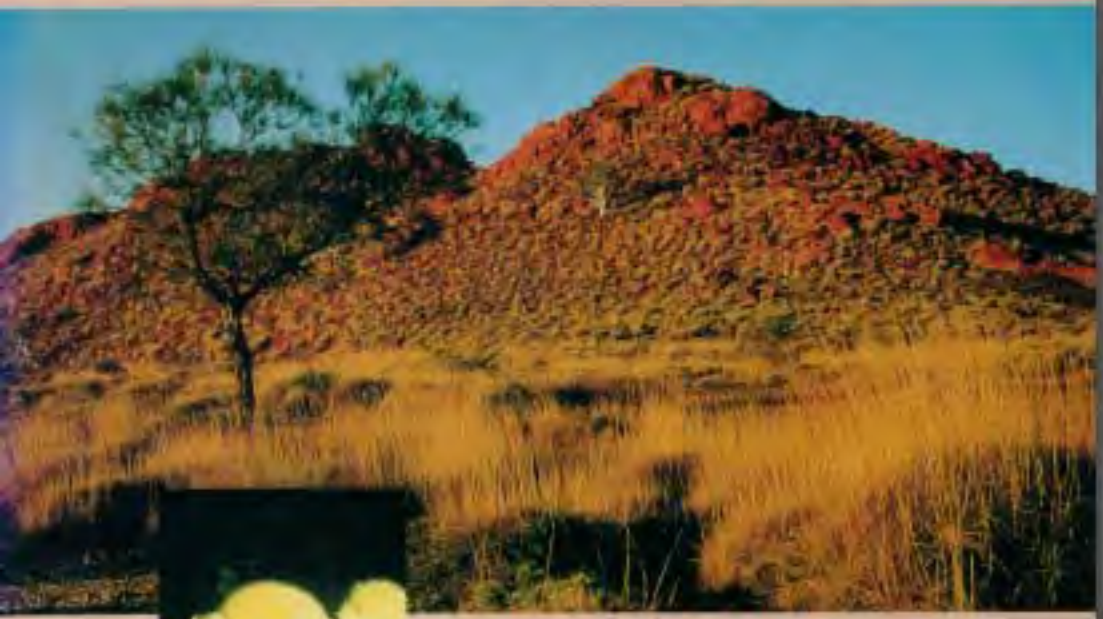
INTERNATIONAL

JOURNAL OF WILDERNESS



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MAY 1996

For Wilderness Worldwide

VOLUME 2 NUMBER 1

International Journal of Wilderness

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

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Submissions: Contributions pertinent to wilderness worldwide are solicited, including articles on wilderness planning, management, and allocation strategies; wilderness education, including descriptions of key programs using wilderness for personal growth, therapy and environmental education; wilderness related science and research from all disciplines addressing physical, biological, and social aspects of wilderness; and international perspectives describing wilderness worldwide. Articles, commentaries, letters to the editor, photos, book reviews, announcements and information for the wilderness calendar are encouraged. A complete list of manuscript submission guideline is available from the managing editor.

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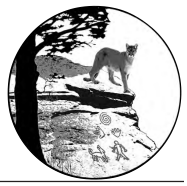

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Cover photograph of the sub-arid landscape of Western Australia by Jonathan Miller. Photo of Lemuroid Possum and young courtesy of Australian National Parks and Wildlife Service.

FEATURE

Wilderness—The World's Living Laboratory

BY JOHN C. HENDEE, MANAGING EDITOR

WILDERNESS IS THE WORLD'S LIVING LABORATORY and its protection and stewardship may be the most important experiment on Earth. Worldwide, designated, and de. facto wilderness are the most protected ecosystems on Earth, and the natural processes operating there are among the most important benchmarks available for assessing what is happening to the rest of the world. This idea is not new. It was first proposed by Aldo Leopold in a 1941 essay entitled, "Wilderness as Land Laboratory," published in The Wilderness Society's magazine *The Living Wilderness*. *We* should be concerned that so little wilderness monitoring has been established to implement this powerful idea, and that even in protected wilderness, baseline environmental conditions are threatened.

For example, consider the threats that natural habitats face all over the globe, some insidious and others more dramatic. Pollution of the ionosphere from release of hydrocarbons has created holes in the ozone layer. Air pollution has increased the CO_2 content of the atmosphere. Global warming is an accepted reality. These changes alter the basic natural processes upon which life itself depends and evolves.

In addition, what about human-caused impacts? In Australia, our feature country for this issue of *IJW,* the article by *IJW* International Editor Vance Martin (with help from our Australian colleagues Jonathan Miller of the Australian Heritage Commission and others) emphasizes how current wilderness policy and legislation in that country differentiates between pre- and post-colonial impacts. See also Ross Scott's article on mechanized access in Australian wilderness.

Population growth (see "The Biggest Threat to Wilderness" by G. Jon Roush, *IJW,* Volume 1, Number 1) is increasing pressures of all kinds on wilderness and wildlands through rising demands for food, fiber, minerals, and space. This is further compounded by major economic imbalances between nations and regions, which forces poverty-stricken refugees into wildland areas and causes displacement of indigenous societies. The result is an invasion, succession, and displacement of wildlands by development, mining, agricultural, and silvicultural uses that destroy or change habitat, reduce biodiversity, and lead to loss of soil, nutrients, plant and animal species, and natural water regimes. Delays in efforts to protect areas that qualify for wilderness designation compounds the loss. In every country, including the United States, wilderness values and conditions are diluted by all these pressures. (See Kim Crumbo and Jay Watson's articles in this issue.)

Wilderness is not the only answer or solution to degradation of the world's habitat, but its protection and use as benchmarks of the most natural areas that remain is far behind what is needed. Encouraging the use of wilderness as the world's living laboratory is a primary goal to which the *International Journal of Wilderness* is committed. I encourage everyone to consider what you can do to further progress toward this goal. **IJW**

The International Journal of Wilderness will have feature articles on a special country or region in each issue. Submissions are welcome to the managing editor for all related feature articles on international wilderness, or manuscripts for peer reviews on education, management, research, policy, and other topics. Future featured countries include:

Issue	Need Submissions by	Country
Volume Two, Issue Two August 1996	(complete)	South Africa
Volume Two, Issue Three December 1996	(7/96)	United States
Volume Three, Issue One March 1997	(10/96)	Asia
Volume Three, Issue Two June 1997	(1/97)	New Zealand
Volume Three, Issue Three September 1997	(4/97)	Antarctica
Volume Three, Issue Four December 1997	(7/97)	South America

Soul of the Wilderness

Wilderness Economics Must Look Through the Windshield, Not the Rearview Mirror

BY THOMAS MICHAEL POWER

[Editor's Note: It may seem incongruous to address economics in a "Soul of the Wilderness" column. But economic values are always at the heart, if not the soul, of any wilderness designation debate. Economic arguments are often misapplied to wilderness, as Tom Power explains in this "Soul of the Wilderness" column. Dr. Power's analysis and point of view draw upon historical and current experience in the western United States, but may be increasingly applicable to developed economies worldwide.

—John C. Hendee]

PROPOSALS TO EXTEND OFFICIAL WILDERNESS CLASSIFICATION to new lands are regularly criticized on economic grounds. Regardless of justifications on ecological, cultural, and moral grounds, wilderness designation is always perceived as having significant negative economic consequences based upon two arguments or assumptions:

1) Wilderness designation is criticized as prohibiting the ongoing expansion of an area's economic base by locking up natural resources that are central to local, basic industries. Thus, in that direct sense, wilderness impoverishes an area and constrains its economic development.

2) Wilderness designation is criticized as being done primarily to provide free recreational opportunities to a relatively small number of primitive backcountry users. Thus, the gain to this tiny minority, given all the back country already available, is tiny, while the economic losses to the majority are substantial. So, the argument goes that this type of land management can only make the population collectively poorer.

Both of these arguments or assumptions are false as are the economic conclusions drawn from them. They conflict with empirical, economic evidence. Once these errors in economic argument are corrected, it becomes clear that substantial additional wilderness protection can contribute directly to the economic well-being of local residents and to the vitality of their economy.

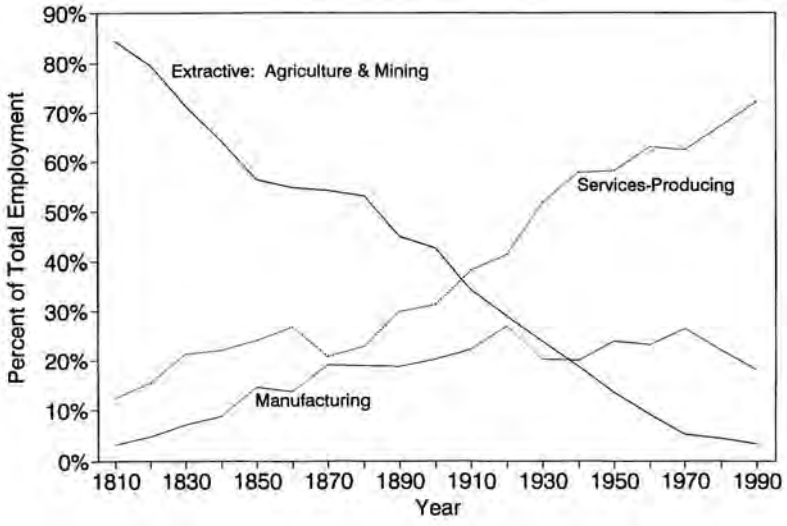
The View Through the Rearview Mirror—and the Windshield

Historically, our natural resource industries, farming, ranching, food processing, mineral extraction and processing, forest industries, and commercial fishing represented the "core" of most areas' economies. In the earlier periods of our development these economic activities clearly were the "base" of the economy that directly or indirectly supported almost all other economic activities. But throughout this century there have been profound changes taking place in the U.S. economy. These extractive industries have gone through periods of both dramatic boom and serious collapse and depression. Meanwhile, our overall economy has dramatically expanded and diversified. As a result, the economy has been steadily transforming itself in ways that have significantly reduced the importance of extractive industry. While 85% of employment was tied directly to extractive activities in 1810, less than 5% of employment is provided by those natural resource industries today (see Figure l). Even on our "last frontier," the western states, economic activity has moved dramatically away from reliance upon these natural resource industries. That transformation has important implications for public economic policy.

Article author Thomas Michael Power.

The transformation of our economies away from heavy reliance upon extractive natural resource use is well underway and it *will* continue. The important point from a public policy perspective is not whether this trend will continue or whether it can or should be stopped. It will continue, and it cannot and should not be stopped. The important issue is for public economic policy to recognize where our economies are now, and where they will almost certainly be in the future, and to focus public economic policy upon obtaining the most benefits for all citizens from the new economy that is emerging. To do this, we have to resist the natural tendency to guide public policy by the "view through the rear view mirror." We need to "look through the windshield" and see where we are going.

Figure 1: Changes in Relative Economic Importance
Employment in the U.S. Economy, 1810–1990



Most of us tend to think about our communities in terms of the history we share with them, implicitly assuming that the present in some fundamental ways is like the past, and that the future will be so too. Grade school geography classes, reinforced by the mass media throughout our lives, encourage this view: Pittsburgh is driven by steel production, Milwaukee is driven by beer production, Detroit is driven by automobile production, and the West is correlated with irrigated agriculture, desert ranching, mineral extraction and processing, and timber harvesting. Whatever the historical truth of these assertions, they have little or nothing to do with current economic realities and are even less relevant to the emerging future economies.

Such a backward looking "rearview mirror" approach to public economic policy will at best be ineffective, and a waste of public effort and political energy. More likely, that backward-looking approach will actually damage the economic well-being of residents because it misunderstands what is important to them. We need to look clearly at where we are now, where we are being carried by ongoing changes in the economy, and where these trends will carry us into the future. This will not be easy. Political influence follows public perceptions of economic importance. It is politically important for the economic interest groups that have dominated the West's economy in the past to encourage the public to believe that their importance has not diminished. This, combined with the tendency to base current perceptions on past experiences, will encourage exactly the type of rearview mirror approach to public economic policy that needs to be resisted.

Public economic policy must directly face "the view through the windshield" fact that extractive natural resource industries will not be a primary source of economic vitality in the future. More likely, they will be a source of instability and decline. This reduces significantly the opportunity costs associated with protecting natural landscapes for their nonextractive values. In addition, because new economic activity is increasingly "footloose" and follows peoples' pursuit of high quality living environments, protecting natural landscapes actually protects a significant part of the new economic base that is emerging.

The Economic Functions of Wilderness

Wilderness is often presented as a "free good" demanded by a tiny minority of backcountry recreationists and commercial outfitters. This is a distorted caricature of the purpose of wilderness and the broad range of benefits that wilderness provides. By drastically narrowing the assumed purpose of wilderness, this approach ignores most of the substantial economic benefits associated with protected wildlands. Given that the vast majority of U.S. citizens will never enter a wilderness area to engage in backcountry recreation, the overwhelming support for wilderness protection would be inexplicable if such backcountry recreation were the primary function of wilderness.

In addition, wilderness designation is often presented as an "anti-economic" step because it purposely bans most commercial activities on the protected lands in the pursuit of what some see as cultural, ethical, or aesthetic objectives: dispersed, noncommercial backcountry recreation, and "nature experiences." This is a mistake. Lands with wilderness qualities are a relatively scarce resource that has significant alternative uses that satisfy important human needs and desires. In this sense wilderness designation represents a "classic" economic opportunity to allocate scarce resources to the pursuit of important human objectives. Wild-lands provide a broad range of benefits that make the lives of people more satisfying and fulfilling in at least the same way that peoples' purchases in commercial markets do. One way of looking at those positive benefits of wildland preservation is outlined in Figure 2.

The figure divides the economic values associated with wilderness into several categories: on-site vs. off-site values, use vs. non-use (or passive use) values, recreational vs. non-recreational values, dollar expenditures vs. non-market economic values, and present vs. future values.

Each of these distinctions is important in evaluating the economics of wilderness protection. Often most of these values are ignored. When economic analysts do consider positive economic values for wilderness, they tend to focus exclusively upon the expenditures associated with commercial wilderness recreation. As the schematic in Figure 2 suggests, this represents a relatively small part of the "on-site use"

values and an even smaller part of the total set of values that need to be considered. The following examples of the other wildland values outlined previously also need consideration.

1. Even though most U.S. citizens are not planning active use of wilderness areas, they support protecting wildlands. They explain this in terms of protecting part of our natural heritage for future generations (bequest values), leaving some parts of the natural world relatively unmodified by humanity (existence value), or protecting future options (option values). These are the non-use or passive use values economists have categorized and measured.

2. The scientific and ecological stabilization values associated with protecting pristine natural areas has been explicit from the beginning of the wilderness preservation movement. Unlike our national parts, wilderness is not primarily intended as a "pleasuring ground" for citizens.

3. Dollar expenditures in the pursuit of wilderness experiences are a measure of the cost of wilderness recreation, not a measure of the economic *benefits* associated with wilderness use. Mixing cost and benefits together does not usually help in economic analyses.

4. Protected landscapes provide numerous benefits indefinitely into the future. Analysis cannot only focus upon the present. As pristine natural areas become more and more rare, one can expect the economic values associated with wilderness to increase. Because they are unique, nonreproducible gifts of nature that we seek to protect, one cannot expect technology to expand or stretch the available supply or create close substitutes. For that reason, one can expect future wilderness economic values to rise relative to commodity values.

5. Because historical and current discussions of the economic value of wilderness have been almost exclusively focused upon on-site recreational use, more extended discussion of the off-site economic values associated with wilderness protection is required.

On-Site Vs. Off-Site Wilderness Economic Values

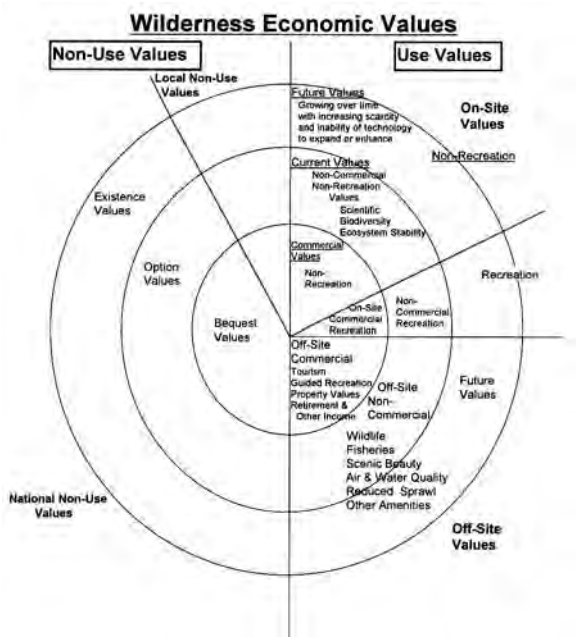
The impact of protected, natural landscapes extends far beyond the physical boundaries of those areas. Natural landscapes tend to define the character and quality of the surrounding physical and social environment. This is clear when wilderness areas protect water quality that then supports off-site fisheries or protect habitat that then supports off-site wildlife populations. But the range of influence is greater than this. Protected natural areas influence everything from scenic vistas to recreational patterns to patterns of human settlement.

This can be stated very directly: People care where they live. They care about the qualities of the natural and social environment that make up the living environment. They are willing to make sacrifices to obtain access to these natural amenities. High quality natural environments draw people and businesses to areas even when economic opportunities are otherwise quite limited (Power 1988 and 1996).

This is not an insupportable sweeping generalization. It is a fact that has had a dramatic impact on the pattern of settlement and economic activity in this country. If, for instance, one looks at the pattern of economic change in the nonmetropolitan areas of the United States over the last decade, one finds natural amenities playing a very positive role. During the 1980s, the only group of nonmetropolitan counties that had above average population growth rates were "amenity" counties in which the natural and social environments supported both recreational and retirement development (Deavers 1989; Beale and Fuguitt 1990).

Designated wilderness appears to be associated with such attractive amenities. A review of all counties adjacent to federally designated wilderness reveals that the population growth rates in this set of nonmetropolitan counties has been two to three times that of all nonmetropolitan counties in the 1970s, 1980s, and first half of the 1990s (Rudzitis and Johansen 1989). This would suggest that whatever affect wilderness has on the local economy, it does not impoverish it in a way that makes living in the surrounding area less tenable. Surveys of recent migrants to these wilderness counties revealed that the presence of protected wildlands played a significant role in the location decisions of 60% of those newcomers. Moreover, 45% of existing residents indicated that the proximity of those wildlands was an important reason for their staying in the area. Over 80% of long-term residents and newcomers felt that the nearby wilderness areas were important to the county (Rudzitis and

Figure 2: Wilderness Economic Values



Johansen 1991). A recent statistical analysis of new residential construction and real estate transactions in western Montana showed that the closer a tract of land was to designated wilderness, the greater the intensity of new residential settlement (Jackson and Wall 1995).

None of this economic growth adjacent to wilderness is likely to be good for the natural areas we seek to protect. This underscores the fact that the economic problem that wilderness protection creates is the opposite of the one usually suggested. The economic problem we need to be focusing upon is how to keep attractive natural environments from being destroyed by the growth they stimulate, not how to fight economic depression caused by protecting natural areas and wilderness.

This, of course, is not to say that the mere presence of classified wilderness will guarantee stability and growth in surrounding communities. But clearly the general pattern is the opposite of claims that wilderness designation impoverishes local communities. In areas where a mining boom has gone bust or a major local employer has shut down, the local economy is obviously going to suffer. The existence of high quality living environments may not be able to immediately off-set such dramatic impacts. But even more reliance on the industry that has gone bust is not a solution. Damaging the environmental resources that support a diversification away from the unstable and declining extractive industries only compounds the depression that over-reliance on extractive industry has created. Protecting the quality of the living environment at least lays the base for future, diversified economic development. The resiliency of nonmetropolitan economies with high quality natural environments is shown in the Pacific Northwest where over the past 15 years lumber mills have regularly shut down either because of weak markets or inadequate timber supply. In almost 60% of the towns that lost mills, population actually increased. Interestingly, the communities in states with the largest average decreases in mill employment have actually experienced the largest population growth (Harris 1995).

An Economic Development Strategy

The assertion that the quality of the living environment is important in the economic development of a local area, is neither new nor should it be controversial. Clearly, the climate and desert environment of Arizona has been important in attracting and holding human populations. In fact, the use of the term "amenity" to capture the role played by local environmental qualities in economic development was first coined by an economist seeking to explain the rapid growth of Florida and southern California in the 1950s (Ullmann 1955). As with Arizona, people were moving to where there was no obvious "industry" in order to pursue particular environmental qualities, and then industry followed the population. The shift of our urban populations from city centers to suburbs also can only be explained in terms of the pursuit of higher quality living environments than urban centers were capable of providing. In fact, the distribution of attractive natural qualities across the landscape is a major determinant of the distribution of residential development across that landscape (Mueller-Wille 1990) .The point is that people care where they live, and they decide where to live based on then-preferences for living environments.

In the competition to attract both new residents and new businesses, the quality of the natural and social environment is going to be important.

This is important to the future development of our nonmetropolitan areas. In the competition to attract both new residents and new businesses, the quality of the natural and social environment is going to be important. Wilderness protection, by granting permanent protection to those landscapes that are most unique in a region, can be an integral part of such an economic development strategy.

People care where they live. They put considerable effort and expense into the pursuit of preferred living environments. As people make these choices, economic activity shifts with them because when they move they bring both labor supply and markets for goods and services. Retirees are the most obvious example of this. The current "resettlement of the West" is the most recent example of how peoples' pursuit of higher quality living environments also stimulates economic activity Thus, protected landscapes have economic impacts far beyond their borders because they provide the high quality environmental backdrop that makes an area an attractive place to live, work, and do business. In that sense, the protected landscapes become an important part of an area's economic base and economic vitality. This is the reason that wilderness counties tend to show such dramatic economic vitality. To put this in somewhat more technical terms, wilderness protects core natural areas that provide flows of valuable goods and services to surrounding areas, thus enhancing the livability and quality of life in those wilderness adjacent locations. Wilderness designation provides a long-run guarantee that those core natural areas and the environmental quality they support will be protected. Both the natural services provided by those protected areas and the guarantee of continued environmental protection are valuable to people. Their response through residential location decisions documents this aspect and supports local economic vitality

Conclusion

The commercial extractive uses of wildlands being considered for wilderness protection are usually marginal at best, being tied primarily to the uncertain development of speculative mineral resources or the harvesting of timber from

low-productivity, high-cost sites. This type of extractive industry does not offer rural areas a reliable source of additional jobs and income. It has become a shrinking part of almost all areas' economies that are also plagued by fits of boom and bust. The future of our nonmetropolitan economies lies elsewhere. A prosperous future will not be found in specializing in "more of the same," that is additional reliance on extractive industry. In most of our nonmetropolitan communities adjacent to these wildlands, recreation, retirement, and "amenity-seeking" immigrants offer a much greater hope for ongoing economic development than wishful thinking about the recovery of the extractive industries and speculative mineral bonanzas that, at best, will be boom and bust.

T. M. Power and his son on a backcountry ski trip in the Selway-Bitterroot Wilderness, January 1995. (Photo by Aaron Deskins.)

Wilderness protection does not impoverish communities by locking up resources. Rather, it protects the economic future of those communities by preserving high quality natural environments that are increasing in demand across the nation. Wilderness protection does not threaten the ongoing development of nonmetropolitan economies in any significant way. Rather, it lays part of the long-run basis for their ongoing development by providing attractive places to live, work, and do business. Because of this, the economic problem posed by protected landscapes is not how to maintain local economic health, but almost the opposite: How to keep the economic activity attracted to areas adjacent to wilderness from undermining the environmental quality that wilderness protection seeks to assure in the first place. **IJW**

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FEATURE

Australia's Wilderness Movement—
Gathering Momentum

BY VANCE G. MARTIN

Abstract: *The origins of contemporary Australian wilderness protection, management, and research are closely linked to the development of the American wilderness concept. This paper, while acknowledging the importance of this historical relationship, emphasizes those aspects of Australian wilderness policy and related public involvement that are uniquely Australian. A combination of environmental, cultural, and legal factors have shaped an emerging Australian wilderness policy driven mostly by state legislation, fueled by active public participation, and influenced by increasing recognition of 50,000 years of human history.*

Cape Tribulation tropical rainforest, Queensland. (Photo by Vance Martin.)

AUSTRALIA WAS DUBBED "THE ANTIPODES" (literally, the opposite region) by early explorers for very good reasons. Therefore, to be fully understood, Australian wilderness must be viewed in the entire context of what makes Australia a unique continent and culture situated both symbolically and literally at the opposite extreme from that which is familiar in the northern hemisphere and "western" society. Though originally a British Colony and still a member of the British Commonwealth, Australia has had to develop its own approach to managing its vast and remote land estate. As a result, it has created its own voice on natural resource concerns, even as it is still actively developing a wilderness concept based on current needs and issues, as well as acknowledgment of indigenous history and concerns.

Climate and Topography

In general, the Australian landscape can be characterized as dry and remote, but it has special features. The arid nature of the country is predominate, with the median rainfall over half the continent being less than 30 centimeters (12 inches), with a significant one-third of the continent receiving less than 20 centimeters (8 inches). Australia is one of the oldest land masses on Earth, with more significant erosion than other continents. With the noticeable exception of the Great Dividing Range along the country's eastern shoreline, much of Australia is relatively flat but distinctively rugged. Australia's average elevation is only about 305 meters (1,000 feet), with a continental high point (Mount Kosciusko) of only 2,228 meters (7,310 feet). Therefore it lacks the dramatic mountain landscape that most people think of as wilderness (Stankey et al. 1990). However, Australia is rich in variety of landscape features, biodiversity, and unique flora and fauna from the tropical rainforest and wetlands of the far north, to the far flung arid ranges of the interior, to the monumental natural architecture of the Great Barrier Reef, to the temperate rainforest and "million lakes" of Tasmania.

People and Land

As a consequence of the climate and topography, Australia's population is concentrated in a relatively narrow band along the southeastern coast. Although it's the approximate size of the United States, Australia has less than one-tenth of the population (with its 17 million people being less than that found in southern California). Thus, Australia is the least densely populated continent (except Antarctica), and is also the most urbanized—80% of its population resides in the narrow coastal strip from Brisbane to

Adelaide, plus about one million in the greater area of Perth (Western Australia).

Because of its vast arid landscape and unusual plants and animals, Australia was considered hostile and uninviting to most early Europeans. However, this was certainly not the case for the thriving and diverse population of Aboriginal nations which inhabited the continent for over 50,000 years, possibly numbering up to one million at the time of European settlement. While the history of original contact between European settlers and Aboriginal inhabitants is very similar to that of other continents such as Africa and North and South America, the last 15 years has seen increased recognition of the history, diversity, and rights of these Australian indigenous Aboriginal and Torres Island peoples. This trend is reflected in natural resource management policy in general, and the Australian wilderness concept in particular, especially in the recognition of a legal right to land by the Australian High Court and through Commonwealth legislation granting Native Title.

Culture and the Law

The sheer immensity and power of the Australian landscape has been one of the most formative influences on Australian culture. Early European settlers, faced with a vast yet seemingly inhospitable new home, were forced to quickly develop independence and self-reliance. As modern Australia emerged, a well-developed taste for freedom and regard for individual rights helped shape a nation in which state's rights are emphasized rather than the national authority (referred to as Commonwealth).

This system has had a direct influence on the recognition and management of wilderness because, under the Australian constitution, the six states and two territories have prime responsibility for land management (see Figure l). As a result, wilderness areas are legally designated in three states (Victoria, South Australia, New South Wales) and the Australian Capital Territory, and the ability to create or manage wilderness zones is recognized in Western Australia, Northern Territory, and Queensland. The remaining state, Tasmania, contains some of the most verdant and extensive forest wilderness areas in Australia (which are recognized by World Heritage status), the protection of which became an international issue and contributed to a change of national government in 1983. However, the state has yet to enact wilderness legislation or zoning, although a wilderness land use category is currently proposed under a government review.

Though state's rights take the lead in Australia, wilderness is certainly a national issue. The national, or Commonwealth, government has the ability to recognize wilderness zones. The Commonwealth government has even intervened and ruled in favor of national authority over state authority, especially in forbidding dams on the lower Gordon and Franklin Rivers in southeast Tasmania. Furthermore, the Commonwealth government lent support to the significance of wilderness preservation in July 1989, when the (then) prime minister delivered the statement, *Our Country Our Future,* in which he said: "Wilderness is one of the many legitimate land use options. Sustainability has special relevance in this case as wilderness is essentially pristine and especially vulnerable to developmental pressures" (Hawke 1989).

Aboriginal and Islander Peoples and Wilderness

An understanding of the relationship of Aboriginals and Islanders to the Australian landscape is central to the development of the Australian wilderness concept. In general, and in keeping with the international pattern of colonialism, the importance of indigenous knowledge and the validity of some of their land management practices is only now becoming more widely recognized. The idea of wilderness as land with no human presence or impacts is of major concern to Aboriginal groups. Wilderness areas are no longer conceived of as lacking in human history, but are rather seen as areas large enough and in such condition that they allow the long-term maintenance of natural systems and biological diversity, as well as cultural values.

Kunia, the Quiet Snake at Karrilwarra, 1990, George Tjungurrayi. Acrylic on Canvas, 137 cm x 91 cm. Courtesy of ATSIC.

The protection of cultural values in wilderness areas raises interesting questions and sometimes conflicting objectives. For example, increasing recognition of Aboriginal access rights to their traditional lands raises the issues of hunting in protected areas and mechanized access in wilderness areas. The most important issue is, as the amount of land recognized as Aboriginal land is legally recognized, how the protection of wilderness values on these lands might be achieved with the agreement of the Aboriginal owners (Miller 1995).

Definition of Wilderness

Described as "Australia's first wilderness society" (Thompson 1986), the National Parks and Primitive Area Council was formed in 1932 and made proposals for the preservation of primitive areas. These early moves to establish primitive areas were largely concerned with protecting wild landscape for recreational and nature conservation values. Many of the proposals were prepared by the pioneering conservationist, Myles Dunphy, who made his position very clear: "Our duty to posterity demands that provision be made for true conservation of wilderness" (Thompson 1986).

Figure 1: Wilderness Legislation in Australia

State or Territory	Relevant Act	Terminology Used	Revocation Authority
New South Wales	National Parks & Wildlife Act 1974	Wilderness Area	Parliament
	Wilderness Act 1987	Wilderness Area	
Victoria	National Parks Act 1975	Wilderness Park or Wilderness Zone	Parliament
Australian Capital	Nature Conservation Act 1980	Wilderness Zones	
Western Australia	Conservation & Land Management Act 1984	Wilderness Area	Minister
Northern Territory	Territory Parks & Wildlife Conservation Act 1980	Wilderness Zones	Conservation Commission
Commonwealth of Australia	National Parks & Wildlife Act 1984	Wilderness Zone	Both Houses of Parliament
Queensland	Nature Conservation Act 1992	Wilderness Area	
South Australia	Wilderness Protection Act 1992	Wilderness Protection Area or Zone	Both Houses of Parliament
Tasmania	n/a	n/a	n/a

As wilderness protection began to succeed, the definition of the concept evolved. At first the definitions were largely concerned with size, remoteness, and lack of human impact such as that defined by Myles Dunphy in 1934. This began to significantly change in the late 1970s, when human impacts were considered in a more tolerant light and a distinction was made between Aboriginal influences, which were considered generally to be more sustainable, compared to the major and nonsustainable impacts of the European settlers within the last 200 years. The Australian National Parks and Wildlife Service (Robertson et al. 1992), recognized that:"... in Australia, as in most parts of the world, wilderness is in large part an artifact of the original human inhabitants. Vegetation cover of Australia in 1788 [European settlement] was, with very few exceptions, an artifact of Aboriginal burning practices. This must be recognized in any definition of wilderness."

As more states and the Commonwealth government become involved in wilderness designation and management, several common elements have emerged to tie together the many definitions of wilderness, and a generally adopted definition at this time is,"... an area that is, or can be restored to be: of sufficient size to enable the long-term protection of its natural systems and biological diversity; substantially undisturbed by colonial and modern technological society; and remote at its core from points of mechanized access and other evidence of colonial and modern technological society" (Robertson et al. 1992).

National Actions to Protect Wilderness

The Commonwealth government is increasingly involved in the move to define, designate, and manage wilderness areas. By legal necessity, and because the amount of land controlled by the Commonwealth is not significant, these actions will be somewhat limited. However, it is a force yet increasing and can have both positive and negative impact on wilderness, as is best seen in two recent issues.

Forest Wilderness

While wilderness was a powerful political issue of the 1980s, the major environmental issue of the 1990s has been forests because of the rate at which wilderness forests are being destroyed by the forest industry. Five hundred-year-old trees, with a girth of 10 or 15 feet, are reduced to woodchips for export to Japan, and complex forest ecology is often replaced with a single species wood crop. Wilderness is especially affected in Tasmania where logging operations extend high into the wooded valleys beside the World Heritage area and into the heart of the Tarkine in North Western Tasmania, which contains the largest temperate rainforest in Australia.

The environmental movement initiated an 18-month, coordinated campaign (unprecedented in the history of the forest issue) to save the remaining areas of high conservation and wilderness forests. The Keating Government's decision, in December 1995, is a comprehensive loss for the forest wilderness, further supports a nonsustainable and destructive industry, and condemns the very best of the unprotected forest estate to woodchipping. The chances of an adequate reserve system to protect the rich biodiversity of the forests has been eliminated by this decision. The environmentalists agree that this was largely a political decision influenced by the Australian "wise use" movement and the needs of large corporations.

Australian National Wilderness Inventory

A series of inventories of Australia's wilderness were begun in the mid-1970s when Herman and his associates applied a dimensional criteria to areas in eastern New South Wales and southeastern Queensland. This was followed by Lesslie and Taylor (1983), who inventoried part of South Australian wilderness using a wilderness continuum characterized by

two relative attributes (remoteness and naturalness), and therefore with no absolute boundaries, as their criteria.

This interest in inventorying led to the Australian National Wilderness Inventory (ANWI), which was recently completed. (See *IJW* Volume 1, Number 2.) The ANWI used the method developed by Lesslie and Taylor and others to map wilderness quality across the continent. This has been established as a very large GIS database and is being used for a range of land management and policy applications. The Australian Heritage Commission will now start using the database for the systematic national identification of wilderness areas. State agencies are also using it for their own processes of wilderness identification. The ANWI is also being used to determine wilderness areas to be protected through joint Commonwealth-State forest assessments.

Lied Bluff, Vestfold Hills, Australian Antarctic Territory (above). (Photo by Ross Scott.) Aboriginal rock art, Cape York Peninsula (right). (Photo by Vance Martin.)

Where to Australian Wilderness?

The call for wilderness designation and management is steadily increasing in Australia. The proliferation of activities of nongovernmental organizations, state agencies, and the Commonwealth government bode well for the future. However, much remains to be done if the goal of conserving Australia's fascinating and unique biological diversity, its spectacular wilderness landscapes, and its ancient, indigenous cultural heritage is to be sustained. Issues needing attention include:

- Marine wilderness—The Australian Heritage Commission and the Great Barrier Reef Marine Park Authority are undertaking a study of how wilderness concepts may be applied to marine environments. This is both in relation to identifying areas in wilderness condition and in relation to appropriate management of these areas. They are also adapting ANWI techniques to the marine environment to produce indicators of remoteness and marine biophysical condition. Although not easy to develop, a marine wilderness concept is clearly significant for an important area like the Great Barrier Reef, because tourism impacts will only increase in the years to come.
- A multicultural society—Australia has a rapidly diversifying culture. Australians involved in wilderness issues who should heed the demographics and develop educational outreach to these populations now as their political power will only increase in the future. While Aboriginal issues are clearly included in the evolving concept of wilderness, the interests of growing numbers of other minority populations need to be addressed.
- Forest wilderness—Denied but not daunted, the environmental movement must continue to advocate for protection of the forest wilderness systems in Australia. This "old growth" issue has its counterparts on other continents, and increasingly points to the need for local action to be supported by global recognition of the diverse and irreplaceable values of primeval forest wilderness. **IJW**

Our story is in the land ... it is written in those sacred places. My children will look after those places, that's the law (Neidjie 1985).

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Aussie Farmers Save the Bush

BY VERNE McLAREN, AM

[Editor's Note: Opportunities for protection of wilderness values exist on private land. Life-long conservationist and wilderness advocate Verne McLaren is also a life-long farmer. Verne's personal example is both an inspiration and a model for private protection of wilderness values.

—Vance G. Martin]

A walking trail in Verne's 1000-acre nature preserve "Bernarra" which means "gum trees" in Aboriginal (far left). Farmer and wilderness advocate Verne McLaren next to a Mallee fowl nest (15 feet in circumference) in Bernarra wilderness reserve (left). A Mallee fowl working on top of a nest in "Bernarra" (below).

WHILE CLEARING BUSHLAND ON MY GRAZING PROPERTY in this fertile part of Australia in the 1950s, I was acutely aware of the escalation of bush clearing. My concern was such that I set aside 1,000 acres of magnificent virgin bushland as a nature reserve at that time, despite the existing taxation incentive given to landholders to clear wilderness habitat. In 1979, even more concerned, I discussed the ever-increasing land clearance with the South Australian Environment Minister, the Honorable David Wotten, and proposed that incentives be offered to landholders to conserve native bushland on their properties. The proposal was welcomed by the Minister and received wide support from conservation organizations.

In 1980, a bill was introduced into the South Australian Parliament to enable landholders to retain areas of native bushland without enduring undue financial burden and to provide long-term protection and management of such areas. It became known as "The Heritage Agreement Scheme" and was the first of its kind in Australia and possibly the •world. In 1985, the Act was upgraded to give it more teeth to combat indiscriminate clearing of valuable native areas. In 1991, the Native Vegetation Act was introduced in South Australia and remains to the present time. It encourages land holders to place their native bushland under a heritage agreement. Since 1980, when heritage agreements emerged, some 850 agreements have been signed in South Australia for the protection of 550,000 hectares (1.4 million acres) of wilderness habitat.

It is now 15 years since heritage agreements commenced in South Australia. To celebrate the occasion, in November 1995 all states in Australia (with the exception of the Northern Territory) were represented in Adelaide, South Australia, at a "Heritage Agreement Seminar." Heritage agreements have been successful because incentives were offered to land holders, not thrust upon them. This is a positive confirmation that diplomacy and negotiation are effective tools for private protection of wilderness values.

I derive enormous pleasure from my nature reserve and have enjoyed my role as an advisor to Environment Ministers from 1966 to 1991. My living comes from the land, and I love the wilderness. **IJW**

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Ecological Manipulation in Wilderness—

An Emerging Management Dilemma

BY DAVID N. COLE

[Editor's Note: A U.S. wilderness leader's thoughts about the dilemma of whether to manipulate wilderness to maintain pristine conditions, or whether unmanipulated conditions are more desirable. *IJW* looks forward to providing a forum for David Cole's call for more ideas and debate. —John C. Hendee*]*

Abstract: The 1964 Wilderness Act contains at least three conflicting goals: preservation of natural or pristine conditions, avoidance of intentional ecological manipulation, and provision of opportunities for use. As anthropogenic disturbance of wilderness intensifies, managers must increasingly face the dilemma of choosing between the goals of restoring pristine conditions and avoiding conscious manipulation of ecosystems. At the crux of this dilemma are questions about the value of wilderness as a reference area or baseline and what wilderness should provide a reference to. Several compromise approaches with the potential for partial resolution of this dilemma are offered but more ideas and debate are needed.

PASSAGE IN THE UNITED STATES OF THE WILDERNESS ACT OF 1964 presented federal land managers with the challenge of maximizing a number of different wilderness values. Wilderness is important for at least three reasons. These wildlands are needed to protect examples of natural ecosystems and the diversity of life those ecosystems harbor (Noss 1991). They are also important as scientific reference areas or baselines—unmanipulated, pristine ecosystems that can be compared with the intentionally manipulated ecosystems that dominate most landscapes (Franklin 1987). Finally, wilderness is important for the recreational, spiritual, and other human values that derive from the use and existence of wilderness (Lucas 1973).

Attempts to restore localized areas, such as denuded campsites, should generally not be controversial.

Conflicting Wilderness Goals and Management Dilemmas

These three sets of values are reflected in three different management goals established by the 1964 Wilderness Act. One goal is to preserve lands "in their natural condition" (Sec. 2a). Definitions of naturalness vary but the concept is most often equated with pristineness and defined by conditions that are similar to what would have existed in the absence of post-aboriginal humans (Wagner et al. 1995). In this paper I will refer to such conditions as "pristine," although this does not imply lack of influence by aboriginal humans or that future conditions should not diverge from the past as the natural processes of geologic, climate, and evolutionary change continue.

In Sec. 2c, wilderness is defined as "an area where the earth and its community of life are untrammeled by man." *Untrammeled* means uncontrolled, unconfined, not restrained. So a second goal—also related to the concept of naturalness—is to protect some lands from human control, from conscious, active, intentional manipulation. The third goal is to provide a variety of public benefits that derive from use of wilderness—"the public purposes of recreational, scenic, scientific, educational, conservation, and historical use" (Sec. 4b).

I believe the task of wilderness management is largely to optimize trade-offs between these three goals. Conflict between goals creates dilemmas that wilderness managers need to resolve. So far, most attention has been devoted to the dilemma arising from the conflict between use of wilderness, particularly for recreation, and preservation of natural conditions.

Burgeoning recreation use, particularly during the 1960s, made many aware of the impacts that recreationists can inflict on natural ecosystems, such as eroded trails and denuded campsites (e.g., Frissell and Duncan 1965). Managers had to decide whether to curtail beneficial uses—such as recreation—or

allow those uses to adversely affect natural conditions. This dilemma has typically been resolved by compromising both goals to some extent. Recreation is often restricted but still allowed (Lucas 1990), and wilderness ecosystems are impacted but not at the scale where their integrity or diversity is seriously affected (Cole 1990). In many wildernesses, "limits of acceptable change" (Stankey et al. 1985) have been established that formally define the tradeoff between recreation use and preservation goals. Other internal uses (e.g., scientific study and livestock grazing) are also typically restricted but not disallowed.

Manipulation of Vegetation, Genes, and Populations

Internal uses, however, are not the only threat to wilderness conditions. Wildernesses are also adversely affected by what goes on around them (Cole 1994). Wilderness boundaries are permeable to external influences that would ideally be kept out of wilderness (e.g., air pollution and exotic species) and at least somewhat impermeable to the natural flow of disturbance agents (e.g., fire) and wide-ranging species. As managers begin to deal with threats that are less easily controlled than internal use, new and complex questions arise. The evolution of fire management in wilderness provides an illustrative example.

Initially, of course, fire was considered to be an enemy, and everything possible was done to keep it from destroying wilderness. The strategy was to defend the wilderness perimeter, to keep the disturbance (i.e., fire) out. As it became increasingly clear that the real disturbance agent was not fire itself—but the suppression of fire—this strategy of defending the wilderness perimeter was simply turned around. Fire suppression was to be kept out of the wilderness. Natural ignitions were to be allowed to burn where possible (Parsons et al. 1986).

In many wildernesses, however, a policy allowing most natural ignitions to burn is not sufficient to restore natural conditions. Natural ignitions within wilderness may occur too infrequently. Many wildernesses are adapted to unusually frequent fires—the result of aboriginal burning (Arno 1985). Others are typically burned in fires that ignite outside wilderness, where they are suppressed these days. In many cases, fires are only allowed to burn when flammability is low; many fires are put out if they start during the time of year when they normally burn. In other cases, fire suppression has already resulted in such high fuel buildups that natural ignitions would result in fires that burn more catastrophically than is thought to have occurred in the past (Kilgore 1987). For all these reasons, it is becoming increasingly clear that restoration of pristine conditions and processes will usually require active intervention—human ignitions and perhaps some pre-burn manipulation of fuels and vegetation. But is conscious ecosystem manipulation desirable?

Restoration of natural fire is not the only management issue for which questions about the desirability of manipulation have surfaced. Exotic species have and are spreading across wilderness lands. The exotic disease, white pine blister rust, is decimating whitebark pine populations in the northern Rockies (Keane et al. 1994). Severe whitebark mortality could seriously affect grizzly bear populations, which depend on whitebark seeds for a significant proportion of their diet (Mattson et al. 1991). One way to compensate for this impact is to breed and plant rust-resistant whitebark pines (Hoff and Hagle 1990). Is this sort of manipulation of genes and populations desirable in wilderness?

The Dilemma of Ecological Manipulation

As we enter the 21st century, the foremost challenge facing wilderness managers is likely to be the dilemma posed by the conflict between the goal of preserving conditions as they would be in the absence of anthropogenic disturbance and the goal of avoiding conscious manipulation of wilderness ecosystems. Managers will increasingly be forced to decide which of the two aspects of naturalness—pristine conditions or unmanipulated conditions—should be given preeminence. They will have to determine whether or not it is desirable to intentionally manipulate ecosystems for the purpose of restoring more pristine conditions.

At the crux of this dilemma are questions about the value of wilderness as a reference area or baseline and what wilderness should provide a reference to. The ideal reference area would be wilderness that is both pristine and unmanipulated. Unfortunately, this is not an option, although the framers of the 1964 Wilderness Act and most scientists of the time probably failed to realize this.

We can have wilderness that is close to pristine, although it would still be somewhat altered by anthropogenic disturbance. However, to compensate for anthropogenic disturbance and to re-create more pristine conditions, managers would have to actively manipulate wilderness ecosystems. Eventually, given the pervasiveness of human influence, aggressive pursuit of this approach would result in the manipulation of all wilderness ecosystems. At that point, ironically, all wilderness ecosystems would be artificial constructs to some extent—conscious reconstructions of what humans think is natural (Graber 1995).

Manipulated wilderness would be useful as a reference for comparison with highly altered landscapes (e.g., managed forests and agricultural systems). Its value for this purpose would be determined largely by the skill managers bring to the definition of pristine conditions and the implementation of prescriptions that re-create these conditions. However, it would be impossible to evaluate the success of these prescriptions and adjust management accordingly. All wildlands would be consciously constructed artifacts, so there would no longer be any examples of unmanipulated ecosystems to serve as reference areas. Ecosystem manipulations in wilderness would become experiments without controls.

Alternatively, we can have wilderness that is unmanipulated but substantially disturbed. Taking this approach,

managers would actively attempt to keep direct anthropogenic disturbances (e.g., exotic species and fire suppression) out of wilderness, but they would avoid active ecosystem manipulation within wilderness. The result would be wilderness ecosystems that diverge, perhaps substantially, from their projected pristine state. These wilderness would be useful as reference areas for comparison to manipulated ecosystems, both within and outside of wilderness. They would provide controls for interventions within wilderness and provide scientists with a place to monitor the dynamics of unrestrained ecosystems. Many, however, would be poor examples of pristine ecosystems.

Periodic disturbance by fire is critical to the natural function of wilderness ecosystems. Restoration of natural fire regimes may require human ignitions and preburn fuel manipulation.

Management Options: Pristine, Unmanipulated, or a Combination?

My argument, in short, is that the goal of naturalness implies the desirability of wilderness ecosystems that are both pristine and unmanipulated, but these ecosystem states are to some extent mutually exclusive. So what are 21st century wilderness managers to do? I believe that some compromise between pristine and unmanipulated conditions is the best approach. The extreme of doing everything possible to approximate pristine conditions cannot be afforded over the large acreages required, even if this approach was deemed desirable. As Vale (1987) points out, such intensive manipulation, because it would require conspicuous human presence, would also conflict with recreation use goals. The extreme of no intervention anywhere—while inexpensive in the short-term—seems equally undesirable because the integrity of many wilderness ecosystems will inexorably degrade in the face of increased human disturbance.

Acceptable Restorations

One compromise option is to distinguish, either generally or on a case-by-case basis, between acceptable restorations and interventions that are too manipulative. Criteria useful in evaluating the acceptability of a restoration might include, 1) characteristics of the disturbance (e.g., areal extent, persistence, etc.), 2) characteristics of what is being restored (e.g., its rarity, vulnerability, irreplacability, etc.), and 3) characteristics of the intervention itself (e.g., its complexity, likely side effects, etc.). It might be decided, for example, that campsite restorations and chemical treatment of exotics within localized areas are generally acceptable because they only affect small sites that are not particularly unique, and they are unlikely to have far-reaching and unpredictable side effects.

This approach holds promise for distinguishing between controversial and noncontroversial restorations. It is less useful for making decisions about the appropriateness of controversial restorations. The problem is that characteristics that make a restoration beneficial in terms of increasing naturalness also make a restoration risky in terms of having widespread, unpredictable, and perhaps unnatural effects on highly valued or rare ecosystem components. One potential outcome of this approach is that all wilderness ecosystems eventually become manipulated to a moderate degree. This approach to compromise is analogous to that taken, with some success, to resolve the use vs. preservation dilemma. When applied to the dilemma of pristine vs. unmanipulated conditions, this approach has a major drawback. Wilderness lands would not provide good examples of either pristine conditions or unmanipulated conditions. Where controversial restorations are considered, a zoning approach to compromise might be preferable.

Interwilderness Zoning

One zoning option is to actively manipulate some wildernesses to approximate pristine conditions, while leaving other wildernesses essentially unmanipulated. This approach might optimize the value of wilderness as a baseline because some areas could serve as examples of pristine conditions while others could serve as examples of unmanipulated conditions. The knowledge obtained from studies of unmanipulated wilderness could allow for adaptive management of the more intensively manipulated wildernesses.

Botkin (1990), who argues the need for these two types of designated wilderness, also points out that the need for intervention decreases as wilderness size increases. Larger wildernesses are more effectively buffered from surrounding influences and more capable of functioning independent of surrounding lands. Therefore, unmanipulated wildernesses would probably be selected from the larger wildernesses in the country.

The Selway-Bitterroot Wilderness in Idaho, for example, is one of the largest wildernesses in the country at 1,337,681 acres. It has a policy of allowing most natural ignitions to burn, but has not yet been intensively manipulated. Brown et al. (1994) estimate that the annual area burned by natural ignitions in a portion of the Selway-Bitterroot is about 60% of the annual area burned prior to settlement. More of the area could be burned and conditions might be closer to pristine if a program of fuel reduction and management ignitions was instituted, but these manipulations would compromise the value of the Selway-Bitter-root as an unmanipulated reference area. Since the Selway-Bitterroot remains relatively pristine even without active manipulation it might be a good candidate to remain unmanipulated.

Avoiding manipulation is not even a realistic option in small wilderness areas such as the 13,660-acre Big Gum Swamp in Florida. Here, fires historically burned through pine/wiregrass ecosystems every 3 to 5 years (Christensen 1978). Natural ignitions were infrequent but fire frequency was high because fires burned unencumbered over huge areas. Today, developed lands surround this small wilderness so fires never burn into the wilderness. Consequently, the only feasible source of frequent fire is management ignition. Without frequent fire, vegetation composition and structure change quickly and dramatically across the entire wilderness, fuels build up greatly, and the potential for catastrophic fire increases. Since little semblance of pristine conditions is possible without intervention, this small wilderness is a likely candidate for intentional manipulation. In fact, management ignitions have been used to burn most of the land in this wilderness in the past several years.

Intrawilderness Zoning

Another zoning option would be to manipulate some portions of a wilderness while leaving other portions unmanipulated. Manipulations might be confined to the most profoundly altered parts of the wilderness or perhaps to the wilderness periphery. With this approach, decisions would be made during management planning for individual wildernesses. This avoids the problems inherent to interwilderness zoning, where regional or national planning is required.

Conclusions

In the near future, management action (or inaction) will increasingly exert a significant influence on the long-term value of wilderness. Managers may continue to allow wilderness conditions to diverge from a pristine state by electing not to pursue active manipulation. Or they may compromise our future ability to monitor the effects of human actions by intentionally manipulating the last of our wild-lands. Neither option is attractive. Clearly there is need for active restoration in wilderness management, but its extent and magnitude needs to be more intensely debated. The first step is recognition that there is a conflict between the goals of pristine and unmanipulated conditions. The primary purpose of this paper has been to increase awareness of this emerging dilemma. Once this conflict is recognized, the pros and cons of alternative approaches needs to be described. Then, decisions need to be made about where and when manipulation is desirable and whether there is any value to a zoning approach. Until these decisions are made (and even after they are made) it is important to approach wilderness restoration with more humility than hubris. For restoration to be successful, managers must specify desirable (i.e., natural) conditions. This is no simple task, judging from the minimal progress made in defining desired conditions during the 30 years since passage of the 1964 Wilderness Act. However, this task is much simpler than prescribing and implementing the interventions that will bring about desired changes in ecosystems, without causing undesirable and unanticipated changes elsewhere. As Frank Egler (1977) observed, "Ecosystems are not only more complex than we think, but more complex than we can think." With this in mind, we should be cautious about consciously manipulating the last of our wildlands—even if manipulation is the only way to restore natural conditions. **IJW**

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(continued on page 19)

Wilderness Management at Grand Canyon—
"Waiting for Godot?"

BY KIM CRUMBO

Abstract: *The Grand Canyon, a natural marvel of immense canyons and the world renowned Colorado River, is the largest and possibly the most diverse wilderness on the Colorado Plateau. National park designation alone does not assure the land is protected from the increasing pressure for development, nor does it require the agency to protect the visitors "wilderness experience." Wilderness designation does. For the past 1 5 years the Grand Canyon has had a "recommended wilderness" of over one million acres. The agency is required by policy to protect the wilderness suitability of these lands until congressional legislation is enacted. The long delay between completion of the recommendation process and pending legislation, along with numerous political battles regarding nonconforming uses, has resulted in degradation of wilderness suitability*

IN SAMUEL BECKETT'S PLAY *WAITING FOR GODOT,* the two principal characters indefinitely delay their plans, actually their lives, waiting for the mysterious Godot to arrive. He never does. Ultimately, the issue of wilderness preservation within the Grand Canyon lies with wilderness designation by Congress. Until that day arrives, the National Park Service (NPS) possesses the necessary tools (i.e., policies) to protect the wilderness suitability of the Grand Canyon. We need not wait for Godot.

The Grand Canyon, a natural marvel of immense canyons and the world renowned Colorado River, is the largest and possibly the most diverse wilderness on the Colorado Plateau. Extending from the 9,000-foot elevation of the Kaibab boreal forests to the Joshua trees of the Mojave Desert, this magnificent national park forms the core of a 1.5-million-acre wilderness consisting of additional proposed USDI NPS wilderness units, and already designated wilderness on USDA Forest Service and USDI Bureau of Land Management (BLM)

An NPS motorized patrol boat. In recent years the NPS has relied primarily on these rafts to conduct routine law enforcement patrols. Motorized craft are faster than oar-powered boats but are not always the appropriate minimum tools in wilderness. (Photo by Kim Crumbo.)

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lands. Of this potential 1,548,000-acre wilderness, approximately 1,327,000 acres administrated by the park service are recommended, but not yet designated, wilderness. Since Congress ultimately decides whether to designate an area as part of the National Wilderness Preservation System, protection of the area's wilderness suitability presents a challenge to park managers.

National park designation alone does not assure the land is protected from the increasing pressure for development, nor does it require the agency to protect the visitor's "wilderness experience." Wilderness designation does. Under the Wilderness Act of 1964 wilderness is defined as:" ... land retaining its primeval character and influence ... with the imprint of man's work substantially unnoticeable... ." Not only are nonconforming developments and practices prohibited, but where recreational use is appropriate, wilderness must provide for "outstanding opportunities for solitude or a primitive and unconfined type of recreation." The Act mandates protection of naturalness and solitude and this provides for wilderness qualities of experience. Management actions affecting group size, visitor contacts, crowding, congestion, mechanized intrusions, and use impacts must conform to wilderness standards. Long-term assurances for preservation of wilderness values, including visitor experience, even in national parks, is dependant upon wilderness designation and subsequent effective wilderness management. Congressional designation of the recommended wilderness in the Grand Canyon is urgently needed to stop further erosion of wilderness values.

Wilderness Act Requirements

The passage of the 1964 Wilderness Act, Public Law 88-577, Section 3(c), instructed the Secretary of the Interior to review all roadless areas of at least 5,000 acres in the national park system and to submit a report regarding the suitability of these areas for wilderness classification. The act provided a 10-year review period and timetable.

Implicit in the Act's language is the expectation that lands recommended for wilderness will not be degraded prior to congressional wilderness designation. The wilderness act specifically instructed the secretary to conduct the roadless area review "under his jurisdiction on the effective date of this act and shall report to the President his recommendation as to the suitability or nonsuitability of each area ... for *preservation as wilderness. "The* language of the act establishes the nondegradation baseline date for wilderness suitability as 1964. This is significant in that within NPS units (such as the Grand Canyon) established prior to the act, degradation of wilderness values should not occur after September 3, 1964. Otherwise, deterioration of wilderness suitability effectively reduces the options for wilderness designation by Congress (Hendee et al. 1990). In addition, it is significant that the Act specifies a time frame only for completing wilderness recommendations, not for enacting wilderness legislation. This implicitly requires the agency to protect wilderness suitability until Congress either designates the area as wilderness or releases it from wilderness consideration.

This interim management interpretation was not immediately adopted by the NPS. The "Future Development" section of the 1972 "Departmental Guidelines for Wilderness Proposals" states:

> Those areas which presently qualify for wilderness designation but will be needed at some future date for specific purposes consistent with the purpose for which the National Park or National Wildlife Refuge was originally created, and fully described in an approved conceptual plan, should not be proposed for wilderness designation if they are not consistent with the above guidelines.

This policy was soon challenged. A review of the history of the Olympic National Park wilderness process illustrates this point. During 1972 and early 1973, a NPS planning team prepared a preliminary wilderness proposal for Olympic National Park. Although the initial draft called for 93% of the park to be classified as wilderness, a 26,800-acre area was not proposed for wilderness classification in order to retain long-range options for development. Exclusion of de facto wilderness proposed for "future development" was consistent with the 1972 "Departmental Guidelines for Wilderness Proposals." After public review the NPS backed away from its previous stand and included the disputed roadless area within the wilderness recommendation. On November 16, 1988, Congress passed Public Law 100-668, designating 876,699 acres of Olympic National Park as wilderness (Hendee et al. 1990).

The reader should note that the NPS discarded the "future development" exclusion authorized in the 1972 "Departmental Guidelines for Wilderness Proposals." In fact, the 1978 *Management Policies* substantially strengthens the agency's stand on nondegradation:

> Roadless study areas subject to review for wilderness designation will be protected from activities which would endanger or alter their natural, primitive character until administrative study or the legislative process determines their suitability for wilderness designation (USDI 1978).

The 1988 revision of NPS *Management Policies* elaborated on this important provision:

> [f]or the purposes of these policies, the term "wilderness" includes the categories of designated wilderness, potential wilderness, and recommended/study wilderness, and these policies apply regardless of category.

A History of the Grand Canyon Wilderness Recommendations

The history of wilderness in Grand Canyon National Park in the 1970s closely parallels the evolution of NPS wilderness

management guidelines and is intertwined with recreational use on the Colorado River. For many, the river comprises the heart of the Grand Canyon wilderness. Yet, commercial river recreation interests, generally concessionaires, have provided the principal resistance to wilderness designation primarily for economic reasons. For example, the larger motorized boats used to provide people a "canyon experience" provide concessionaires with significantly higher profitability through a lower staff-customer ratio and a shorter trip that is much easier to market.

Throughout the 1970s, a Colorado river management plan and the Grand Canyon Wilderness recommendation co-evolved through an extensive public involvement process, including a public hearing in 1971, wilderness workshops in 1975, six river management workshops in 1976, and seven public meetings on the draft river management plan in 1978. The park service wrote at least six versions of a draft wilderness recommendation and completed two separate environmental statements. The preparation of the 1980 Colorado River Management Plan (CRMP) involved approximately three dozen investigators from at least 20 institutions and agencies working on 29 major projects and numerous smaller sub-projects.

The passage of the 1975 Grand Canyon National Park Enlargement Act established a new emphasis for wilderness in Grand Canyon. Not only did the Act expand the park to 1.2 million acres, but it also required that the secretary of the interior submit within two years a new wilderness recommendation accommodating the enlarged Grand Canyon National Park.

In August 1976, the final master plan specified that "[t]he goals for management of the Colorado River in Grand Canyon will be to perpetuate the wilderness river-running experience, and to attempt to mitigate the influences of man's manipulation of the river."

The July 1976 preliminary wilderness proposal for the expanded park recommended 992,046 acres as suitable for immediate designation as wilderness. An additional 120,965 acres, including the river corridor, were recommended for potential wilderness designation. The total wilderness proposal, submitted in a draft environmental impact statement and signed by the western regional director was 1,113,011 acres.

Crowding and congestion problems are frequent during the summer months, particularly at popular attraction sites. At the time this photo was taken, approximately 60 to 90 people were enjoying the scenery, not the solitude of Deer Creek Falls. Such numbers greatly exceed wilderness expectation limits established by research. (Photo by NPS.)

A final wilderness recommendation in February 1977, signed by the NPS director, recommended 1,004,066 acres (including the river corridor) for immediate wilderness designation with an additional 108,945 acres recommended for potential wilderness designation. The NPS sent this recommendation to the legislative counsel in 1977, where it was held in abeyance pending completion of the river management plan.

The 1980 Colorado River Management Plan

Late in 1977, the NPS issued a draft river management plan and a draft environmental impact statement. The final environmental impact statement was completed in 1979, and in 1980, the park service released the long-awaited CRMP.

The 1980 CRMP was a milestone in river management planning. It established wilderness-dependant goals supported by existing administrative planning documents such as the final master plan issued in 1975 for Grand Canyon National Park, input from public meetings and other public involvement processes, and extensive research (Shelby 1981). The plan also recommended inclusion of the Colorado River corridor in the National Wilderness Preservation System.

The park service was concerned about the impact of recreationists on the physical and biological resources, and ecological and sociological studies showed that impacts on wilderness were a function of use patterns and activities rather than of overall use levels. The 1980 CRMP addressed these issues though implemention of appropriate camping techniques, elimination of multiple trails to key attractions, reduction of allowable group size, elimination of fires, and the mandatory removal of human waste. These efforts greatly reduced the direct impact of visitors on the environment.

The NPS also committed itself to "perpetuate a wilderness river-running experience in which the natural sounds and silence of the canyon can be experienced; relaxed conversation is possible; and the river is experienced on its own terms." The sociological research revealed that contacts between river traveling parties and group size were the most important factors leading to perceived crowding and congestion, as well as impacts on the environment (Shelby

and Nielsen 1976). By reducing the maximum group size, limiting the number of trips launched each day, and extending the high use boating season the NPS planned for a higher quality experience with a substantial increase in overall use (Shelby 1981). In addition, the public involvement process supported the **NPS'**s efforts to enhance the wilderness experience by removing motorized craft (USDI 1980).

The 1980 Grand Canyon Wilderness Recommendation

Upon completion of the CMRP in 1980, the park service sent its wilderness recommendation to the U.S. Department of the Interior. The river corridor was recommended as "potential wilderness" until the planned phase-out of motors in 1985. The question of continued motorized use within wilderness has always presented itself as the central issue to the Grand Canyon Wilderness debate. While total river use in 1964 was about 550 people in 1992, motorized annual use along the Colorado River consisted of approximately 800 motorized boats in 500 separate parties, carrying nearly 15,000 people (USDI 1993). Although the Wilderness Act, Section 4(d)(l) states that the use of motorboats "... where these uses have already become established, may be permitted to continue," the extensive public review process and the existing NPS planning documents did not support this exception. The issue of what is an established use is also contentious here. Is it the types of use and/or use levels that predate the Wilderness Act of 1964, or those uses and levels present at some subsequent date when the wilderness issue is finally addressed. Opinions on this vary depending on what interests are being argued. However, strict interpretation of the Wilderness Act supports pre-1965 use, not subsequent motorized levels, as the established use.

The Hatch Amendment

By all indications, 1980 was the year for wilderness at Grand Canyon. However, this would not be the case. In November, opponents of the CRMP successfully incorporated an amendment to the 1981 Department of the Interior appropriations bill, sponsored by Senator Orrin Hatch (R–Utah), which stated (Congressional Record 1980):

> None of the funds appropriated in this act shall be used for the implementation of any management plan for the Colorado River within the Grand Canyon National Park which reduces the number of user days or passenger-launches for commercial motorized watercraft excursions, for the preferred use period [May 1–September 30], from all current launch points below that which was available for the same period of use in the calendar year 1978.

Throughout the 10-year wilderness and river management planning process, river running concessionaires consistently opposed the removal of motors on the river, primarily for economic reasons. Throughout the long planning process, which included extensive public involvement and scientific research, the economic value of motor craft use to concessionaires was considered, but ultimately rejected in the balance of public comment and the park service judgements in favor of wilderness values.

The 1981 Colorado River Management Plan

The Hatch Amendment's impact went far beyond the continuation of motorized use on the Colorado River. Although the issue of wilderness was never directly addressed, the NPS interpreted the amendment as a mandate to eliminate wilderness language from the CRMP

In 1981, a new river plan was written that differed dramatically from the 1980 version. In the new plan, the Hatch Amendment to the 1981 appropriations bill replaced "wilderness" as the principal direction for river management. In the new CRMP, no reference was made to the 1964 Wilderness Act, no explanation for the complete elimination of "wilderness" from the new plan was given, and the public consensus about motorized use and wilderness reached throughout the lengthy wilderness review process was circumvented.

The 1981 CRMP did not simply return to the 1978 commercial use levels, but increased commercial use by 30%. Noncommercial private use increased by approximately 600%. Most of the carefully crafted provisions for protecting resource and visitor experience were not included. The plan eliminated the daily limit of the number of groups allowed to launch; reversed the decision to reduce the maximum group size; and, as specified in the 1981 appropriations bill, allowed for continued motorized use on the river.

Interim Management of Recommended Wilderness

In September 1989, the NPS issued a revision of the 1981 CRMP. Although the new plan mentions the Wilderness Act, no direct reference is made regarding wilderness. The document does state, however, that the:

> [p]urpose of the plan is to address and resolve major issues surrounding the management of recreational use activities within the Colorado River corridor of Grand Canyon National Park and mitigate the environmental impacts associated with those activities. The purpose is to supplement existing management guidelines and directives, including, but not limited to, the 1976 Master Plan ....

The 1976 Final Master Plan specified that "[t]he goals for management of the Colorado River in Grand Canyon will be to perpetuate the wilderness river-running experience ... ." The 1989 CRMP does not incorporate this fundamental direction of the master plan. This oversight will have to be resolved in the next revision of the CRMP.

It is important to note that when the allocation of use was frozen in 1973, the do-it-yourself ("private" or noncommercial) boater demand for access was just

beginning to develop. Concessionaires controlled approximately 92 % of the total use allocation while the demand for noncommercial use expanded rapidly. In 1972, the park received only 47 applications for private trip permits. By 1978, that number increased to 441 trip applications. The 1981 CRMP "resolved" this issue by increasing the total allocation by approximately 76% (USDI 1979, 1981). Today, in spite of the six-fold increase in the private allocation in 1981, approximately 5,000 individuals are now on a "private" waiting list to obtain a permit for a party to conduct a river trip on the Colorado River. Based on the current average group size of 13, this suggests the prospect of up to 60,000 do-it-yourself, noncommercial boaters ("privates") waiting ten years or more for a permit to run the Colorado River through the Grand Canyon.

The options available for resolving this seemingly perennial problem are limited. The NPS could, as it has consistently done, simply increase allocation to satisfy demand. The current use levels, although frequently resulting in crowding and congestion along the river, could possibly be mitigated though changes in trip schedules and a reduction in maximum group size. A significant increase in allocation, at least under the current system, would undoubtedly preclude a "wilderness" experience for most users. If the practice of increasing allocation to meet demand continues, one can only guess what the river experience will become, 10, 20, or 50 years from now. Another option, reducing the concessionaire's allocation and transferring it to the noncommercial sector, would undoubtedly ignite a major political storm. The most promising alternative, at least for the short term, is to evaluate the current system and determine if increased use could be accommodated through better distribution of trips over time (i.e., better use and management). Ultimately, the allocation issue will need to be resolved.

The motor issue aside, current NPS interim wilderness management guidelines specified in *Management Policies* still require the NPS to provide a wilderness experience along the Colorado River. Managing for "wilderness experience," requires addressing critical elements such as group size, crowding, congestion, visitor contacts with other users, and other experiential parameters implicated in a growing body of research that should be incorporated into the CRMP.

There remains the task of preserving wilderness values until wilderness legislation is enacted but dilution of these values has been significant and continues. Since passage of the 1964 Wilderness Act, incremental resource and experiential degradation, in addition to extensive motorized use, has impacted potential wilderness in the Grand Canyon. During this time annual use on the Colorado River increased from 547 people to over 20,000, mostly from motorized use as mentioned previously There has been increased crowding and congestion, administrative use of motors, use of motors in a designated "no motor" season, construction of permanent research facilities to study and monitor the effects of dam releases, and an increase in the number of people using helicopters to join or depart river trips.

To correct past failures and reduce future threats to wilderness suitability, important park management strategies are being planned and implemented. The 1995 draft general management plan calls for recommended wilderness to be managed as wilderness. Currently, park staff are developing a "minimum tool" policy and a backcountry management plan consistent with wilderness. The "minimum tool" concept is central to wilderness management. It requires the agency to conduct only those management actions necessary to protect wilderness values. The park's staff has also developed a restoration and revegetation program for the backcountry and river.

Unquestionably, the long delay in congressional action on the Grand Canyon wilderness recommendation is central to the degradation issue. This problem is not unique to the Grand Canyon, but involves millions of acres administrated by the NPS in other areas (see the article by Jay Watson in this issue). In addition, conflicting signals from Congress (e.g., the Hatch Amendment), and a lack of consistency in. carrying out NPS wilderness management policy, exacerbate the problem. Without explicit congressional direction, preferably in wilderness legislation for the Grand Canyon, effective wilderness management in the Colorado Paver and the Grand Canyon will be difficult, but not impossible. We need not wait for Godot. **IJW**

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Wilderness in the National Parks—
Now More Than Ever

BY JAY WATSON

Abstract: *Kim Crumbos article describes the wait for departmental or congressional action on wilderness recommendations at Grand Canyon National Park. But the Grand Canyon is not the only place where we are waiting for Godot. Agency wilderness recommendations affecting more than 13 million acres in 40 national parks, monuments, and recreation areas in the lower 48 states have either never been forwarded to the president or acted upon by Congress. Only 4.7 million of 16 million acres found suitable for wilderness in Alaska were recommended for designation.*

WHILE THE WILDERNESS ACT OF 1964 AROSE largely out of a concern over disappearing roadless areas on the national forests, it also applied to roadless lands within the U.S. Department of Interior National Park Service (NPS) system. Section 3c of the Wilderness Act (PL. 88-577), provided for wilderness reviews of national park lands following a course similar to that set forth for the national forests. Over a 10-year period, the secretary of the interior was directed to review roadless areas of 5,000 or more contiguous acres, or smaller roadless islands of the then-existing national parks and monuments and report to the president on the suitability of those areas for preservation as wilderness. The department completed those reviews within the 10-year period. The president was then to forward recommendations for wilderness to the House of Representatives and U.S. Senate.

Today, 43 million acres in 44 units of the NPS system are included in the National Wilderness Preservation System—more than one-half of all park lands nationwide. In other words, the NPS is responsible for the management of more wilderness than any other agency. In California, wilderness accounts for 76% of all federal park lands in the state.

At the same time, wilderness in the national park service has been misunderstood. In the agency's own words, "wilderness has suffered from a crisis of identity." Yet, despite this misunderstanding and identity crisis, it is undeniable that wilderness designations in parks have limited development in many parks, and has had a beneficial impact on the long-term stewardship of those parks. There is additional protection realized through wilderness designations in national parks beyond that found in the NPS Organic Act of 1916.

Waiting for Godot at 40 National Park Units

Much more has yet to be accomplished. While Kim Crumbo continues his wait for Godot at Grand Canyon National Park, we are also waiting at 39 other park units. Agency wilderness recommendations affecting more than 13 million acres in 40 national parks, monuments, and recreation areas in the lower 48 states have either never been forwarded to the president or, in other instances, acted upon by Congress. These units include areas such as Canyonlands, Grand Teton, Great Smoky Mountains, Yellowstone, and Zion National Park, as well as Glen Canyon National Recreation Area.

Article author Jay Watson. (Photo by Kathleen Watson.)

Even more is at stake in Alaska. Section 1317 of the Alaska National Interest Lands Conservation Act of 1980 (ANILCA) mandated wilderness study for 19 million acres in national parks in Alaska that were not designated as wilderness when ANILCA was enacted into law in 1980. ANILCA directed that these studies be completed by 1985 and that the president was to forward wilderness proposals to Congress by 1987. The NPS completed the studies on time, finding that 16 million acres in 13 park units were suitable for wilderness. But today, nine years past ANILCA's deadline, the secretary of the interior has yet to forward recommendations to the president for subsequent transmittal to Congress. The delay stems in large part from policies of the Reagan presidential administration. In 1985, the assistant secretary of the Interior for Fish, Wildlife, and Parks ordered the park service to limit its wilderness recommendations for Alaskan parks. As a result, of the 16 million acres already found suitable for wilderness designation, only 4.7 million acres were subsequently recommended.

Parks Need Wilderness to Protect Against Development

In an increasingly commercialized world, designating wilderness within units of the NPS system is more important than ever. External and internal development threats, interest in making national parks "centers of commercial enterprise," and the political climate in Congress with respect to U.S. parks will steadily apply pressure on the NPS and individual park superintendents to develop lands within national parks.

The Wilderness Act of 1964 provides a firm line of defense against development of park lands. Designated wilderness within the NPS system is to be managed at the highest level of protection when these lands are managed under the protective mandates of both the 1964 Wilderness Act and the 1916 Organic Act. It is important to note that while the Organic Act of 1916 gives the NPS the discretion to balance between development and preservation, the Wilderness Act of 1964 strictly limits agency discretion. Some of the more important restrictions include the following:

- No permanent or temporary roads can be built.
- Commercial enterprises are disallowed.
- With certain specific exceptions, no buildings or structures can be built.
- Aircraft and motorized equipment are prohibited, except for minimal administrative or emergency purposes.

In addition to land and resource protection, there is a second, equally important value of wilderness within the NPS—public education. If wilderness is to survive, efforts to promote public understanding and appreciation for the role of wilderness in the natural world must reach a much broader spectrum of U.S. citizens. Our nation's parks offer terrific opportunities for visitor outreach and education about wilderness. In some places, the park service has embraced this opportunity. For example, the agency has created and staffed a wilderness education center in Yosemite Valley, at Yosemite National Park, where 90% of the park is designated wilderness.

A Long Wait for Godot

Wilderness has indeed been a longtime coming at many units of the NPS system. Where they are lacking, wilderness designations in national parks would strengthen long-term land protection and stewardship. The ultimate question is one of timing. Certainly, the 104th Congress is no fertile ground for designating additional wilderness. But it too will pass, and the day may soon come when it is time to bestow our nation's highest level of protection to deserving areas of wilderness in our national parks. **IJW**

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"You have noticed that everything an Indian does is in a circle, and that is because the power of the world always works in circles, and everything tries to be round .... The sky is round and I have heard that the Earth is round like a ball, and so are all the stars. The wind, in its greatest power, whirls. Birds make their nests in circles, for theirs is the same religion as ours .... Even the seasons form a great circle in their changing, and always come back again to where they were. The life of man is a circle from childhood to childhood, and so it is in everything where power moves."

—**Black Elk** (1863–1950), Oglala Sioux Holy Man

Wilderness Experience and Ecopsychology

BY ROBERT GREENWAY

Personal reflection and journal writing are enhanced by the wilderness experience. (Photo by Trevor Barret.)

WHAT A SHOCK IT IS TO OUR PSYCHIC SYSTEM to suddenly drop out of the immense overstimulation that our culture has become. Streets, telephone poles, and cars racing by our eyes, buzzing our peripheral vision; flights across continents and oceans, millions of sparkling dots forming video images; huge realms of data (and useless drivel) pouring in and out of our computers and networking almost instantly around the world; concerts, pounding drums on stereos, parties and words, signs, symbols, awash in images of stylized feminine bodies, moment-by-moment crashing into our circuitry ... and then, quite suddenly, few or no words, sounds only of rivers and wind in trees; heartbeats and breath suddenly loud; the crackling of a fire, night sounds of the forest, bird calls. Ears, eyes, nose, and skin open in wonder, wider and wider, colors, smells, and shapes becoming more vivid, as if shells and scales are being removed. The mind drinks in view after view of forces and systems in balance; dying and rebirthing all around, a river in full health—flowing freely, meandering along paths of least resistance; the most disruptive perception a path through the forest that also meanders here and there like a peaceful, gentle light into the canyons of our hearts ....

When I first came to the psychology department at Sonoma State University 26 years ago, I knew from my own life and from incorporating wilderness experiences into Peace Corps training programs in the 1960s that the wilderness experience, if conducted as a retreat from cultural dominance, could have a profound impact on the psyche.

Thus wilderness experience became an important part of my educational and research activity and evolved into a program for training wilderness leaders for various agencies and schools. Officials at such institutions wanted more than sighs, knowing smiles, or the assertion that the wilderness experience was "good." They wanted to know what, in psychological terms, was indeed happening to people. What are the "outcomes," the benefits, or dangers of such experiences?

So the wonderful but naive practice of escaping to the wilderness became, in essence, a psychological study of the changes people go through during extended and carefully structured stays in the wilderness. Even the language developed to facilitate such studies became the roots of an ecopsychology (or, as I called it for many years, "psycho-ecology"), and a basis for insights into the roots of the human—nature "crisis."

Wilderness Psychology Field Trips

Let me first summarize my particular approach to guiding students into the wilderness for two, three, or sometimes even four weeks. Every wilderness excursion is different, of course, and the key variable will be the leader's goals and style, even within tight organizations having a clearly articulated philosophy such as Outward Bound. My context is a university setting; thus, the wilderness course is a full semester. But, as the training, research, theoretical, and lingual aspects of the program evolved, the wilderness course became part of a two-year curriculum including various courses in nature philosophy, different psychologies, nature writings, physical preparation, and the like.

Participants are drawn from the entire university community, including fellow professors, graduate students from various departments, local psychotherapists and psychiatrists, and various wilderness leaders from around the country. Whatever the source and variety of participants, we tend to form a very tight-knit cooperative community well before entering the wilderness.

The trips are carefully structured to encourage participants to leave behind the props of culture before entering wilderness. Food is carefully organized to be fully nutritious but "just enough." Only items essential to health and safety are allowed—no books, no cameras, not even writing paper.

Everything prior to and during trips is ritualized as much as possible, such as driving to the trailhead, dividing the food, weighing the packs, and distributing community equipment. Special attention is paid to such events as crossing the wilderness boundary or the first river or stream. Simple everyday activities such as ways of walking or cooking meals are ritualized as well. Within a few days participants speak of being "home," and then I know we are beginning the process of crossing into wilderness psychologically as well as physically.

Living in the Wilderness

Of course, in the first few days on the trail there is much basic instruction—sanitation, hiking with relatively heavy packs, fire building skills, shelter installation—and very careful and detailed instruction in "no impact" camping. Since the participants are usually gathered into well-functioning groups, all but life-threatening situations are decided by consensus, though since the "wilderness course" is much talked about around the university, many of the same practices are repeated from year to year: an "alone time" lasting three or more days and nights; all-night "watches," climbs to peaks at sunrise or sunset, or in silence in the moonlight; separate camps for several days for men and women, with ritualized ways of coming back together; and, more rarely, exploring the physical or biological features of a certain wilderness. Some groups are very athletic, very energetic, full of many plans while some are quiet, contemplative, or even lazy. The goal is for each group to become as fully "itself," empowered, and safe as possible. This reduces stress of course, but it also opens up the possibilities for relating to wilderness in ways unique to the group, ways usually closed to groups of strangers, casual friends, or individuals.

Occasionally a trip agenda is occupied with heavy weather, illness, or "something to work out in the group," although the trips are not advertised as therapy or healing, but rather as an opportunity to explore one's relationship with nature. Participants often became ebullient to find that their fears prior to the trip roved unfounded. Occasionally someone will express boredom or will try and goad the group into conflict or various feats of "derring-do." For the most part, how-everjust being in the wilderness, alone and together, and the simple acts of living and moving together, leaving no trace, cooking and sleeping, tuning into fire, water, and celestial events, become the fully occupying agenda.

Language and the Wilderness Experience

Here is a more poetic account of one of these wilderness experiences. There were 12 of us on a warm June day along the upper reaches of the Middle Fork of the Eel River in northern California—one of the few completely healthy, undammed rivers left in the state. As it happened we were six men and six women, two of whom were sisters, one 11 and the other 14; their father was one of the men.

We were near the end of a two-week trip and had gone as deep into the center of the wilderness as we could, and as deep into our hearts and minds. We had awakened our bodies by plunging daily in the still frigid snow-fed waters, awakened the sun from the peaks at dawn, chanted nonsense sounds alone and together. We had prayed, laughed and cried, told our stories, shared long silences. We had become children again when the sisters' father one warm evening taught us "the real way" to play kick-the-can.

We had gone out alone like heroes on Grail quests, in search of dramatic and important visions that would guide our lives and make decisions for us. Instead, we found in tiny scale and modest simplicity perfection all around us.

On this particular day, our last before leaving, we scrambled downriver over rocks and through pools, splashing noisily, pulled to something, some place, perhaps somewhere beyond image—we weren't exactly sure. We came upon a huge pool that seemed bottomless—the blue-green water darkening almost to black in the depths, sheer walls of blue-gray slate rising 30 feet above either bank, huge rounded boulders above and below the pool around which water poured in gushing falls. We knew without speaking that we had found "the place."

We fell silent at the sight, knowing somehow that this would be the turning point, "the most sacred," the place of deepest wilderness for this day, for this trip, for this time in our lives. One by one we entered the pool. Later someone would comment that for the first time on the trip the water did not shock us. We swam then crawled onto hot rocks, warming our bodies on the smooth surfaces and contours we each found. Most of us slept for a time. Later some spoke of amazingly vivid dreams.

After a time we gravitated toward a large flat space on top of one of the rocks next to the pool and formed a circle, our practice over the past weeks. And then without knowing quite how it happened there was no distance, an openness into ourselves that was an openness to each other, which embraced the pool, the river, and farther out into the canyon, the wilderness, the "other world," the whole earth, the universe. There were no boundaries.

We looked frankly at each other, enjoying our clear eyes, our health, smiling, weeping, seeing each other as if for the first time; as if there had never been any distance. Some quietly spoke from their hearts, simple things—sharing a memory, thanking someone for a favor .... We sang some of the songs we had most enjoyed on the trip, drawing out our best voices and harmonies, blending with the sound of the river.

Then a shadow passed over us, a rare golden eagle passing between us and the sun, and we saw that shadows were lengthening along the canyon walls.

With a wild cry someone jumped up and dived into the pool. We all followed and the water once again was icy, shocking us, tightening our skin. We walked slowly back to our camp that now seemed a familiar home and quietly cooked our meal as the evening cooled, a little shy, many deep looks into the fire, an incredible sense of peace and fulfillment.

The younger of the sisters said that night in our last circle before leaving: "Now I'm ready to go back to the other world. I choose not to let a day like this become a common thing."

What synthesis of ecological and psychological language could add to such an account, let alone do justice to the wilderness experience itself? What indeed is this much vaunted "wilderness effect," which, as literally thousands of programs evolve to lead people into various kinds of wilderness experiences, is increasingly accepted as a given? Is there an "ecopsychology" that can enhance our understanding of it? Will such a language suggest paths of healing the human disjunction with nature that appears to be destroying possibilities for a human future on this planet?

The Wilderness Effect

Certainly there are many reports of both healing and empowerment through the experience of wilderness. It is often labeled as "spiritual." What is it about a retreat from "culture" in order to immerse oneself into the "natural processes" in their fullest and most pristine forms that creates such an effect?

I believe a key issue in all this is just how much in fact we leave "culture" behind. Of course we leave the urban scene physically, and it is common among wilderness leaders to speak of the beginnings of wilderness trips as "cleaning out" times, when the presumed "poisons" stored in tissues are released during the notoriously strenuous effort of carrying a heavy backpack, especially at the outset. But are we not in fact "culture bound"—that is, locked into a voracious web of continuing reinforcements that penetrate into and are in turn supported by our collective mental processes—and thus can only minimally change, even through extended stays in the wilderness?

Participants often speak of a feeling of "expansion" or "reconnection" in wilderness which can be interpreted psychologically as an expansion of "self," an expansion perhaps rooted in a wilderness-induced "opening" to our evolutionary past still layered into our deeper psyches. Or perhaps the expansion is related to a connection with complete and fully natural systems, systems that include vivid, and usually aesthetically pleasing, views of natural death, with emotions of fear and violence existing along with beauty and elegance in wondrous balance.

For many, the wilderness experience means the release of repression, a diminishing of the inevitable controls inherent in any culture. Participants who speak of this benefit tend to see the source of the experience not so much as coming from an external wilderness but from contact with one's own physiology, one s "instincts," archetypes, and the like. It appears to be an experience of "deep" and great complexity, of exquisite beauty and obvious impact for most people, though it tends to be remembered, and interpreted, differently from person to person. Obviously an experience that either dissolves upon return to the urban culture, or which places one in more or less severe conflict with the culture, will make generalizations questionable and research, as with all human-social-cultural enterprises, a challenge indeed.

Participants often speak of a feeling of "expansion" or "reconnection" in wilderness which can be interpreted psychologically as an expansion of "self" ...

Research on the Wilderness Effect

After the wilderness experience had been left behind I began to conduct exploratory research on the process. From the more than 1,380 persons passing through the program I have collected approximately 700 questionnaires, 700 interviews, 52 longitudinal studies, and over 300 more narrative responses to trips (in the form of stories, myths, poems, drawings, etc.)

A few of the patterns that have emerged include: 1) 90% of respondents describe an increased sense of aliveness, well-being, or energy; 2) 90% also state that the experience allowed them to break an addiction (defined broadly to include nicotine, chocolate, other foods, etc., as well as alcohol, drugs, or various behaviors); 3) 80% found the return to culture initially very positive; 4) 53% of those found that within two days of the return the positive feelings had turned to depression (again, loosely defined—i.e., "sadness," inability to work, etc.); 5) 77% described a major life change upon return (involving personal relationships, employment, housing, or lifestyle); 6) 38% of these changes "held true" after five years (in those studied); 7) 60% of the men and 20% of the women stated that a major goal of the trip was to conquer fear, challenge themselves, and expand limits; 8) 57% of women and 27%) of men stated that a major goal of the trip was to "come home" to nature; 9) 60% of all respondents stated that they had adopted at least one ritual or practice learned on the trip; 17% of those studied longitudinally (9 out of 50) stated that they were still doing the practices after five years; 10) 92% cited "alone time" as the single most important experience of the trip; getting up before dawn and climbing a ridge or peak "in order to greet the sun" was cited by 73% of the respondents as the second most important experience of the trip. "Community" or the fellowship of the group was cited by 80% as the third most important experience of the trip. From a psychological and cultural perspective, changes in dream patterns are among the most vivid and provocative findings. Seventy-six percent of all respondents

reported changes in quantity, vividness, and context of dreams after about 72 hours of entering into the wilderness. Eighty-two percent of those expressed a change of content of dreams from "busy" or "urban scenarios" at the outset to dreams about the group or some aspect of the wilderness experience. In other words, it seems on the average to take three or four days for people's dreams to catch up with them! The structuring of these trips seems oriented to a "deep-level" psychological entry into the wilderness. Although I don't have data for it, I would predict that more casual wilderness excursions would have less effect on dream experience. Thus I have said, not completely in jest, that the finding suggests that culture is only three or four days deep.

My research also suggested that men and women have remarkably different psychological experiences of wilderness, and this certainly is matched by my in-field observations. It seems that the transition into wilderness is easier for women, and the transition back to the urban world is easier for men. Again, this could be expected to be a function of the rather "soft" approach I used as opposed to more challenge-adventure wilderness approaches geared toward "conquering fear" or "gaining power." Whether or not these findings may be revealing some kind of intrinsic physiological, cultural, or political difference is no more clear than the myriads of other gender studies. Thus, they stand only as preliminary observations.

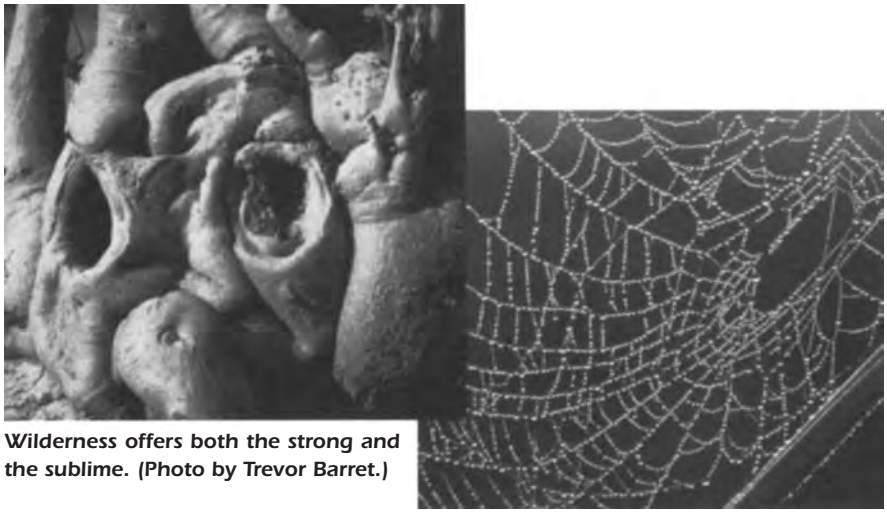
Crossing or Not Crossing the Wilderness Boundary

What might all this mean? Certainly if "cultures" do in fact intertwine in some systemic manner with human mental processes, so do the processes of nature as found in the wilderness come to pervade mental processes as well. I would infer that experiences of small tribelike communities, sitting around fires at night, and intimacy with celestial events and the like are indeed deeply familiar to us. It is a reasonable hypothesis that such experiences exist as "memory" below our cultural programming, what Theodore Roszak and others are now calling "the ecological unconscious."

The author (left) fords a stream with friends in the Salmo-Priest Wilderness Area, Washington State. (Photo by Vance Martin.)

The emergence of depression or other severe problems upon a too sudden return from wilderness to the urban world of culture is a provocative window into the psychological processes underlying both the human—culture relationship and the human—nature relationship. It appears that it is the contrast between widely divergent forms of mental processing and resultant differing modes of consciousness that is so disturbing. People often are quite explicit about how their "minds feel open and 'airy'" in the wilderness, as contrasted with "turgid, tight, crowded, or overloaded" in the urban world. People also talk very clearly about "entering into the wilderness mind" or "the mind of the river," and it seems indeed to be expressing a very comfortable and pleasurable experience.

The issue of psychologically different wilderness experiences is also important. Obviously, many wilderness excursions, especially those attempting to reproduce "urban habits," comforts, and other cultural reinforcements may cross the wilderness boundary physically but not psychologically, even though every wilderness experience may have some effect. I have found it useful to posit a gradient of the "wilderness effect," ranging from "nine" (no effect) to a complete blow-out of one's usual programs for processing reality, this effect varying directly with the psychological extent of the wilderness boundary crossing. Somewhere along this gradient, perhaps different for every person, every gender, every subculture is a transition point where one's mode of information processing "switches" from culture-dominated to nature-dominated, that is, from a dualistic mode of defining reality to a systemic mode. This change point along the gradient is the psychological wilderness boundary and it is my perception that not many cross it. Many "empowerment"-type wilderness programs, for example, are not experiencing wilderness on its terms, but are using wilderness as a context to develop skills dictated as "useful" or "empowering" by our culture (e.g., leadership character building). Of course there is nothing wrong with "adjustment" or "empowerment" per se. But if the culture to which one is adjusting is destructive of nature, then we have a problem. This may be yet another example of exploiting wilderness to serve the voracious needs of a culture increasingly attempting to distance itself from nature.



Wilderness offers both the strong and the sublime. (Photo by Trevor Barret.)

Re-Entry From Wilderness to Culture

As noted in the data from my students' wilderness experiences, when consciousness opens fully to wilderness, to an immersion in natural processes such as occurs with longer and carefully structured trips, the return is almost always a painful experience. In returning to the culture we plunge ourselves back into the forces that split consciousness and feel our newly open and connected beings congeal into hardened, separate, well-defended selves. Though an unpleasant experience, it is perhaps a unique opportunity to experience mindfully the cultural forces that normally operate outside our awareness.

Thus, a key issue becomes how to maintain, or integrate, wilderness-learned modes of knowing when living again within the culture. In the early years of the program I noted that the initial euphoria upon returning from wilderness to the comforts of civilization would give way within hours, or a few days at most, to very disruptive dysfunctional behavior. But upon adding such "awareness practices" as yoga and meditation to both preparation and post-trip periods, as well as during the trips, such dysfunctions almost completely ceased. Group support was essential, and I suspect that this was part of the "protection." Practices such as meditation obviously facilitate the arousal of the same kind of awareness and "mental processing" that occurs in the wilderness. Thus, the wilderness-born transformations of consciousness can be continued into everyday life within the culture, an important key to minimizing the re-entry problems. This also raises the question as to whether "the wilderness effect" requires an experience of wilderness rather than a certain kind of mental-processing practice, but that's another topic.

Other tricks of returning to civilization from psychologically entering wilderness: 1) Come back as slowly as possible. A few days at a "half-way house" between wilderness and full cultural experience has been extremely helpful; 2) Leave the wilderness without regret, without "holding on" in order to find healing in the transition (and plan for continuing transitions between a full wilderness experience and urban culture on a regular basis); 3) Establish political and cultural relationships with the wilderness visited (all wilderness areas are at risk, all are being damaged one way or another); 4) Continue with the wilderness group to the extent possible, thus supporting a continuance of a healed relationship with nature. This can be a basis for future trips, for continuing awareness practices ... something like a 12-step group for those "in recovery from civilization."

Wilderness Healing as a Commodity

Can "wilderness-for-healing" avoid becoming "wilderness-as-commodity"? To some, hopefully an increasing number, there is the idea emerging that we have no choice but to find our appropriate role amidst the infinite webs of natural processes. Somewhere in there, assuming we're not simply a mutation that is failing, there's a contribution we can make to the whole, something unique, something comparable to the eagle's eyesight, the dolphin's hearing, the salmon's perfect motion when turning to dig the spawning bed in clean gravel. Perhaps the wilderness experience can help us get there, help us reconnect, help us open to the wisdom inherent in the infinite information systems of the natural networks of the pre-human world. Or perhaps when we come to realize that wilderness areas are rapidly degrading from overuse, the escalating threats to wilderness from resource-dependent industries, or the fact that in much of the world "wilderness" is seen in terms of desperate survival rather than recreation, perhaps with these realizations we can come to see "the wilderness experience" as a source of insight or as a model for modes of healing that don't require wilderness. Perhaps the very symptom of our recovery will be to not demand that wilderness heal us. We will have learned to let it be.

For a wilderness that must heal us is surely a commodity, just as when we can only look upon wilderness as a source of economic largesse. Let that which serves the culture be done within the culture. If it is the rehabilitation or redirection of the culture we see, and if the wilderness seems a vehicle for this, let us remember to use wilderness in ways that further its rehabilitation as well as our own. Let us use wilderness for those healing processes that cannot take place in any other context. **IJW**

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This article is adapted from Greenway, R. 1995. "The wilderness effect and ecopsychology." In *Ecopsychology: Restoring the Earth, Healing the Mind*. Roszak, T., Gomes, M., and A. Kanner, eds. San Francisco, Calif.: Sierra Club Books.

VIPs Seek the Experience and Spirit of Arctic Refuge Wilderness

BY ROGER KAYE

[Editor's Note: IJW commends Arctic National Wildlife Refuge managers for facilitating real wilderness experiences for very important persons (VIPs) who were advising on the wilderness vs. development debate in the refuge.

—John C. Hendee]

DEBORAH WILLIAMS, ALASKA SPECIAL ASSISTANT TO INTERIOR SECRETARY BRUCE BABBITT, visited the Arctic National Wildlife Refuge last June. Her purpose was similar to the many VIPs who preceded her since proposed oil development in the refuge became a national issue. She wanted to see the wilderness and wildlife first hand, and to get a genuine feel for the resources at stake in the development versus wilderness debate.

But Williams didn't follow the VIP itinerary that had become the norm: she didn't stay in developed facilities; she camped, in a tent, like the visiting public. She didn't go on a helicopter tour; she went in a fixed-wing bush plane, like the public. She hiked and climbed, explored and discovered, stumbled over boulders and trudged through tussocks—and built up a sweat—just like the public.

Later, more VIPs opted for similar nondignitary treatment. Donald Berry, Counselor to the Assistant Secretary for Fish, Wildlife and Parks and Dan Sakura, Special Assistant, arrived the next week. In July, so did Secretary Babbitt's chief legal officer John Leshy; Brooks Yeager, the Deputy Assistant Secretary for Policy; and Melanie Beller, Director of Congressional and Legislative Affairs.

You Cannot Experience Wilderness From a Helicopter

But why? VIPs in these positions don't need to get sore feet or undergo climbing out of a sleeping bag on a chilly morning. They can be whisked around by helicopter ... out to the coastal plain to "experience" the tundra ... over to Ignek Mesa for lunch ... up the Sadlerochit Mountains for photos ... back to the government facilities at Neruokpuk Lakes for dinner. Why walk, camp, and face the elements when it is so much easier to go feature hopping? "Because helicopters offend the quiet and the aesthetic and the wildlife," Williams said. "They violate the fundamental principle of wilderness."

For similar reasons, Williams chose the tent when Refuge Manager Jim Kurth offered her a choice between facilities and camping. Camping was no hardship; sleeping just a thin nylon layer removed from the wilderness heightened the experience. "It's more respectful, coming to the area on its own terms," she added.

Deborah Williams, Special Assistant to Secretary of the Interior Babbit talks with Arctic National Wildlife Refuge manager Jim Kurth at their field camp. The difference between staying in government or Prudhoe Bay facilities and camping," she said, "is the difference between canned and fresh fruit." (Photo by Roger Kaye.)

Leshy, who was just unwinding from two days of testimony before the Senate Energy and House Resources Committees, said he came to get the real essence of the development versus preservation issue. The airplane flight provided a nice overview, he said, but it was being on the ground that provided the personal images he sought. "You can't appreciate the grandeur from the air," Leshy said, "that's just a little better than looking through a coffee table book."

Donald Barry admits to having been on a number of helicopter tours of public lands with members of Congress and agency heads. "Compared to hiking or climbing to a place, a helicopter arrival carries the sense that you didn't earn it, that you cheated," Barry said. "The experience is sterile if you don't have to work for it."

Barry earned what he later called a peak experience during his two-day camp-out. After hiking the headwaters of the Hulahula River, fording a swollen stream, and ascending a ridge, Barry quietly left the group and settled on a promontory for a quiet vigil, gazing into the vastness. Kurth recalls looking across the landscape at Barry. "I can't say what he was thinking, but you could tell there was reflection going on."

"That kind of trip best provides decision makers with a genuine, practical sense of the wilderness experience the public seeks," Kurth said. "Such visits also show officials how agency policy and management activities affect the public users, needs that will continue regardless of the outcome of the oil issue."

For Fran Mauer, the refuge biologist who accompanied the tours, there was also symbolism in this new approach of visiting dignitaries. "These people's attitude has been humble, respectful of the wilderness," he said. "Their acceptance of limits and restraint says that their schedule and convenience should not take precedence over the values out there."

Kurth, who provided each group of VIPs with a range of trip options, admits to having presented the go-under-the-same-conditions-as-the-public approach a little more enthusiastically. But he insists that the decisions were theirs. "They all had rank on me—if they had wanted choppers and developed facilities that's what it would have been."

Williams also hopes that fixed-wing bush plane transportation and camping become a new standard for senior policy makers visiting the arctic wilderness. She talks of the cost effectiveness, of the fuller perspective gained, and of the value of "not asserting a status greater than the visiting public or resident wildlife."

"It's a good example for the public," she said, "and good for the spirit." **IJW**

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[*Editor's Note:* In 1925 Ralph Space wrote this poem about wilderness. His words remain applicable today.—J. C. H.]

Defining "wilderness" is very difficult to do.
It means to me one thing—something else to you.
It is beauty, it's solitude, it's everlasting peace.
It's nature at its finest—where man-made changes cease.
To put it in one sentence, the very best I can;
It is a maximum of nature and a minimum of man.

I stand upon a mountain. I look out across the hills.
I'm awed by vastness; my heart within me thrills.
In the distance is a river and a myriad of creeks,
Row on row of ridges and lofty mountain peaks.
But there are no roads or houses in the area I scan
For it's a maximum of nature and a minimum of man.

I sit beside my campfire when the sun is sinking low.
I hear an elk that bulges in a basin far below.
There's a bluejay scolding and a raven's raucous call
Then a peaceful silence settles softly over all.
With just the wind asoughing as it has since time began,
It is a maximum of nature and a minimum of man.

I come upon a fall within a rushing mountain stream.
There the mist is flying, and the crystal waters gleam.
In a pool some trout are swimming and close by an ouzel sings.
Above the roar of falling water, his multinoted ballad rings.
The water swirls and eddies just as it always ran.
There's a maximum of nature and a minimum of man.

I walk within a forest where few other men have trod.
I feel a part of nature. I'm much closer to my God.
I bow my head and humbly tell my gratitude
For nature and its wonders, for peace of solitude,
For the privilege to be a part of God's plan,
In a maximum of nature with a minimum of man.

Ralph S. Space (1901–1993) was raised on a ranch between Weippe and Pierce, Idaho, USA. He received a degree in forest engineering from the University of Idaho and spent his career working for the U.S. Forest Service. He was supervisor of the Clearwater National Forest from 1954–1963 and wrote a history of the Clearwater National Forest published by the U.S. Forest Service in 1964.

Wilderness @ Internet

Enhancing the Potential for Wilderness Electronic Communication

BY WAYNE FREIMUND AND LLOYD QUEEN

Abstract: *The internet may be the most rapidly advancing technology affecting wilderness use, protection, and management today. Thirty-five percent of American households and 50% of American teenagers have computers. Nearly all computers sold have a CD ROM and 57% of home computers are predicted to have modems by 1997. Home computer use illustrates the proliferation of personal computing that has already become a basic tool for most students and professionals. The internet is emerging as a computerized tool that literally links people across the globe and has the potential to impact the way we communicate wilderness issues, values, and ethics. The internet allows all parties to be producers of mass communication and to communicate with various constituencies. To capitalize on this medium, audiences must be defined and targeted. We propose an ensemble of wilderness managers, visitors, scientists, educators, students, environmental advocates, and policy makers as a set of critical audiences. The internet has the potential to efficiently facilitate a dialog among those groups internationally, thereby advancing wilderness interests.*

THE WORLD WIDE WEB (WEB) OR WWW IS EMERGING as a potentially important communication medium for discussing wilderness issues, but its potential is unlikely to be realized for some time. Most web page developments represent a process of turning existing analog data (e.g., brochures) into digital form. The ad hoc nature of the web allows developers to easily do this and further link their page to other pages of interest. However, the simplicity of this analog to digital transformation may lead to less than optimum use of the internet to improve wilderness use, management, science, education, and support by the environmental community. We propose a framework to guide the development and use of the web for wilderness, and the associated evolution of a wilderness "cyber-culture."

Article authors Wayne Friemund and Lloyd Queen.

Communication and the Cultures of Wilderness

The ability to debate ideas within a broad community has been instrumental to the development and galvanization of the wilderness ideal. In the summer of 1890, John Muir and Robert Underwood Johnson teamed up to publicize a proposal for what would become Yosemite National Park. This publicity occured in the nation's leading monthly magazine, *Century,* of which Johnson was an associate editor (Nash 1982). Within their plan, Muir articulated the wilderness values of Yosemite Valley while Johnson wrote supportive editorials and lobbied congress. They hoped to reach one million readers. This early action illustrates their recognition of the value of mass communication in developing a wilderness constituency and culture. This need for wilderness constituencies remains paramount today (Roush 1995).

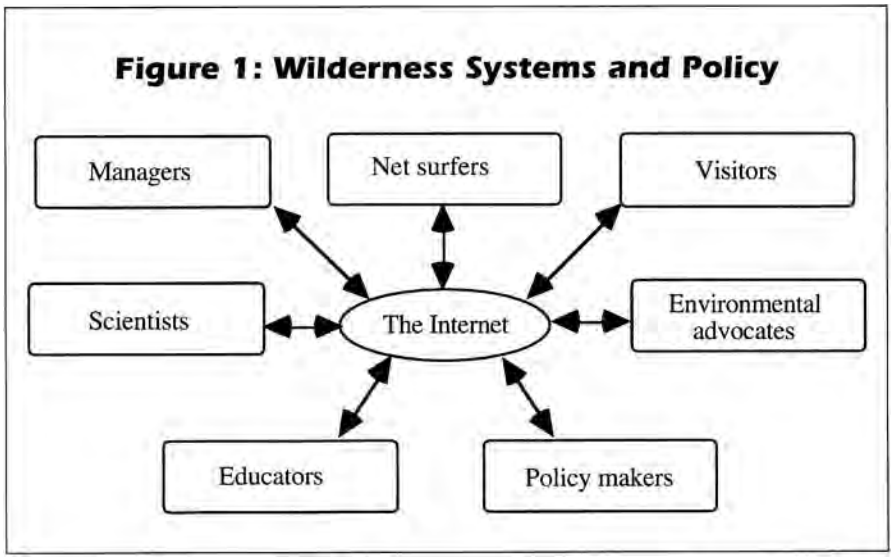
With the emergence of electronic communication, mass communication has become accessible to wider audiences. In the future, most people will be able to capitalize on the access to large, target audiences, such as Muir and Johnson enjoyed in 1890. So it is important that we think today about our strategies for communicating over the web with the many subcultures of wilderness that will be instrumental in the use, stewardship, advocacy, development, and transfer of wilderness information.

Wilderness has established a cultural niche in society and has spawned several subcultures of its own including: wilderness visitors, managers, scientists, academia (including students), environmental advocates, and policy makers. Therefore, it is important to facilitate communication among these subcultures at an international scale.

The Emergence of Digital Communication

Exposure to digital communication is an inescapable phenomenon. Most of our music has been digitally mastered and enhanced. Our telephones will continue to be a source of

(Peer Reviewed)



digital communication, and television reception will require the ability to decode digital information in the near future. Among all of the sources of digital communication, however, none is more profound than the desk top computer.

Computers have experienced enormous proliferation, and skill in their use is becoming a basic requirement for success as a student and in most careers. Through offices, schools, or public libraries, nearly any American has some degree of access to personal computers. The fastest growing segment of computer use is in the home.

The web provides the capability to move beyond one-way communication to an interactive mode.

In his 1995 book *Being Digital,* Nicholas Negroponte states that in 1994, 65% of the computers sold worldwide were for home use, and 35% of American households and 50% of American teenagers had a personal computer. Of the households that did not have a computer in 1993,31% were planning to buy one (Standard and Poor 1994), and 60% of these were households with children in school. Nearly all computers are sold with CD ROM capability and the percentage of home computers with a modem is expected to reach 57% by 1997 (Standard and Poor 1994). Modems provide access to the "Information Superhighway" (the internet and the web), which is an evolving communication standard of mainstream U.S. culture. This growth of computer use from the office to the home illustrates the pervasive role this communication medium is beginning to play. What started as an advanced calculator and typewriter has started to assume the role of telephone, fax machine, newspaper, library, shopping catalog, travel agent, entertainment source, and social forum.

It stands to reason that an increasing and substantial portion of the international wilderness dialog may occur within this digital domain during the next decade. Therefore, we can use these powerful tools to address information needs from the perspective of numerous wilderness subcultures (i.e., managers, visitors, scientists, academics, advocates, and policy makers) while encouraging interaction among them. We are concerned that such multicultural literacy is not being pursued or achieved in the wilderness domain of the internet. Sponsors of wilderness information on the internet generally provide information targeted to only one client group, such as wilderness visitors. Thus, in the context of the internet, there are many opportunities to rethink wilderness communication based on a multicultural approach that targets several subcultures of wilderness interest.

System and End Users

We support a focus on users. So rather than reviewing "who is providing what on the net," we propose a structure for assessing user applications in communicating wilderness issues and ideas.

Let's consider two types of users. *System users* are those who possess the technical skills needed to provide online capability. These are highly skilled technicians who build the applications and databases necessary to meet program goals set by system sponsors. But most of us are end users. *End users* are the audiences to whom an application is directed. Normally, end users are not as highly trained technically as system users, but it is their information needs that the system developers are trying to meet. Ideally, a needs assessment is conducted by system developers to identify target audiences. The target audiences are questioned about their information needs, desires, and aspirations and these user requirement analyses become a blueprint for designing the system.

In the case of the WWW, this classical approach to system design is rarely employed. Because of the global, unrestricted nature of the web, it is not possible to identify all end users. System users may identify and target a core audience, but the applications cannot, in all practicality, be restricted just to those types of users. Many of the people who access the system are performing ad hoc queries. They do not become "consumers" until after the web tool is built and they discover the situation by "surfing the net," often on the topic of wilderness. The growing abundance of search engines such as Web Crawler and wide-area-index-searches shows that users require ever more powerful tools to help them uncover information that is put out on the web. Yet, in spite of these clever and widespread tools, users often must spend a great deal of time iteratively narrowing their searches in order to find the information that meets their needs.

It is difficult, therefore, for system providers to know who the users are, raising a range of questions such as what is my audience, what are they doing with the data, and is that how I intended it to be used. Similarly, end users are asking where do I find the information I desire, how does anyone know what I desire, and would they act on that understanding if they did? We propose that wilderness on the internet be more explicit about who the parties are that need to talk to each other. We suggest viewing the basic cultures of wilderness as visitors, managers, scientists, academia, environmental advocates, and policy makers. These constitute six logical classes of provider and end user audiences for wilderness information on the internet. The casual net surfer may constitute a seventh audience that has the potential to join one or more constituency once they have surfed into an interesting topic. It could be that general surfers are one of the largest set of end users visiting wilderness pages today. How to effectively target this audience is a challenge worthy of a detailed discussion that is beyond the focus of this paper. Figure 1 shows the dialog paths that might exist between these types of wilderness internet users. The intent of this diagram is not to be all inclusive but rather to provide a descriptive framework that we can use to assess the state of wilderness providers and users on the net.

Reviewing a Web Application to Wilderness

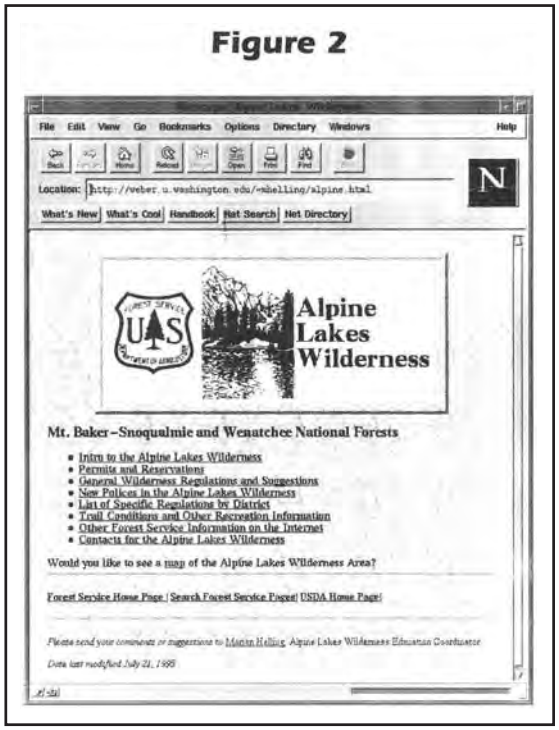
The Alpine Lakes Wilderness (ALW) home page is a premiere example of wilderness communication on the WWW. We review the ALW application to expand the potential for enhanced communication to additional wilderness subcultures, as shown in Figure 1.

Figure 2 shows the computer screen generated through a web search on the phrase "Alpine Lakes Wilderness." Screen icons are supported by the Netscape navigator, and the content was generated by system users at Alpine Lakes. The interface gives users three pathways for exploration, one alternative is to "click" on hotlinked items such as "Intro to the Alpine Lakes Wilderness," the other is to conduct further Netscape searches by clicking on "Net Search." Specific web locations (assuming the end user knows the URL [Uniform Resource Locator]) of a site can be accessed by using functions such as "Go." In reviewing the application, we followed each of the pathways supported by system developers.

Topically, the ALW home page and related hotlinks cover a broad spectrum of social and ecological topics. Our interpretation of the dialog paths is that the majority of communication is dominated by information flowing from the wilderness manager (provider) to wilderness users (end user). The target audience of the ALW home page is not specified, but certain informational elements are targeted to audiences such as day users and horse packers. The targeted page user appears to be people who are most likely to physically visit the area as opposed to "virtual" or web-based visitors. On the basis of the framework in Figure 1, this is a small portion of the potential audiences. The virtual visitor who happens upon the site will primarily encounter information that is management or regulatory in nature. Our review leads us to conclude that the first-time visitor gains much, but more experienced web site or real visitors (who physically go to the area) find comparatively little information. The page is essentially an "electronic brochure," and a good one. But there are opportunities to expand the dialog to other wilderness subcultures and to add an interactive format.

The end users are invited only to comment on the page. Thus, the potential two-way dialog between managers and visitors emphasizes one-way communication, with limited opportunity for interaction. This format may perpetuate missed links between providers and potential audiences.

Figure 2



For constructive purposes we offer several observations. With the exception of indirect hotlinks to other sites, access to other wilderness information is limited. There is not extensive use of graphics, nor is there a photo gallery or multimedia application. Access to maps is limited, and the one available map was generalized and not convenient to the user. When the text mentioned a "district," the user had to go to a separate page to get a map showing where the district was. Physical data, such as number of visitors, generally were unavailable.

A link is made to other US. Forest Service sites on the internet to broaden the information provided by the ALW page. This link will take the visitor to the web sites supported by national forests, forest service science projects, forest service-related information, and other cooperators and associations. Our confusion with this link is related to "who" the web developers were taking to these places. Since nearly all of the hotlinked sites were related more to the broader context of forest management than to wilderness, we could only assume that the target audience for this link is those people that access the ALW page because of a wilderness interest—but also wish to do some general browsing. For people

who don't fit into this category, such as the wilderness-only user, this seems an inefficient use of time; something very common to use of the web.

These observations are made with the recognition that building a web page is a time-consuming and complex exercise and that decisions about what to put on first will depend on the objectives of the area managers. It is not our intent to belittle an excellent resource for the wilderness community. The Alpine Lakes page presents an outstanding beginning which is why we selected it as our example for discussing a larger dialog and future opportunities for targeting other wilderness subcultures.

Discussion

The ALW home page makes extensive use of one dialog path, from managers to potential visitors. We think that other dialog paths to other wilderness subcultures (end users) are possible and may be valuable. Scientists may be interested in publications reporting studies or scientific information about Alpine Lakes. Managers may be interested in the status of management plans, environmental impact statements, visitor data, or creative solutions to management problems. Environmental advocates may desire current information on proposed additions or pending legal activity, while policy makers may be interested in staffing or budget numbers, presence of endangered species habitat, or reactions to proposed plans or legislation. The academic community may be interested in any or all of these items and the web surfer may be interested in a virtual visit or experience.

The web provides the capability to move beyond one-way communication to an interactive mode. Thus, page developers should be asking themselves not only what they want to tell other subcultures, but what they would like to know from them. Then they should structure their pages to gain that information. On-line questionnaires are easily developed with responses automatically compiled. The web could become a venue to present and compile information on issues ranging from visitor comments and questions to soliciting review on plans, environmental assessments, or impact statements.

Certainly, there are varying degrees of interaction that can be built into web pages ranging from posing information in the form of questions; to engaging end users in surveys, scenario building, and execution; to using multimedia techniques to guide them through a virtual visit complete with video navigation and sounds. Given the interactive capability of the internet, it is timely to ask "what are the appropriate uses of the web?" This raises some fundamental questions. Who is really using the web and why? What objectives do managers have for posting web sites? How far beyond information dissemination toward interpretation or an experiential mode should managers go in developing pages? Should the web emulate physical wilderness experiences? Can it? For whom? What should be left to the domain of the private sector? These are questions to ponder as the development of web pages continues.

Conclusions

There is a clear need to better understand the scope and needs of wilderness audiences at an international scale. We need to consider what information to provide, what questions to ask, and to whom we are addressing those questions. We should be asking ourselves where our web pages fit into the larger wilderness dialog and how we could improve our contribution.

A large cyber-culture of wilderness will emerge over the next five years. This culture will include wilderness visitors, managers, scientists, educators, environmental advocates, and policy makers, each as providers and consumers on the global network. Through this medium, people will become accustomed to expect immediate and thorough detail on a wide range of wilderness issues.

In the midst of rapid change, our inclination may be to simply try to keep up by translating our existing analog data to a digital form. Under this agenda we would all have system people put our story (brochure) on the internet. Undergoing these efforts without a clear understanding of our consumer audiences may be an inefficient and marginally productive use of resources. We hope that this will not be the long-term case and rather, that we will take advantage of this opportunity to learn together how to become connected and interact with the various wilderness subcultures. We should consider the WWW as a way of thinking and conversing rather than simply a form of mass communication. With the emergence of this medium we have both the opportunity and obligation to improve the access and quality of the global wilderness dialog. **IJW**

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[Editor's Note: The *International Journal of Wilderness* is one forum in which wilderness visitors, managers, scientists, educators, students, policy makers, and environmental advocates can communicate. We want to help expand this dialog with regular coverage of internet topics. Send us your ideas, letters to the editor, proposed articles, and reviews of web sites that further wilderness electronic communication. —J. C. H., Managing Editor; e-mail: wrc@ ui daho.edu.]

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Dimensions of Wilderness Privacy for Adirondack Forest Preserve Hikers

BY CHAD P. DAWSON AND WILLIAM E. HAMMITT

Abstract: *This study is a field test of a psychological scale to measure dimensions of privacy in wilderness environments. This field test was conducted with hikers at trailheads in the Adirondack Forest Preserve of New York state (USA), on lands with wilderness characteristics. A factor analysis of 16 items that were designed to measure aspects of wilderness privacy and solitude produced four factors: natural environment, cognitive freedom, intimacy and individualism. The rank order importance of the items and factors was very similar to previous reported research using this scale.*

CONGRESS MANDATED IN THE WILDERNESS ACT OF 1964 (US. Public Law 88-577) that federally designated wilderness areas must provide "opportunities for solitude." Since that time researchers and managers have struggled with defining and measuring solitude first as a component of social carrying capacity (e.g., Graefe et al. 1984) and later as a component of the Limits of Acceptable Change planning approach (e.g., Watson 1995). Indicators used to measure solitude have consisted mostly of crowding measures. These indicators have been based directly or indirectly on the number of users and their distribution in a wilderness area. Monitoring solitude by measuring the number of users or encounters has some advantages for managers (e.g., direct physical measurement is possible). However, the statistical evidence to support these concepts has proven difficult with research studies reporting low correlations between user densities, user encounters, and crowding (e.g., Graefe et al. 1984). Recently, researchers (Hollenhorst et al. 1994) have even suggested that the opposite of solitude is not crowding but rather loneliness and they have defined solitude as "a state of mind as well as a state of being or place."

Another approach to evaluating user experiences and solitude was developed with the multidimensional concept of privacy (Lee 1977; Twight et al. 1981; Hammitt 1982; Hammitt and Brown 1984; Hammitt and Madden 1989; Priest and Bugg 1991; Hammitt 1994). While solitude is generally defined as being alone or being apart from usual associates, privacy implies more of a place or state of freedom from unwanted intrusion or observation by others. This multidimensional approach is theoretically more representative of the many states and functions of privacy found in wilderness.

Hammitt and others (Hammitt 1982; Hammitt and Brown 1984; Hammitt and Madden 1989) developed a Cognitive Dimensions of Privacy Scale and a Functions of Privacy Scale. The two scales have been successfully field tested in a limited number of settings (Hammitt and Madden 1989; Priest and Bugg 1991; Hammitt 1994). The purpose of this paper is to replicate the studies of Hammitt and others using the Cognitive Dimensions of Privacy Scale in the state wilderness and wild forest areas of New York's Adirondack Forest Preserve.

Adirondack Wilderness Environment

The New York forest preserve in the Adirondack Mountains was protected in 1894 by the state constitution to be "forever kept as wild forest land." By 1989, the state-owned forest preserve lands included 2.3 million acres, which comprises about 40% of the publicly and privately owned Adirondack Park (6 million acres). The forest preserve lands in Adirondack Park were classified in four categories of land management and all four category definitions are based on wilderness characteristics (Table 1). Fifty-eight management units within the Adirondack Forest Preserve have been designated into the four land management classifications (Table 2).

The unit management planning process for these lands requires information on current recreational activities and use (State of New York 1989). To date, user studies have been conducted in very few wilderness settings in New York, and little is known about wilderness solitude or privacy in the Adirondacks (Alberga and Dawson 1994; Dawson et al. 1994).

Methods

Field interviews were conducted throughout the Adirondack Forest Preserve lands in the summer of 1993. Access to the forest preserve is mainly by trail from off-road parking, shoreline access for fishing, and boating access sites. In the spring of 1993, 32 different hiking access sites were chosen to represent the geographic variety of the forest preserve lands with all sites having hiking access and some also providing fishing or boating access. The emphasis was on hiking and land-based activities. A mail survey was designed to identify and measure hiking experiences and dimensions of wilderness-related use during 1993. The mail survey was sent during February 1994 to those users interviewed during the summer trailhead user study.

(Peer Reviewed)

Table 1: New York State Adirondack Forest Preserve

Wilderness: "A wilderness area, in contrast with those areas where man and his works dominate the landscape, is an area where the earth and its community of life are untrammeled by man—where man himself is a visitor who does not remain. A wilderness area is further defined to mean an area of state land or water having primeval character, without significant improvement or human habitation, which is protected and managed so as to preserve, enhance, and restore, where necessary, its natural condition." *[similar to the federal wilderness definition].*

Primitive: "1) Essentially wilderness in character but, a) contains structures, improvements, or uses that are inconsistent with wilderness, as defined, and whose removal, though a long-term objective, cannot be provided for by a fixed deadline, and/or, b) contains, or is contiguous to, private lands that are of a size and influence to prevent wilderness designation; or 2) of a size and character not meeting wilderness standards, but where the fragility of the resource or other factors require wilderness management."

Canoe Area: "An area where the watercourses or the number and proximity of lakes and ponds make possible a remote and unconfined type of water-oriented recreation in an essentially wilderness setting."

Wild Forest: "An area where the resources permit a somewhat higher degree of human use than in wilderness, primitive, or canoe areas, while retaining an essentially wild character. A wild forest is further defined as an area that frequently lacks the sense of remote wilderness, primitive, or canoe areas and that permits a wide variety of outdoor recreation."

Land Classifications Source: State of New York, 1989.

Table 2: New York State Adirondack Forest Preserve Land Acreage

Forest Preserve Area	Number of Management Units	Acreage
Wild Forest Areas	17	1,200,000
Wilderness Areas	16	1,017,000
Primitive Areas	24	61,400
Canoe Area	1	18,400
TOTAL	58	2,296,800

Source: State of New York, 1989.

The mail survey instrument included a 16-item Cognitive Dimensions of Privacy Scale based on the original 20-item scale proposed and field tested by Hammitt and Madden (1989). Four items were dropped from the original scale because of low reliability in the original study or due to low validity in this study.

A factor analysis was conducted similar to that reported by Hammitt and Madden (1989) with principal factoring using orthogonal varimax rotation to determine the dimensions of privacy from the 16 individual items and three criteria for inclusion: 1) factor loadings had to be 0.40 or greater for each individual item to be included in a factor; 2) eigenvalues had to be 1.0 or greater to retain a factor (i.e., the number of factors was not forced); and 3) the internal reliability of each factor must have a Cronbach's alpha of greater than 0.60 for it to be retained.

Results and Discussion

During 40 days of interviewing at the 32 access sites, a total of 375 users were asked to participate in a brief interview. Although 1,218 users were seen during the interview period, the interviewer could only talk to one person at a time and only one person from each group was approached for an interview. Ninety percent of those approached agreed to an interview. Of those 339 individuals interviewed, 298 provided an adequate mailing address or one that was still "deliverable" in February 1994. Fifty-five percent of the 298 mail surveys were returned after the initial mailing and two reminder letters were sent. The interview and mail survey data are used in the following analysis. Seventy-five percent of those interviewed were New York state residents, 13% were residents of the Adirondack Park, and 62% were state residents from all across New York (but outside the park). The other 25% were from outside New York, primarily the adjoining states and the provinces of Ontario and Quebec, Canada.

Dimensions of Wilderness Privacy

Users were asked to rate the importance of 16 items on the Dimensions of Wilderness Privacy Scale related to their use of forest preserve lands within the Adirondack Park in 1993. The possible responses were on a 7-point scale from extremely important (1) to not important (7). The three most important items, ranked by mean item score, were related to the conditions of the natural environment (Table 3). The rank order of the three most important items and the least important item was the same for the Adirondack hikers and the Great Smoky Mountains National Park backpackers reported in the original field test by Hammitt and Madden (1989). Adirondack respondents ranked "an isolated experience by yourself" higher than did the Great Smoky Mountains National Park backpackers. The other 11 items were similarly rank ordered between the

Table 3: Mean importance of 16 individual items in Cognitive Dimensions of Wilderness Privacy Scale for Adirondack Forest Preserve respondents in 1993 as compared with the Great Smoky Mountains National Park backpackers (Hammitt and Madden 1989). Rank order.

Great Smoky Mountains National Park Rank	Adirondack Rank	Item	Mean Rating*	Standard Deviation
1	1	The tranquility and peacefulness of the remote environment.	1.71	1.21
2	2	An environment free of human-made noises.	2.16	1.49
3	3	Being in a completely natural environment.	2.47	1.43
5	4	Control over the pressures and tensions of everyday life.	2.78	1.79
7	5	Free to limit attention to whatever you choose.	2.84	1.72
4	6	An environment free of human-made intrusions.	2.85	1.65
9	7	Privacy from most people, yet a personal relationship with my family or friends.	3.07	1.75
6	8	Freedom of choice as to actions and use of time.	3.10	1.81
8	9	Being yourself, free from the expectations of others.	3.44	2.01
11	10	A small, intimate group experience, isolated from all other groups.	3.71	1.82
10	11	Freedom to choose when and to what extent you have to speak and interact with others.	3.77	1.89
15	12	An isolated experience by yourself.	3.92	1.90
12	13	An opportunity to socialize with friends or family without being interrupted by others.	4.01	1.92
13	14	Being relieved from rules and constraints of society.	4.58	2.04
14	15	Free from observation by all other people.	4.61	1.97
16	16	An environment where I can assume an anonymous identity.	4.77	2.06

*Mean ratings based on a 7-point scale from extremely important (1) to not important (7).

two studies and no particular trend is evident in the differences between the two study item rankings. It should be noted that often very small differences in mean scores determined the ranking order within each study. The average mean score for each item in the Adirondack study indicated consistently greater importance than was found in the previous study of Great Smoky Mountains National Park backpackers.

The factor analysis of the 16 items of the Cognitive Dimensions of Wilderness Privacy Scale produced four factors (Table 4). All 16 items and four factors meet the factor loading and reliability criteria specified earlier. The four factors are very similar to those produced in Hammitt's (1982) study of college students and the five factors produced in the study of Great Smoky Mountains National Park backpackers (Hammitt and Brown 1989).

Natural Environment—four items were included in this factor and two of these were the highest ranked items: 1) the tranquility and peacefulness of the remote environment and 2) an environment free of human-made noises (Table 3). The four items included in this factor support the characteristics inherent in the definition of wilderness at the federal and state levels. This dimension is the most highly rated factor and is evidence of the importance of natural environments free from human intrusion as a solitude experience setting.

Cognitive Freedom—these items indicate that freedom of choice, behavior, and

Table 4: Cognitive Dimensions of Wilderness Privacy Scale based on factor analysis of 16 individual items for Adirondack Forest Preserve respondents in 1993.

Item	Factor Loadings	Mean Rating*	Factor Mean	Factor (Cronbach's) Alpha Value
Natural Environment			2.30	0.79
The tranquility and peacefulness of the remote environment.	0.65	1.71		
An environment free of human-made noises.	0.76	2.16		
Being in a completely natural environment.	0.77	2.47		
An environment free of human-made intrusions.	0.80	2.85		
Cognitive Freedom			3.04	0.82
Control over the pressures and tensions of everyday life.	0.57	2.78		
Free to limit attention to whatever you choose.	0.88	2.84		
Freedom of choice as to actions and use of time.	0.83	3.10		
Being yourself, free from the expectations of others.	0.47	3.44		
Intimacy			3.70	0.78
Privacy from most people, yet a personal relationship with my family or friends.	0.70	3.07		
A small, intimate group experience, isolated from all other groups.	0.70	3.71		
Freedom to choose when and to what extent you have to speak and interact with others.	0.72	3.77		
An isolated experience by yourself.	0.48	3.92		
An opportunity to socialize with friends or family without being interrupted by others.	0.75	4.01		
Individualism			4.66	0.79
Being relieved from rules and constraints of society.	0.80	4.58		
Free from observation by all other people.	0.76	4.61		
An environment where I can assume an anonymous identity.	0.71	4.77		

*Mean ratings based on a 7-point scale from extremely important (1) to not important (7).

use of time are central to the concept of freedom from human intrusion by other users or wilderness managers. Being free from the expectations of others includes personal autonomy from social interactions and societal requirements (e.g., management regulations). The fourth item in this factor is the personal freedom to use one's attention as the individual chooses. This probably relates to the emotional release from societal pressures and tensions as well as the positive

conditions arising from exploration, play, and leisure in a wilderness setting.

Intimacy—three of the five items in this factor demonstrate that users want social interaction with other members of their own group but not with other groups: 1) privacy from most people, yet a personal relationship with my family or friends; 2) a small intimate group experience, isolated from all other groups; and 3) an opportunity to socialize with friends or family without being interrupted by others. This factor was ranked as the third most important. Only 17% of the Adirondack users were recreating alone on the day of their interview and the isolated experience item may relate more to opportunity for periods of isolation within the intimate group than isolated trips by oneself.

Individualism—this dimension of privacy was ranked fourth in importance and is related to the cognitive freedom factor in that individualism or personal autonomy may be a necessary condition to achieve cognitive freedom. This factor emphasizes the individual identity and the need for a temporary respite from the rules and constraints of society.

Conclusions

This study further tested and verified the Cognitive Dimensions of Wilderness Privacy Scale in a different setting from those reported previously (Hammitt and Madden 1989). The Adirondack Forest Preserve users represent a wide variety of user types, residence backgrounds, and activity interests, and the physical resource of the forest preserve represents a diversity of geographic locations, degrees of wilderness characteristics, and facility support for recreational activities. Given the potential for a high degree of variability, this study has demonstrated the utility of this scale to measure the multidimensional aspects of privacy in wilderness settings. The naturalness of the environment (peace and tranquility free of human-made voices, completely natural) were the privacy items most highly rated by Adirondack visitors and by visitors to Great Smoky Mountains National Park (Table 3), and factor analysis of all items revealed that items related to the natural environment formed the strongest cluster of items measuring privacy.

The results of this privacy scale field test suggest that measures of solitude and privacy may be important additional dimensions to attempt to quantify and incorporate into wilderness planning and management. The privacy scale may be a better measure of a user experience than other measures, such as satisfaction or user density, that have been tried with limited success. The use of the privacy scale to compare the different or similar experiences sought by different types of users would be helpful for managers. The privacy scale should be used in conjunction with measures of solitude achieved and encounter measures to be most useful for wilderness management. For example, such combined knowledge assists managers in developing informational programs (e.g., expected number of group-to-group encounters), wilderness management actions (e.g., campsite placement), and regulations (e.g., minimizing directives) that take into account the achievement of user privacy and solitude.

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Mechanized Access in Australian Wilderness

BY ROSS SCOTT

Abstract: Following an overview of conflicts between mechanized access and protection of wilderness values, a summary of approaches to regulation of mechanized access in nine jurisdictions of Australia is provided. Seven principles are proposed for inclusion in a consistent national approach to regulating mechanized access to wilderness.

EXCLUDING MECHANIZED ACCESS FROM WILDERNESS, except for essential management purposes, has long been recognized as a fundamental principle of wilderness management.

For example, the United States Wilderness Act includes some exceptions concerning pre-existing private rights, but the intent to prohibit nonmanagement mechanized access is clear. The International Union for Conservation of Nature and Natural Resources has also recognized the need to exclude mechanized access from wilderness: "Wilderness areas do not provide for mechanized forms of recreation and tourism." (IUCN 1990)

This principle has also been reflected in Australian attitudes toward wilderness management. This was noted in the Council of Nature Conservation Minister's discussion paper on Wilderness (CONCOM 1985 and 1986) and numerous other subsequent efforts such as Victoria's Land Conservation Council (LCC 1991).

Most recently, the Draft National Code of Management of Wilderness Areas in "Wilderness in Australia: Issues and Options—A Discussion Paper" (Robertson et al. 1992) suggested that mechanized access be restricted to essential management and emergency purposes, and "where required by Aboriginal people to enable Aboriginal cultural responsibilities to be fulfilled as agreed in the management plan for the area "The code also specifies the closure and rehabilitation of existing vehicle tracks, airstrips, and helipads except in special circumstances; prohibits the construction of new such facilities (except for temporary helipads in emergency situations); and limits over-flying to above 5,000 feet except for essential management and emergency situations.

Conflicts Between Four-Wheel-Drive Vehicles and Wilderness

Most wilderness legislation, codes, and policies in Australia include a reference to the exclusion of recreational vehicles and to the provision of opportunities for solitude and self-reliant recreation. The use of vehicles in wilderness directly conflicts with such opportunities. In a continent where four-wheel-drive vehicles often proliferate on public land, wilderness areas are one of the few places where such vehicles are not permitted, although illegal vehicular access is a major management problem for some areas.

Illegal use of a four-wheel-drive vehicle on a management track, Pilot Wilderness, New South Wales. (Photo by Ross Scott.)

The extent of four-wheel-drive vehicle tracks in many parts of Australia is such that the definition and management of wilderness areas must out of necessity include a few such tracks within wilderness areas. To argue that only totally trackless areas should be reserved as wilderness is in effect to condemn large areas of high wilderness quality to other land-uses that will generally allow activities that will degrade the wilderness quality of the overall area. The four-wheel-drive vehicle track network has in many regions been developed far beyond the extent needed for basic management requirements, even for areas not proposed to be managed as wilderness. Hence the closure, rehabilitation, and revegetation of four-wheel-drive vehicle tracks must be an essential component of the management of most wilderness areas.

Both the construction of four-wheel-drive vehicle tracks and their use by motorized vehicles can have negative impacts, which directly conflict with wilderness values and the quality of wilderness experiences. These include: reduction of water quality; erosion; siltation of streams; increased littering, including discarded vehicle parts, wildfire, vandalism, and environmentally aberrant behavior; spread of weeds and of plant diseases such as dieback; increased pressure for the establishment

of facilities such as toilet blocks, picnic tables, etc.; noise from vehicles, generators, and sound systems; light pollution; loss of rare and/or distinctive flora and fauna due to illegal removal by smugglers, over-fishing, and illegal hunting; incremental upgrading and widening of tracks to, or toward, two-wheel drive standard; illegal interference with native fauna; introduction of chainsaws, firearms, domestic pets, and other agents whose use or presence is in conflict with wilderness protection; road-kills of native fauna; rubbish-dumping; illegal removal of rock, timber, and firewood; danger to walkers and beach-users by unsafe driving practices such as excessive speed; greater camping impacts than for walkers; exhaust fumes; reduction of the bushwalking value of tracks by creation of dust and mud; reduction in the experience of remoteness and solitude for bushwalkers and other wilderness users; introduction of lost or dumped domestic animals; disturbance and destruction of historic, archaeological, and cultural sites; soil erosion; and destruction of vegetation from creation of new tracks where none existed before.

A Presumed Right to Mechanized Access

Four-wheel-drive vehicles and trail-bikes have legitimate uses on many categories of land that are not wilderness. Unfortunately, however, the extensive development of four-wheel-drive vehicle tracks by managers and resource-users, and the proliferation of four-wheel-drive vehicle ownership in recent decades has led many four-wheel-drive vehicle users to assume a "presumed right of maximum possible access"—an attitude that they have a right to take their vehicles wherever there is (and often where there is not) a suitable track, beach, or riverbank. This presumed right is not soundly based; almost all four-wheel-drive vehicle tracks were established specifically for land management, fire protection, or resource utilization purposes rather than for recreational purposes. Many are totally unsuitable, due to factors such as steepness and erodibility for any but occasional usage, rather than the heavy recreational usage to which some are subjected.

While many four-wheel-drivers use four-wheel-drive vehicle tracks to enjoy and gain access to natural environments, many also seek the experience of "adventure driving," including activities such as winching vehicles up the steepest of slopes, lunging them through creeks and gullies, and driving on heavily eroded tracks, causing or exacerbating environmental damage in the process of pitting man and machine against nature. However, despite the best efforts of the "tread lightly" campaign and other educational programs, such activities are effectively impossible to control.

Economics and Elitism of Four-Wheel-Drive Vehicle Access

Four-wheel-drive vehicle use is in many cases elitist compared to alternative means of access, such as walking. The high cost of most makes of four-wheel-drive vehicles (often tens of thousands of dollars greater than the equivalent quality two-wheel-drive vehicle), combined with high maintenance costs and generally poor fuel economy, ensures that the vast majority of the population will never be able to afford to own or run such vehicles. Imported four-wheel-drive vehicles are, according to motor vehicle industry sources, heavily subsidized by the taxpayer *(TheAustralian* 1991). Because they are designated as commercial vehicles, prior to the 1993 budget they attracted a duty of only 20%—half of that for other imported vehicles of similar values. Motor industry sources estimated the degree of subsidy as being up to $7,000 per vehicle, projected to a total of $993 million for the period from 1990 to 1996. The combined duty and sales tax on imported four-wheel-drive vehicles is only 69% of that payable on conventional vehicles. Rather than being penalized for their poor environmental specifications (whether measured in terms of energy inefficiency or environmental impact), four-wheel-drive vehicles are actively supported by the Australian tax system.

The argument commonly used by four-wheel drivers—that exclusion of vehicular access involves discrimination against the unfit, the old, and the disabled—is deeply flawed. The logical solution to lack *of* fitness is not the purchase or hire of an expensive four-wheel-drive vehicle, but rather to get fit—a much more practical, cheaper, and healthier alternative. The elderly have generally had ample opportunities to walk through much vaster, more pristine, and more numerous wildernesses than those to which younger generations have access today, and many bushwalkers in their seventies who still take off into the wilderness with as much enthusiasm and alacrity as younger walkers. In any case, ample opportunities exist for the disabled, the elderly, the very young, and the unfit to experience the natural environment in slightly more developed settings and on the edges of wilderness.

The exclusion of vehicles from wilderness is scarcely an unusual or unique proposal, as there are other categories of public land from which both motorized recreationists and bushwalkers are prohibited, despite their attraction in some cases to both sectors. Lighthouse land, Department of Defense land, public forest that is being logged, some water catchments, Aboriginal sacred sites, public pine plantations (in Victoria), and public native forest allocated to timber companies (such as the Florentine Valley in Tasmania) are all out of bounds.

Impacts From Non-Four-Wheel-Drive Vehicle Mechanized Access

Although mountain bikes and other bicycles have a much lesser environmental impact than motorized vehicles, in most terrain they require formed tracks and, although very much at the simpler end of the technological spectrum, they still constitute mechanical products of the technological society from which most wilderness users seek some respite in

wilderness areas. Their ability to traverse terrain at speeds faster than walkers conflicts with the sense of solitude, self-reliance, and distance from modern technological society sought by most wilderness users. Although their noise levels are lower than those of motorized vehicles, this constitutes a hazard to walkers by potentially increasing the risk of collisions and resultant injury

Snowmobiles may have impacts on vegetation and wildlife, but their major impact is on the experiences sought by, and the safety of, cross-country skiers. Although prohibited in wilderness areas/zones in the relevant states (except for essential management and search and rescue purposes) illegal use by snowmobiles from adjacent ski resorts is a potential problem.

Airplanes and helicopters impact mostly on those seeking remoteness and solitude in wilderness areas, with the main problems being noise and the frequency and regularity of flights. The major environmental problem occurs if landing is provided for, due to the obvious physical disturbance caused by airstrips and helipads.

Motorboats and other motorized watercraft can create problems similar to many of those listed for wheeled vehicles, with the added potential problems of oil and fuel spillage, disturbance of bird life, and riverbank erosion. Large commercial tourist boats have caused such severe bank erosion on the Lower Gordon River in Southwest Tasmania that they are now prohibited from the upper two-thirds of their previous range.

Approaches to Controlling Mechanized Access in Wilderness

Each state and territory government takes a different approach to dealing with mechanical access to wilderness. Some examples (which is not a fully comprehensive review) are included here. The provisions for controlling mechanized access to wilderness clearly vary from strong to nonexistent, are not consistent from state to state, and where they do exist are not always applied to the fullest effect.

Rubbish left by four-wheel-drive users, Jardine River, Cape York Peninsula, North Queensland. (Photo by Ross Scott.)

New South Wales

The Wilderness Act of 1987 requires that wilderness "shall be managed so as to permit opportunities for solitude and appropriate self-reliant recreation" (clause 9[c]). A wilderness protection agreement covering land controlled by statutory authorities and other government departments may prohibit "except where necessary for health or safety or essential management reasons or in emergencies, access to the area by motor vehicles, motorboats, and other forms of transport" (clause 12[l][c]). However, there is no general provision specifically prohibiting the recreational use of vehicles in wilderness areas.

The National Parks and Wildlife Service's Wilderness Conservation Policy (NPWS 1989) requires "the maintenance of opportunities for solitude and compatible self-reliant recreation and exclusion of activities which conflict with or diminish these opportunities" (1.10.12). It also restricts motorized access to management operations where the operations are necessary, free of any significant long-term impacts, and, for which there is no feasible option, require any mechanical personal transport to be manually powered (1.10.13).

Victoria

The National Parks Act of 1975 requires that the director of National Parks "must ensure that opportunities are provided for solitude and appropriate self-reliant recreation in a wilderness park" (clause 17A3[a]) and "must ensure that in a wilderness park ... there is no use of motorized or mechanical transport" (clause 17C[c]). The use of motorized or mechanical transport "which the director considers is essential for the responsible management of the park" is permitted (clause 17C222[a]). Current vehicular use of remote and natural areas is permitted, but the widening or upgrading of existing roads or tracks (and construction of new roads and tracks) is not allowed (clause 21C [2]).

South Australia

The Wilderness Protection Act of 1992 contains no provisions specifically prohibiting vehicular access to wilderness protection zones or wilderness protection areas, but allows mining operations (which would presumably require vehicular access) in wilderness protection zones. It also provides for regulations to be made to regulate, restrict, or prohibit the use of roads or tracks, and the use of motor vehicles or other vehicles, in wilderness protection areas or wilderness protection zones, to empower the director to fix speed limits for vehicles driven in such areas, and to provide for the

impounding, removal, or disposal of any vehicle found in such areas in contravention of a regulation. A Wilderness Code of Management, which includes provisions covering the use of vehicles, has been prepared, as required by the Act. Despite the provisions for vehicular access, it is recognized that the intent is that in most cases, vehicular access would be prohibited by the management plan for each wilderness protection zone/area.

Western Australia

The Conservation and Land Management Act of 1984 provides for the designation of areas as wilderness but does not specify access restrictions.

The draft policy on the Management of Designated Wilderness Areas (CALM 1991) includes the objective of maintaining opportunities for self-reliant recreation (para. 3.2), a prohibition on the use of any mechanized transport except for emergency or essential management operations (para. 4.7), a commitment to liaising with air transport authorities to discourage over-flying under 2,000 feet, except for emergency and essential management operations (para. 4.8), and a prohibition on the landing of aircraft except for emergency and essential management operations (para. 4.9). It also includes a commitment to endeavoring to ensure that access by Aboriginal people to their sites of significance is as far as possible by means compatible with the maintenance of wilderness quality (para. 4.19).

Zoning of parts of national parks as wilderness, and management requirements for such zones, are dealt with on a case-by-case basis.

Northern Territory

The Territory Parks and Wildlife Conservation Act of 1984 prohibits the use within a wilderness zone of any vehicle, aircraft, or vessel except by the Conservation Commission for the Northern Territory (CCNT) for essential management purposes and in accord with the relevant management plan. No wilderness zones in parks controlled by the CCNT have yet been established, but vehicular access is prohibited from "minimum use zones" in a number of parks.

Kakadu National Park (which is managed by the Australian Nature Conservation Agency in conjunction with the Kakadu Board of Management) includes a substantial wilderness zone covering the escarpment country. The Commonwealth National Parks and Wildlife Conservation Act of 1975, under which the park is managed, provides for the declaration of wilderness zones, but does not deal with access matters. Access to the wilderness zone specified in the management plan is stated as: "The only tourist access that will be considered will be on foot with overnight camping by permit only." Flights over wilderness are proposed to be limited to above 5,000 feet, subject to agreement by the Civil Aviation Authority (ANPWS and KNPBM 1991).

Queensland

The Nature Conservation Act of 1992 requires wilderness areas to be managed to "provide opportunities for solitude and appropriate self-reliant recreational and spiritual activities" (clause 24 [c]), provides for the declaration of wilderness areas, and requires the specification of the declared management intent for such areas (clause 40[2Xb]). However, no such wilderness areas have yet been declared, and the section of the Act relating to the preparation of conservation plans (that would specify constraints on access) for such areas has not yet been proclaimed.

Australian Capital Territory

Namadgi National Park contains a wilderness zone in which vehicular access is permitted for management purposes only. The Nature Conservation Act of 1980 includes provisions for wilderness zones and for the continuation within such zones of pre-existing vehicle use.

Tasmania

Current state legislation does not provide specifically for the protection of wilderness. The Tasmanian Wilderness World Heritage Area Management Plan (DPWH 1992) includes detailed provisions for the control of mechanized access. These include the following:

- In Wilderness and Self-Reliant Recreation Zones, "mechanized access will be limited to management purposes, and then only where there are no feasible alternatives" (paras. 5.1.2 and 5.2). In Wilderness Zones, "aircraft operators will be encouraged to avoid overflying the zone," and in Self-Reliant Recreation and Recreation Zones, they "will be encouraged to follow voluntary flight guidelines when overflying this zone."

- Mechanized access areas overlie parts of these zones to allow the controlled use of motorized watercraft (including floatplanes) in locations such as the Lower Gordon River and Port Davey, and in the area of wheeled vehicles, subject to a permit system (para. 5.5).

The exclusion of vehicles from wilderness is scarcely a unique or unusual proposal.

- Civilian aircraft are allowed to fly under 500 feet only in case of emergency (under Civil Aviation Regulations).

- Helicopter landings are permitted only for search and rescue and management operations, and in other cases only where consistent with zoning objectives.

- Motorized watercraft are prohibited from waters that are small and readily enclosed, or not readily accessible.

A Possible National Approach

Although it is desirable that there be a consistent national approach to dealing with mechanized access to wilderness,

it is difficult to determine a detailed, prescriptive model equally applicable to all wilderness areas/zones in Australia due to a number of factors such as different established uses, different land tenures, and the rights of Aboriginal people. However, some basic principles can be established:

1. Mechanized access should only be permitted for essential management purposes, for search and rescue, essential fire suppression and similar emergency purposes, for essential scientific research unable to be conducted elsewhere, and by Aboriginal people for specific cultural reasons.

2. Existing roads, four-wheel-drive vehicle tracks, airstrips, and helipads not clearly justified and documented in a management plan as being required for the purposes described in point 1 should be closed to public access by permanent and effective means and should be rehabilitated as far as possible to the condition of the pre-existing environment. The medium to long-term objective would be to close and rehabilitate all such facilities.

3. No new roads, four-wheel-drive vehicle tracks, airstrips, or helipads should be constructed, except for temporary tracks and helipads in exceptional emergency situations, with rehabilitation of such facilities as soon as possible after they cease to be required.

4. In cases where the only viable access to remote communities requires use of a pre-existing road or track that traverses an area of wilderness values, the road or track should be included within a narrow, legislatively controlled corridor, managed to minimize impacts of vehicular access rather than within the legislatively designated wilderness area or zone itself. In cases where general recreational mechanized access is to be allowed in areas of wilderness values, a different name, such as remote or primitive area, should be applied.

5. Over-flying should be minimized, tightly controlled, and limited to an altitude sufficient to minimize effects on those using wilderness for the experience of solitude and for self-reliant recreation and to minimize disturbance of wildlife.

6. Very substantial minimum penalties for breaches of access controls should be imposed. For example, mandatory and permanent confiscation of the vehicle concerned, and/or loss of driving license. (Similar types of penalties are commonly applied in cases of fishing and firearms offenses.)

7. All of the previous principles should be included as far as practicable in legislation rather than solely within management plans.

While national wilderness legislation covering all wilderness in Australia would be an ideal means of implementing these principles, such legislation is unlikely in the near future. In the meantime, their inclusion in all state, territory, and Commonwealth national parks and/or wilderness legislation would greatly improve both the protection of wilderness and the quality of the experience sought by low-impact, non-mechanized users of wilderness.

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The Educo Program—
Drawing Forth Wisdom and Leadership in the Global Community

BY PERI CHICKERING

Abstract: Educo was established in British Columbia, Canada, in 1969 as a summer adventure program for young people. Educos mission is to create change in the world by drawing forth wisdom, compassion, a sense of purpose, and leadership in people of all ages and cultures through wilderness-based experiences. In 1988, Educo in Colorado (USA) was established as a sister organization. New schools are now underway in Australia, Brazil, Bulgaria, France, Korea, and South Africa. A progression of sequential, adventure/challenge courses, designed around the developmental stages of adolescents, provides opportunities for young people to discover their own depth and inner resources. For those over the age of 18, courses emphasize leadership, diversity, and identifying personal missions. In 1990, Educo implemented a pilot, tri-continental youth exchange program with Russians, Americans, and Africans all participating in the field together in Botswana.

Golden-orbed, the sun
lifts its perfect fullness over the earth's edge
and gently blows sweet breath
low over the land.
Cold darkness melts into the dry thorny heat
of lion-roar.
Springbok gentle, jeweled bird song,
grass that whispers—
the silence echoes.
And my crying heart
is soothed
in the vast stillness
of this ancient, shimmering land.
My hand
is wet with tears
as I reach out and touch
the face of God.
— *"Firewoman," Ainsley Taylor, on solo, Botswana 1995*

I SIT IN THE LIGHT OF A SMALL VIGIL FIRE. A brown hyena's shadow runs briskly across the open desert pan. Lions incessantly groan their frustration with the full moon. Each month they must hunt their prey without a darkened night. The same moon creating for me a sense of peace and meditation, creates for them restless irritation and waiting. Thus, the timeless cycles of the central Kalahari carry on, and I find myself sitting quietly in the midst of what seems to be eternity itself.

Sleep pulls at my eyelids in these early morning hours, but the magic of the central Kalahari plays powerfully upon my soul. The shelter of my fire in the small Acacia grove does little to ease my watching and listening through the night. Until the course participants' two-day solo is complete, I know I will not rest. My heart says all are safe in their tents, but only late tomorrow evening when each one appears in the flesh will I be able to relax and give an eager ear to their poems and stories. A jackal screams. I jump to my feet instinctively, heart racing. Then, I sit again to await the rising sun. This life I have created for myself and others I would not trade, bringing the Educo School of Colorado to the wild, mysterious beauty of the Central Kalahari in Botswana.

In 1990, Educo of Colorado was given seed money to coordinate a pilot tri-continental youth exchange program with Russians, Americans, and Africans. Through a close friend, Vance Martin and the WILD Foundation, we established a liaison with the Department of Wildlife and National Parks (DWNP) and the National Youth Council (NYC) of Botswana. After introductions through Vance, Kgoberego Nkawana of DWNP and Nonofo Molefhi of NYC invited Educo to Botswana to initiate the first tri-continental wilderness youth leadership program. In July of 1991, a delegation from Russia, the United States, and Botswana met in Gaborone to begin a 25-day leadership program. The logistics of this first experience bordered on the impossible. Yet by the time the program commenced everyone was safely gathered. The Russians came 2,000 kilometers via truck from Zambia, because that was as close as Aeroflot (the Soviet airline of that era) could fly. The Americans transited through South Africa which was then a hotbed of apartheid controversy. The Botswana delegation came from several of their hometowns throughout the country. Thus began a most unusual experience of culture, language, tradition, and boundaries. Such was the initiation of Educos work with international leadership training and development.

Rock-climbing experiences let the staff work directly with the powerful and basic emotions of fear, joy, anger, and sadness which provide a mirror for each student's internal landscape. (Photo by Mary Miller.)

History and Background

"Dear Educo,
I love spending time up in the mountains, backpacking, rock climbing, and learning the wonders of nature. I made some good friends. My life has changed ever since. Thank you!"
—Emmit Hancock
(Coloradoan, age 12)

Established in 1969 as a summer adventure program for young persons, Educo was part of a wave that came from Britain bringing outdoor programs to North America. Outdoor-based, experiential learning programs began with the development of the first Outward Bound school in the United Kingdom in 1941. Kurt Hahn, a German-born educator, created this highly active, hands-on educational approach to prepare young people to meet the stresses of wartime and instill in them a "will to live." This concept came to North America in the 1960s. (See "Outward Bound and Wilderness," *IJW* Volume 1, Number 1.) At that time several different models were started: Colorado Outward Bound school and the National Outdoor Leadership School in the United States and Educo Adventure School in British Columbia, Canada. In 1988, Educo of Colorado was established as a separate sister organization to the one in Canada.

Educo's youth curriculum consists of sequential courses designed around the developmental stages of adolescents. This progression of adventure/challenge courses are the backbone of Educo's work with preteens and teenagers. These courses provide intensive opportunities for young people to discover their own depth and inner resources. Individual attention is given to each student's unique potential and sense of self-worth. Participants are encouraged to return several years in a row, and some move on to become junior staff members, providing important peer mentoring to new participants. These junior staff form the cornerstone of those who become senior staff and go on to have significant influence on the long-term vision and direction of the school.

"I realized that I can be a leader without doing spectacular things, but just by being myself and living my truth."
—Taranti Maiolini (France)

For those over the age of eighteen, courses are specifically geared toward leadership development and emphasize learning to work with diversity, multiculturalism, and personal mission statements. Through direct cross-cultural experiences, participants learn how to find common ground through divergent frames of culture and tradition. In the wilderness, learning to work with a diverse group of individuals to form a team becomes not just an exercise, but a necessity Because Educo programs value diversity, we seek to create a style of leadership which gains strength from drawing on differences, a vital skill for effectiveness in today's world.

"The program gave a sensation of balance between me and nature, *my* things and the things of the Earth, *my* world and the world."
—Rosana Kisil (Brazil)

Mission

Educo's mission is to create change in the world by drawing forth wisdom, compassion, a sense of purpose, and leadership in people of all ages and cultures through wilderness-based experiences. Educo—the Latin word *educate,* meaning to draw forth—stands for experiences of diversity, unity, challenge, and opportunity. We believe that the destiny of the global community is determined by individual contributions. These contributions are not bestowed or taught, but drawn forth in situations designed to inspire and elicit personal vision and action. Nowhere is the process of inspiring individual wisdom and insight more accessible than in a wilderness setting. Why wilderness? Wilderness is the most powerful environment through which to experience both personal and collective wisdom. The simplicity and immediacy of the wilderness provides an elemental meeting place for people from all cultures, traditions, and backgrounds. The interconnectedness of all life systems is so tangible. In nature every life form has its own unique purposes and makes its own contribution to the larger ecological community. This mirror awakens ancient, subconscious memories of one's place in this world out of which respect, humility, and a deep sense of wonder return. This direct, personal discovery leads straight into the reality of one's own soul, creating the foundation for leadership.

"Mixing with others and sharing together as one community taught me to understand different attitudes and to be prepared to accept people the way they are. I am looking forward to interacting with young people

in my own community and to relay what I have learned here."

—Lindenkosi "Mancane" Nbibongo (South Africa)

As a wilderness-based school, Educo looks much like any adventure challenge opportunity. It is proud to share this field of work with numerous other exemplary organizations who are dedicated to having an impact on individuals and their respective communities. In fact, much of Educo's vision and mission was born from supporting and witnessing the significant work being done by many others in the fields of wilderness-based learning and nontraditional education. It is no accident that the tradition of this type of hands-on, experiential learning is making a comeback. The need for modes of learning which focuses on educating the whole person, not just the intellect, is being recognized as increasingly crucial. In a recent article m *Time* magazine," The EQ Factor" reveals that "new brain research suggests the emotions, not IQ, may be a true test of human intelligence." (Gibbs 1995). This very process of emotional education and self-awareness drives Educo's work.

Teaching From the Heart: a Tradition of Spirituality and Transformation

"It was the most profound experience of my life. Educo's approach touched me deeply: the ecology of the environment (contact with nature and the relationship of man with his environment); social ecology (the relationships between people, the group work ...); and the interior ecology, (the internal work of spiritual development). Things unfolded without pushing, by using the language of the heart."

—Pedro Jovchelevich (Brazil)

All Educo courses combine a unique spectrum of activities to develop diverse skills and address different learning styles. They include hiking and backpacking, storytelling exercises, mask-making, daily check-ins, and time for reflection and writing. Rock-climbing experiences let the staff work directly with the powerful and basic emotions of fear, joy anger, and sadness which provide a mirror for each student's internal landscape. These experiences become conscious metaphors and draw parallels with their families, professions, and communities. Connections between these challenges and the rest of their life becomes clear.

This is a crucial part of the Educo experience. Unless the deeper implications for the experiences are being seen beyond the wilderness context, the staying power of the process will be greatly diminished. Therefore, as a school reaching for the 21st century, we emphasize work relevant to persons' daily experiences and livelihood.

Along with developing a deeper sense of environmental ethics and leadership by personally inspired vision, Educo draws forth self-awareness and a sense of purpose.

Accomplishing this for a 10-year-old girl from a middle-class family in Denver, a 26-year-old young man from India, and a 46-year-old woman from Australia requires artistic interventions and constant attention to course content and design. Thus, Educo spans a wide range of learning styles and developmental issues, with course designs that have personal direction and meaning to achieve our mission and make connections with the global community.

Educo's central strength is the capacity to tailor experiences to diverse circumstances, age groups, cultural contexts, and needs of the moment. Each course is a unique experience. The Educo staff must be trained in the art of this type of work rather than the mere form of it. Thus, concentration is placed on designs and processes that empower people rather than simply structuring 10-day outdoor experiences. Staff training and development is an ongoing priority both locally and internationally. By far the largest part of Educo's work overseas is training young leaders who work with youth in their local communities and countries. Training the trainers allows Educo to touch many more people than simply working with participants directly.

A Base Camp to Reflect Educo's Values

In 1992, the Manitou Foundation donated 40 acres of land in the Sangre de Cristo mountain range of Colorado to help us establish a base camp. For hundreds of years this area of Colorado has been used for transformational processes. Native Americans used it for vision quests, ceremonies, and personal retreats. Shamans came to deepen their healing wisdom. Called the "Bloodless Valley" because no wars have ever been fought in this sacred place, it carries an energy of centering, perspective, and spiritual power which has been honored throughout history by the indigenous people. Given Educo's mission of drawing forth wisdom in people of all ages and a profound sense of honoring the sacred in all things, this particular gift of land came as no coincidence.

Understanding that there is a design to the universe and, therefore, potentially to our individual lives, is a fundamental principle inherent in what indigenous people call natural law. Teaching the reality of natural law as a part of Educo courses provides countless opportunities for a deeper experience of a true environmental ethic, coupled with an active invitation to see oneself as a powerful part of creation, instead of separate and isolated. Thus, care and stewardship of Earth is a way of living, not just a passing metaphor.

Along with developing a deeper sense of environmental ethics and leadership by personally inspired vision, Educo draws forth self-awareness and a sense of purpose. Coming to know oneself as a unique and gifted individual, a natural experience of personal strength and power is attained. From this place of personal acceptance, that wisdom and leadership in a larger context of community and work springs forth.

Empowering Youth Around the World—the Sound of Many Waters

> "The chance to explore the wilderness really changed my attitude toward the environment."
>
> —Linenkosi Ndibongo
> (South Africa)

The Botswana program in 1990 began Educo's multicultural leadership work. Since then, Educo's influence has spread to six of the seven major continents. New schools are underway in Australia, Brazil, Bulgaria, France, Korea, and South Africa. Although all schools share the same mission and philosophical base, each is developing according to its own unique cultural strengths and needs. Every new school is staffed with local talent and operated on resources drawn from their own countries. Educo of Colorado is a training and development resource, a communication hub and a source of support and inspiration. An annual gathering brings the school directors together for training, visioning, and exchange of ideas. These school gatherings keep this thriving network of peers enthusiastic about the value and need for Educo in the global community.

As an international network, Educo is establishing a strong environmental advocacy process around the world. All Educo programs emphasize honoring and keeping alive wild places; the wild places in our souls and these wild places on this planet. Without these wild places the deeper meaning of human life will be gone. In the wild places live that which is beyond human experience to control, and therefore it is the place from which new beginnings and new ideas are birthed. As a global community all of us must protect the wild places because they are crucial to our own survival.

Our most significant step this year was creating a new school in South Africa. After the historic elections in April of 1994, there was a window of opportunity. In November of 1994, the National Youth Development Forum (NYDF), an "umbrella" organization for the numerous youth groups of South Africa, invited the newly formed Educo school of Africa to run a leadership program for youths. Nelson Mandela's new government is directing much energy at empowering and training the youth of the country. The 11-day program and a workshop to train them in leading their own groups, exposing young leaders from the townships to the wonders and realities of the natural world, were transforming experiences for the participants. The training empowered them, increased their self-esteem, introduced them to "natural law," and provided them with tools to meet the challenges they face as youth leaders.

The participants were a diverse group of talented, articulate, and passionate persons, ranging in age from 19 to 31, all handpicked by the NYDF. All grew up in the tumultuous times that gave birth to the new South Africa and shared a commitment to serve the youth of their country. In the midst of their challenging situations they have displayed initiative, fortitude, and endurance to put together their various community projects. During this program they engaged fully in all the activities and challenges presented to them. Their willingness to take risks in the rock climbing and solo times were exemplary, leading to a new sense of their own ability to be at home wherever they are. Being away from familiar circumstances and in the wilderness helped them look at themselves in new ways and thrust them into situations which forced them to work together. Codirector David Miller, who coordinated the first official Educo course in South Africa, describes the experience in these words:

> "For 11 short days in 1994, when spring was giving way to summer in the new South Africa, we were a part of history; a history not of textbooks, not of civilizations and progress, not of political evolution, but a history of the human spirit, the largely unwritten history of the desperate search for the sacred within ourselves and within the mystery of this fantastic creation we call Earth. With a small group of people—black, brown, and white, seeking the great heart of spirit—we were a part of history."

The Future

Is there still a place in this world for idealism, visionaries, and people who will support the process of bringing dreams to life? For those who create Educo schools around the world the answer is: "Yes!" Our plans for the future include continued growth locally, nationally, and internationally. This will combine hard work and dedication, a deep desire to address the needs of youth around the world, and willingness to take risks and "leaps of faith" to cultivate the gifts of many others around the world. *This is the life we chose to create and we would not trade it.*

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Announcements and Wilderness Calendar

Conferences

• Fire Ecology

The 20th Tall Timbers Fire Ecology conference will convene in Boise, Idaho, May 7-10, 1996. Entitled "Fire in Ecosystem Management: Shifting the Paradigm from Suppression to Prescription," the conference s goal is to provide discussion on specific prescribed fire regime alternatives in the context of modern natural resource management and policy. Contact Leonard Brennan, Director of Research, Tall Timbers Research Station, Route l, Box 678, Tallahassee, Florida 32313, USA. Fax: (904)668-7781.

• Outdoor Writing

Ninth Annual Wildbranch Workshop in Outdoor Natural History and Environmental Writing, Sterling College, Craftsbury Common, Vermont, July 16–22,1996. Wildbranch is a week-long workshop of classes, lectures, discussion groups, and readings on the craft and techniques of writing about the outdoors. For writers—professionals, non-professionals, or somewhere in between—who want to improve and market their work. Contact David Brown, Director, Wildbranch Workshop In Outdoor, Natural History and Environmental Writing, Sterling College, Craftsbury Common, Vermont 05827, USA. Telephone: 1-800-648-3591.

Namibian Wilderness Symposium

The Office of the Secretary for the Ministry of Environment and Tourism in Namibia announced that a wilderness symposium will be held June 24–27, 1996, at Waterburg Park. The purpose is to highlight the importance and urgency of international wilderness issues including their background, history, and management. Goals of the conference include developing a better understanding and awareness of wilderness in Namibia and the need for identification and proclamation of further wilderness areas. Vance Martin, *IJW's* Executive Editor for International Issues, will be one of the 40 invited delegates and will deliver papers on "The International Status of Wilderness" and "An International Perspective on Wilderness in Namibia."

El Salvadoran Environmental Planners Train in Idaho

The University of Idaho College of Forestry, Wildlife, and Range Sciences will implement a nine-month technical training program for 19 El Salvadoran Environmental Planners. The program, funded by USAID/E1 Salvador, began in November 1995 and runs through August 1996.

Conducted in Spanish, the training will provide 4 women and 15 men with the fundamental tools needed to plan and manage wilderness and protected areas, and to provide environmental education and information dissemination. Leadership skills will be emphasized and participants will be given pre- and post-tests to determine the knowledge, skills, and attitudes they gain from the program. Contact Sam Ham, Professor of Resource Recreation and Tourism, University of Idaho, Moscow, Idaho 83844, USA.

Fire Symposium Proceedings

The proceedings of the "Symposium on Fire in Wilderness and Park Management" are now available.[1] Fire as an ecological force is essential to preserving the natural character of wilderness areas. Managers have made significant progress in returning fire to wilderness and parks since prescribed natural fires were first allowed in the 1970s. But where, exactly, are we two decades later? And what policies will we take into the future?

In the recently released "Proceedings: Symposium on Fire in Wilderness and Park Management," these and other issues are

dealt with by authors from the United States and other countries. In 75 papers presented by 100 authors, subjects include pure science, alternatives in management, solutions and constraints, media and public opinion, and planning for the future. This 1993 symposium, held in Missoula, Montana, drew more than 400 fire managers, wilderness managers, educators, researchers, and members of the public.

David Jolly, former regional forester, summed up much of the philosophy in the proceedings. "Wild wilderness today is still the geography closest to perfection that exists on this planet," he told the symposium audience. "We need to keep our hands off wilderness, and the processes that shape it, to the maximum extent possible. Relative to fire, we need to embrace a philosophy allowing natural fire to play its historical role within social and political realities." "Without fire," said Jolly, "the wilderness resource is in a state of decline."

[1]Brown, J. K., Mutch, R. W, Spoon, C. W, and Ronald H. Wakimoto, Tech. coords. 1995. *Proc. of the symposium on fire in wilderness and park management*. March 30—April 1, 1993. Missoula, Mont. Gen. Tech. Rep. INT-GTR-320. Ogden, Utah: U.S. Department of Agriculture, Forest Service, Inter-mountain Research Station 283.

Assessing National Park Futures

The General Accounting Office (GAO) report, based on a review of 12 units in the U.S. National Park Service (NPS) system, assesses current conditions, the deterioration of visitor services and park resources, factors that contribute to degradation of visitor service and cultural or natural resources, and choices to deal with identified problems. The NPS serves 270 million visitors per year, a 20% increase since 1985, to 368 park units.

Overall, visitor services are deteriorating, and the condition of natural and cultural resources are significantly declining or are unknown so managers cannot assess improvements, deterioration, or stability. Eleven of twelve units reviewed had recently cut back services, which may affect visitor enjoyment and basic safety. The NPS has received funding increases since 1985, but new laws, administrative rules, and policy changes have created additional operating expenses not covered by funding increases. Salaries and benefits are about 75% of the budget for these 12 units. Expenditure increases due to new laws or administrative rules diverts funds from the 25% remaining for day-to-day park operations. More visitors and a longer peak-use season affects managers ability to maintain visitor service and resource needs. This drives up the cost of visitor services, such as waste removal or law enforcement. To reduce costs, some parks have cut back the magnitude and amount of some services.

The GAO report suggests three choices: 1) increased funding from park fees, better returns from concessionaires, or allowing managers to become entrepreneurial and enter into agreements with nonfederal partners; 2) limiting or reducing the number of units in the park system; and 3) reducing the level of visitor service. The report also recommends improvements in operating efficiency, financial management, and performance measurement systems. The NPS commented that increasing user fees and returning fees to the units is desirable, also claiming there is no evidence the addition of 31 new units in the last decade has affected the resources for existing units. They said closing units could be expensive and may not provide substantial savings, unless they were large units.

For more information see:" National Parks: difficult choices need to be made about the future of the parks." August 1995. U.S. General Accounting Office. GAO/RCED-95–238. 52 pp.

Forest Service Delays Reorganization of Wilderness Managers

The U.S. Department of Agriculture Forest Service will continue its review and analysis of a proposal to reorganize the management of the Frank Church-River of No Return Wilderness, according to then Forest Service Chief Jack Ward Thomas. The Forest Service has been considering consolidation of the wilderness into one administrative unit, such as an all-wilderness national forest.

Thomas' decision delays for one year—a final decision about how to most effectively reorganize administration of the 2.4 million acre wilderness, located on parts of the Salmon-Challis, Payette, Nez Perce, Boise, and Bitter-root National Forests in Idaho. "Although I believe this organizational change to be a sound proposal, I do not plan to move forward this year," Thomas said. "Before moving forward I want to ensure the Forest Service works more with the Idaho Congressional delegation and the public to be sure all concerns are addressed effectively. It is critical that any change in the administration of the Frank Church receive the delegation's and the public's support."

Newly appointed BLM National Wilderness Coordinator Jeff Jarvis.

Bureau of Land Management (BLM) Appoints National Wilderness Coordinator

Jeff Jarvis has been appointed BLM National Wilderness Coordinator. Senior Wilderness Technical Specialist for the U.S. Department of Interior BLM in Washington, D.C., Jarvis is filling the position vacated when Keith Corrigal retired. Jarvis will be the BLM's contact on wilderness issues, both within the agency and with external agencies, organizations, and the public.

"I look forward to meeting the challenges of wilderness and building on the good work of Keith Corrigal," said Jarvis. "In particular I will work to continue

interagency cooperation, expand public outreach, and increase management and public support for wilderness. A strong wilderness program is essential to a strong BLM," Jarvis stated upon being selected for the position.

Jarvis left his position at the Arizona state office where he held national program responsibilities for wilderness management and planning projects. Prior to his Arizona assignment, Jarvis worked in the BLM's California state office, the Shoshone district office in Idaho, and the Las Cruces district office in New Mexico.

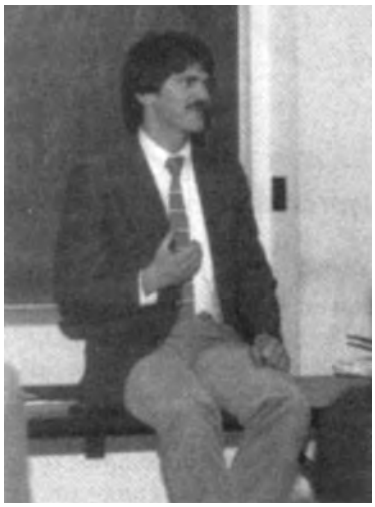
New Faces at the Carhart National Wilderness Training Center

Director Connie Myers of the Arthur Carhart National Wilderness Training Center in Huson, Montana, recently welcomed the addition of Richard Conrad of the U.S. Department of Interior (USDI) Bureau of Land Management (BLM) and Bill West of the USDI Fish and Wildlife Service (FWS) to the interagency staff. "The addition of the BLM and FWS at the Carhart Training Center takes us closer towards realizing our goal of full interagency participation in training staff to manage one National Wilderness Preservation System administered by four federal agencies," Myers stated.

Conrad comes from the BLM's Vale Oregon district where he was responsible for both the wilderness and recreation programs, including the management of 35 wilderness study areas, five wild and scenic rivers, and a wide range of developed and undeveloped recreational sites. Previously, Conrad worked in California and Colorado, and participated in BLM's initial wilderness review following passage of the Federal Land Policy and Management Act in 1976.

Bill West currently represents the FWS on a one-year detail to the Carhart Center, but continues to serve as Assistant Refuge Manager at the National Bison Range in Montana.

A Tribute to Jim Bradley



Jim Bradley, who 20 years ago developed a model for wilderness education that is still used today, passed away Christmas day 1995 at age 47. Jim distinguished himself as a US. Forest Service wilderness ranger by taking the wilderness protection story to the public schools. He became the public affairs officer on the Toiyabe National Forest in Nevada, finally leaving the forest service to join the staff of the U.S. Congress Interior Subcommittee on National Parks, Forests, and Public Lands, chaired by Congressman Bruce Vento. From 1987 to 1994, Jim was Chairman Vento's key staffer in developing legislation and policy to enhance protection of millions of acres of wilderness. Jim planned many trips taking Chairman Vento to the wilderness with key executive leaders, where they could experience the values at stake. During those trips, Jim always found time to meet with field personnel. Jim was dedicated to protecting all elements of wilderness, including its spiritual values. The wilderness, and all of us who knew and loved Jim, have lost a good friend.

Vance Martin Receives Paul Petzoldt Award

David Cockrell, President of the Wilderness Education Association (WEA), has announced that the 1996 Paul Petzoldt Award Winner for Excellence in Wilderness Education is Vance Martin, President of The Wild Foundation and Executive Director of the International Center for Earth Concerns headquartered in Ojai, California. The award was presented February 24,1996, at the WEA banquet and awards ceremony at their national conference at Fall Creek Falls State Park in Tennessee. Paul Petzoldt, founder of the WEA Board of Directors, presented the award in person.

Assault on the Mojave National Preserve

On October 31, 1994, the California Desert Protection Act was signed into law by President Clinton (PL. 103-433). Its centerpiece was the 1,419,800-acre Mojave National Preserve—of which 620,000 is designated wilderness. The Mojave Preserve held out great hope for the ecological and economic future of the region. It is a remarkably diverse region within the California desert, where the Great Basin, Mojave, and Sonora desert ecosystems converge. Significant increases in visitation to the area promised increased economic benefits for surrounding communities. Virtually from the day it was designated, the Mojave National Preserve—the United States' newest national park—has come under attack. Using the appropriations process, Representative Jerry Lewis, a long-time foe of the preserve, has sought to effectively close it by starving it of all but $1.00 to operate. While using the spending bill to undermine the preserve, Representative Lewis is also working toward realizing his ultimate goal of deauthorizing the preserve, removing it from the National Park system altogether. He has, waiting in the wings, legislation that would repeal the Mojave and return it to the US. Department of Interior Bureau of Land Management where it is once-again to be managed as a multiple-use area. Release submitted by Jay Watson, The Wilderness Society; e-mail: twssf@igc.apc.org.

Book Reviews

BY JAMES R. FAZIO

Coyotes and Town Dogs—Earth First! and the Environmental Movement by Susan Zakin. 1993. Penguin Books, New York. 483 pp., $14.95 (paperback).

Casual browsers, especially those of us with senior status, are likely to be initially repulsed by this book. The very name "Earth First!" arouses emotions and a degree of emotional blindness. Compounding it for me was a testimonial on the front cover, a cheapening tactic intended to sell books. This one not only touted the book, but proclaimed it "irreverent." For sure, here was a propaganda piece about Earth First! by Earth First! Clinching my first impression was a chapter in the table of contents containing a four-letter word that is decidedly taboo within my age cohort.

But I was wrong. The book does have a rough edge to it, but only as much as needed to set a tone that reflects the lifestyles and convictions of the ragtag army of latter-day activists who call themselves "Earth First!ers." True, the author is obviously sympathetic to her subject. This is no unbiased analysis of policies, issues, or ethics. The Forest Service, timber companies, and mining interests are pummeled throughout with never a thought given to "the other side *of* the story." Still, when I finally let down my guard, it became clear that the author is a talented journalist who has given us not another comprehensive book on environmental history but a focused and unprecedented look into the history of American ecoactivism and in the minds of its leaders. Much of the book came from interviews with the Bucka-roos—The Wilderness Society's 1970s collection of a new breed of environmentalist. Personified by the likes of Dave Foreman and Bart Koehler, these heirs to the work of Bob Marshall and Howard Zahniser are the coyotes in this story—tough, scruffy, but concealing "a smooth intelligence" and always looking back at pursuing enemies with a slightly perceptible grin.

Zakin provides mini-biographies of perhaps a few too many characters. Her synopsis of Edward Abbey and his writing is truly inspired, and Foreman is treated in enough detail to almost call this book his life's story. There are briefer forays into the lives of others ranging from John James Audubon, Gifford Pinchot, and David Brower to Judi Bari, the victim of a car bombing during the so-called Redwood Summer of 1990. Through this parade of characters and events the reader receives not only historical details in the chronological sense but many of the "whys" and "emotions" behind them. Except for a few notable exceptions, there is not as much description of frontline drama as might be expected, but you do get the philosophical points of view and the beer drinking, sex, drugs, hopes, and delusions of the young people who face off against bulldozers and hostile sheriffs. You also get sometimes dismaying, behind-the-scenes glimpses of the bickering within and between the moneyed, mainstream environmental organizations. Finally, you get a better understanding of how Earth First! so seductively provided hope to an estimated 5,000 to 10,000 followers intent on building "a new paradigm," indeed even "a new society."

But built on anarchy? It is almost amusing to read of Dave Foreman's nostalgia and regrets as he considers the fruits of what he sowed. His monkey wrenching—"ethical sabotage"—was being carried out without the purported requisites of strategy, touch of humor, and safeguards against anyone getting hurt. Then, out of the mishmash of "hippies and rednecks" with whom the "old wilderness warrior" felt comfortable, there arose quasi-spiritual "woo woo," *eco*-femmism," "Californicated ... utopianism," and other factions that divided Foreman's "tribe." There also emerged Earth First's "evil twins" at the opposite end of the ideological spectrum. The likes of Wise Use, Mother's Watch, W.E.C.A.R.E., and others with innocuous-sounding names organized the environmental backlash. The game turned ugly.

Informants and an undercover FBI agent finally brought Foreman and a gaggle of monkey wrenchers to trial in 1991. It was touted as the trial of the century, complete with flamboyant attorney Gerry Spence to divert the focus away from sabotaged power lines and place it on bereft environmental policy. But the trial fizzled into plea bargaining and Foreman "split the sheets" with Earth First! to pursue his growing interest in conservation biology and a new network of groups—The Wildlands Project—to protect large ecosystems. The book closes with at least one of its minor principals in prison and the rest, especially the aging Buckaroos, riding off into the sunset or over the horizon to new environmental battles.

Regardless of your view of Earth First! and its tactics, this book is worth reading. In the end, one has to agree with the author and Herb Gunther of the Public Media Center "that the significance of Earth First! was not in the number of trees it saved, but in the debate it provoked." *Coyotes and Town Dogs* contributes a valuable dimension to that debate.

A Symbol of Wilderness: Echo Park and the American Conservation Movement by Mark W.T. Harvey. 1994. University of New Mexico Press. 368 pp. (hardcover).*

My introduction to Dinosaur National Park was at Powell Flats, a primitive campground just inside the park, among the large cottonwoods flanking the Yampa River. My family and I were the lone visitors that night, serenaded by owls and coyotes, much to the delight of our small children. The morning dawned bright and warm. We ambled down the river that the summer sun had shrunk to a lazy, meandering ribbon, discovering aquatic residents, delighting in the simple pleasures of sand oozing between our toes and deeper, cool water holes where we could submerge and emerge refreshed.

The freedom to pursue such simple pleasures here triggered the conservation battle of the century. The battle for Dinosaur National Park—a remote, little-known national monument—would hardly have been seen early-on as the defining moment in U.S. conservation history that it has become. *A Symbol of Wilderness* describes that moment, which stretches over the better part of two decades.

The conservationists' battle, on the surface, was with the Bureau of Reclamation which wanted a dam in the Echo Park area of Dinosaur National Monument to buttress a large reservoir for irrigation and hydropower. But the real battle was for public opinion. To whom was the United States public listening? Harvey tells the story of the moves and countermoves of the pro-dam forces—local business people, power and irrigation interests, the USD I Bureau of Reclamation and Secretaries of Interior—and the inexperienced but determined group of conservationists who cut their eyeteeth in this conservation controversy of the century.

The conservationists faced a formidable task. Here was a region unknown to most wilderness enthusiasts. Could this obscure, weak, and underfunded preserve engender public support against an Intermountain West eager to develop its water and power resources? Could inexperienced conservationists credibly question the need for the dam and the bureau's computations, propose alternative sites, and establish ties with political forces in Congress to defeat powerful interests? The outcome would forbode the future sanctity of the National Park system and the degree to which the public, almost a decade before the 1964 Wilderness Act, would support the wilderness idea.

Given the historical importance of this issue, *A Symbol of Wilderness* is a book long overdue and deserving of shelf space by anyone interested in environmental history My only regret in traveling with Harvey through this remarkable story is his penchant for prematurely revealing the outcome of many struggles in this story, diminishing the drama. Also, I had expected more insight into the forces driving the dam building interests. However, this territory is covered in Worster's *Rivers of Empire* and Reisner's *Cadillac Desert,* both worthwhile readings.

The Echo Park controversy set the course that wilderness protection would take. In saving Dinosaur National Park, conservationists committed themselves to sacrificing an area they hardly knew, the Glen Canyon. It was to become a touchstone for wilderness protection in the Colorado Plateau for the next generation. Nevertheless, because the public had spoken decisively on the Dinosaur National Park issue, tremendous momentum was give to the wilderness movement. On April 11, 1956, the same day that President Eisenhower signed legislation that would keep the dam out of Dinosaur National Park, Howard Zahniser of The Wilderness Society sent a letter to key members of Congress asking them to sponsor a bill for establishing a wilderness system. With the impetus Dinosaur National Park provided, the wilderness campaign was launched.

*Review bv Mark Peterson.

Letter to the Editor

Dear Dr. Hendee:

I am investigating the use of overnight hiking permits for introduction in Tasmania's Wilderness World Heritage Area (WHA). I am familiar with some of your work on user regulation.

While the Tasmanian Parks and Wildlife Service is dealing with relatively small numbers of multiday walkers in the WHA, the fragility of most areas means that damage is easily caused and revegetation is extremely slow. Hence, the strategy to regulate usage at an early stage rather than wait until walker numbers are greater, and damage is widespread and perhaps irreversible. While there is a very definite preferred walking season in Tasmania (November—March), the plan is to use a year-round requirement for permits.

Implementing a permit and quota system is further complicated by the fact that many areas of the WHA have multiple access points. Trackless areas would also have quotas set for them.

I am hoping that you, or your *IJW* readers, may have information on developing and implementing a permit system for this type of wilderness area or be able to provide me with some contacts.

Thank you,

Robyn Brake
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