in their current condition while the long-term debate over each area continues. Is that political? Of course it is.

The agency has heard from more than half a million people at its many hearings and open houses, and current public opinion polls show overwhelming support for preservation of roadless areas. This time the Forest Service is in sync with the public.

This old debate descends from John Muir and Gifford Pinchot's arguments over preservation versus multiple-use and development of the nation's forests. Now that we

Americans have developed the vast majority of our land—and less than 5% remains wild—it is certainly time for more creativity, humility, and restraint. It is time to adopt Muir's approach and preserve the forests that remain most native, most untrammeled, and most wild.

Mike Medberry
American Lands Alliance
E-mail: mmed@micron.net

O'Laughlin's Response to Medberry

Dear *IJW* and Mike Medberry,

President Clinton said 40 million acres will be preserved. Forest Service leaders he appointed are solidly behind this done deal (see www.house.gov/resources/106cong/forests/staffreportroadlessinfluence.htm). To help establish Clinton's public lands protection legacy, 20% of national forest lands would become quasi-wilderness without going through the contentious struggle among competing interests our lawmakers intended for permanent wilderness protection.

Perhaps (as Mr. Medberry claims) one of every nine acres of roadless national forest in Idaho has been developed since RARE II. Identifying these lands as lost potential wilderness illustrates why Idahoans cannot agree on the roadless/wilderness issue. Some groups want it all. The president obliges them. After-the-fact public input satisfies only the letter, not the spirit, of the law. Do we want a public policy process where the rule of law matters less than interest group influence and opinion polls? I hope not. Enough *is* enough, Mike.

Jay O'Laughlin
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Wildlife and Range Policy
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University of Idaho
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Freemuth's Response to Medberry

Dear *IJW,*

Mike Medberry has, as usual, written a passionate defense of the need to protect the remaining roadless lands in the United States. I do not question Mike's passion, and certainly think that a case can be made for the protection of the remaining roadless areas in the United States. My concern is with process, and how we make decisions in our system of democracy. We must make them with deliberation, discussion, and thought. In a political sense, there is nothing new about the Clinton move—it is strategic politics as it has always been practiced. Yet, when Mike says "enough is enough," I fear he is more accurate than he knows. I worry that we are close to the time when "enough is enough" is everyone's cry, and we sink into the morass of gotcha politics, and nothing else. Maybe there is still room to move here.

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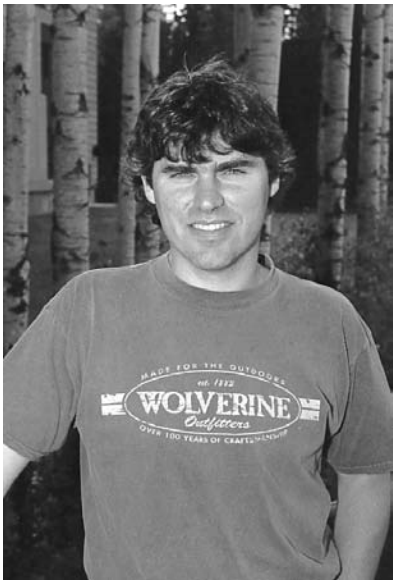
Book Reviews

BY JOHN SHULTIS

Nature: Western Attitudes Since Ancient Times by Peter Coates. 1998. University of California Press, Berkeley and Los Angeles. 256 pp., $29.95 (hardcover).



Book review editor John Shultis.

Peter Coates's book *Nature: Western Attitudes Since Ancient Times* brings to mind many great books about the history of Western attitudes toward nature: Clarence Glacken's *Traces on the Rhodian Shore*; Raymond Williams's *The Country and the City*; Roderick Nash's *Wilderness and the American Mind*; Hans Huth's *Nature and the American*; and Max Oelschlaeger's *The Idea of Wilderness*. Cumulatively, these and other books created the field of environmental history by the 1970s, allowing the study of nature and wilderness to take their rightful place among more traditional historical subjects.

Like the books above, *Nature* explores the tangled history of Western society's concepts of nature. While the word "nature" has an astounding range of definitions, Coates's book concentrates on five meanings of the term: nature as (1) a physical place, particularly unmodified or threatened environments (i.e., wilderness); (2) the collective phenomena of the world, either including or excluding humans; (3) an essence, quality and/or principle that informs the workings of the world; (4) an inspiration and guide for people to govern human affairs; and (5) the opposite of culture. Throughout the book, Coates explores the origin of human control over wilderness, human separation from the natural world, and the ideas and actions that might be to blame for our current "ecological crisis".

After outlining the five major categories of meaning underlying past and present concepts of nature in chapter 1, Coates discusses Greek and Roman society in chapter 2, and medieval attitudes toward nature in chapter 3. Coates suggests that the Renaissance era may be the crucible of "modern" concepts of nature (chapter 4), and then he reviews the controversial idea of whether indigenous people's concepts of nature may have reflected "ecological sainthood" in Chapter 5 (p. 82).

In chapter 6, Coates describes how the concept of nature as "scenery" and "landscape" relates to the creation of the eighteenth century British landscape park, the direct antecedent of urban and, later, national parks in the New World. He also notes how these first parks, as well as the early national parks in the United States, reflect the distribution of power and class within society. The important impacts of Romanticism, the concept of ecology (chapter 7), and twentieth-century socialism (chapter 8) on modern concepts of nature are also reviewed. The final chapter assesses "the future of nature" by looking at recent developments including cloning.

What differentiates this book is that more recent time periods are incorporated: Coates's discussion ranges from primordial to postmodern. For example, the book incorporates the impact of the contemporary Green movement and the Third Reich era of Germany on attitudes toward nature. He does not offer new perspectives on the historical human relationship with wilderness, nor does he break new ground. The strength of this book is that it provides a current, well-written, succinct review of the myriad meanings the term "nature" has had throughout human history.

Coates's writing style is clear and fluid (it would make an excellent college textbook). While it doesn't reach the lofty heights of the seminal books noted above, *Nature* is for all those fascinated by how humans have viewed "nature" throughout history.

Imposing Wilderness: Struggles over Livelihood and Nature Preservation in Africa by Roderick P. Neumann. 1998. University of California Press, Berkeley and Los Angeles. 271 pp., $35.00 (cloth).

George Catlin's original vision of "a Nation's park" included both indigenous peoples and wildlife. Despite this early inclusionary vision, the exclusionary "Yellowstone model" became the standard for most subsequent protected areas. In this model, humans were not considered part of wilderness, but were separate from it, cast out to protect the wilderness from human exploitation.

Despite sustained opposition from indigenous groups throughout the New World, their forced displacement from parks became the norm. The strength of the myth of wildlands as primeval, "untouched" nature was too strong to allow for human settlement in these areas, even after it became evident that indigenous peoples had lived in these areas from approximately 2000 years (New Zealand) to 10,000 years (North America) to more than 60,000 years (Australia).

Roderick Neumann's *Imposing Wilderness* is a provocative case study of the historical tensions between local populations and protected area managers in Tanzania's Arusha National Park region. Neumann powerfully documents the past and present struggles of community residents with park managers and the state. He describes the tensions between the original African appropriation of land for material production and the nineteenth-century European appropriation for aesthetic consumption (i.e., recreation and tourism). In this critical shift, kinship-based tenure systems that had controlled land for centuries were replaced by private or state-controlled systems that restricted or extinguished local access to critical resources.

Neumann provides a fascinating, scholarly account of the spatial, temporal, and social patterns of illegal activities, such as firewood collecting and hunting, from both the villagers' and managers' perspectives. The analysis of daily confrontations between the two groups is the most powerful section of the book. Neumann suggests a moral justification for crimes such as theft and grazing trespass based on ancestral and customary claims to land and resources: "Simultaneously and inseparably, these acts defend a set of locally recognized symbols and an idealized history in the land—an ancestor's homestead, a meeting place, a battle site, a communal salt lick" (p. 175). The battle between villagers and managers is both a contest between land rights and the symbolic meaning of the land itself.

Village economies in Africa are based on social arrangements among community members, including reciprocity, forced generosity, communal lands, and work sharing. Interestingly, Neumann argues that tensions between villagers and managers stem from the reluctance or inability of managers to be included in such communal relationships, as it would force the state to relinquish some control over land and resources. While the lives of park staff, and community members are forcibly intertwined, state policies and regulations deliberately discourage such relationships. In such an atmosphere, notes Neumann, neither the residents nor wildlife can thrive, and the goals of the nation, park staff and community cannot be met.

While based in Africa, Neumann's analysis is relevant to both developing and developed nations and challenges traditional, deeply rooted beliefs about the relationship between indigenous peoples and protected areas. At the heart of Neumann's book is a question receiving increasing debate: If protected areas had been actively managed over long periods of time by indigenous peoples, should their descendants continue to occupy and utilize the resources in their traditional homelands?

The maps, figures, and photographs do not match the quality of the writing or analysis in *Imposing Wilderness*, but Neumann provides a thought-provoking read for those who wish for deeper understanding of the tensions between indigenous peoples and protected areas throughout the world.

More book reviews on page 48

***Wildland Recreation: Ecology and Management* (second edition)** by William Hammitt and David Cole. 1998. New York: John Wiley and Sons. 364 pp., $80.00 (hardback).

Recreation Ecology: The Ecological Impact of Outdoor Recreation and Ecotourism by Michael Liddle. 1997. London: Chapman & Hall. 664 pp., $107.00 (hardback).

Despite the attention to the issue of the environmental impact of outdoor recreation, there are few full-length books dealing with this subject. *Wildland Recreation* and *Recreation Ecology* are two books helping to fill this need.

This second edition of *Wildland Recreation* is a valuable tool for wilderness recreation researchers. Written by two well-known wilderness scientists, the text is clear and concise, and outlines management strategies to mitigate environmental impacts. At $80, it's expensive, but provides updates of research findings, new perspectives, and includes two new chapters.

Michael Liddle's *Recreation Ecology* focuses on ecological aspects of outdoor recreation impacts, but ignores management perspectives. However, Liddle's book contains more information on a wider scope than *Wildland Recreation*, and will have greater appeal for wilderness researchers than practitioners. For those studying recreation from an ecological/scientific (as opposed to practitioner) perspective, Liddle's book is important reading.

Together, these two books provide an excellent overview of the research published on the ecological impacts of outdoor recreation.

JOHN SHULTIS is an associate professor at the University of Northern British Columbia, Canada and is *IJW's* executive editor handling book reviews. Telephone: 250-960-5640. E-mail: shultis@unbc.ca.

Must we always teach our children with books?
Let them look at the stars and the mountains above. Let them look at the waters and the trees and flowers on Earth. Then they will begin to think, and to think is the beginning of a real education.

—David Polis