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FRONT COVER Elephants at dusk in the Okavango
Delta, come down to drink out of one of the many water
channels. Photo by Boyd Norton.

INSET Masai morani, Tanzania. Photo by Boyd Norton.

International Journal of Wilderness

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

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The *International Journal of Wilderness*

Ten Years Behind and Ten Years Ahead!

BY JOHN C. HENDEE

Ten years ago, in September 1995, we launched the *International Journal* with the theme “The Time Is Right!” A wilderness journal had been discussed for 20 years, but never materialized. Then, with guidance from leading wilderness managers, scientists, and educators, and encouragement and sponsorship from all the wilderness agencies and leading wilderness organizations (see the back cover), the first issue appeared.

The WILD Foundation volunteered financial management and international distribution. Fulcrum Publishing provided production at cost, including our trademark color covers. *IJW* would be a different kind of journal, blending topical articles on wilderness issues; invited features; peer reviewed manuscripts on wilderness planning, management, science, and education; plus book reviews and a digest of news and announcements. We're grateful to our sponsors and our board of executive editors. Without them we wouldn't be here.

The first decade of *IJW*: How to evaluate this first decade of *IJW*? We need objective critique from you, our readers. Please browse the issues. Did we cover the big topics—what did we miss? Has *IJW* been a forum for wilderness leaders? How has our research coverage been? Have we aired new and controversial proposals and policies? How about global wilderness? How do you rate the book reviews and wilderness digest? Are *IJW* articles being cited and used in university wilderness classes and agency trainings? Does your organization or library subscribe? Do you subscribe—why or why not? Send us your critiques—we'll read and publish them, space available.

To make your *IJW* review and use easier in the future, we're producing the first 10 years of *IJW* issues on a CD.

See the forthcoming announcement in the April 2005 issue and order your copy.

The next ten years of *IJW*: Where do we go from here? Our overall goal is to support wilderness designation, management, education, and research with good coverage of relevant information. There is no shortage of topics.

We are heartened by the increasing worldwide support for wilderness, but concerned by many threats to wilderness resources and experiences: global warming; a shrinking base of candidate areas; the loss of wild corridors between designated areas; threats from modern technology such as cell phones and towers and new mechanical access devices; overuse and loss of solitude in popular areas; nonconforming uses such as grazing, mining, wildlife, and stock watering devices and inholdings; compromises proposed to make wilderness designation possible; and commercial and public wilderness recreation demand versus the organized use of wilderness for education, personal growth, therapy, and leadership development. These are some of the important wilderness issues and activities we plan to cover in the next decade.

We transition to this new era in this issue of *IJW* by focusing on a variety of stewardship issues, and especially monitoring of some wilderness conditions, in five articles that are introduced by Peter Landres. We conclude the stewardship theme with the announcement of the appointment of Mary Wagner as the first national director of wilderness for the U.S. Forest Service. 

JOHN C. HENDEE is the editor in chief of *IJW* and can be reached at hendeejo@uidaho.edu.

Human Relationships with Wilderness

The Fundamental Definition of Wilderness Character

BY ALAN E. WATSON

The science that has guided wilderness management thus far is not really very old. It couldn't be. Wilderness legislation has guided U.S. federal agency managers since 1964. My own introduction to wilderness

research was when I stumbled onto a series of debate articles by some of the few people engaged in early wilderness research during my freshman year of college in the mid-1970s (Hendee and Lucas 1973). What caught my attention was not the clarity or strength of the science supporting the debated topic, but just the contrary. I could easily identify with both sides of a debate for and against requirements for

permits for recreational visits to wilderness. The lack of a clear, easy-to-defend solution to the dilemma these scientists described evaded both positions, yet the arguments both for and against were highly emotional ones. The "character" of wilderness, it was clear to my young mind, was something very different to different people (see Figure 1).

The basic element that excited me about this debate was the weighing of structure, articulation of protection benefits, and control associated with permits against spontaneity, freedom, and uncertainty. Whereas both sides

of the argument clearly placed great importance on wilderness character, there was disagreement on how it should be protected. At the time, I assumed that 30 years or so into the future, this debate would be settled. It isn't. Today we still are in great disagreement—not over the value of wilderness character, but on how to protect it in wilderness. Rather than be disappointed about that, maybe we should celebrate it.

In the year 2001, I was confronted by another dilemma equally basic to the question of how to protect wilderness character. At an international symposium in Alaska, very early in the program a university student expressed sincere interest in attending mostly to resolve his confusion over exactly what is wilderness. Although in my introductory comments I had contrasted the definition of wilderness contained in the U.S. Wilderness Act of 1964 with that contained in World Conservation Union (IUCN) descriptions of wilderness places and objectives (see Martin and Watson 2002), this student was clearly confused by the range of attributes and values commonly associated with wilderness. And true to this student's observations, much of the literature on wilderness, and even terminology within the U.S. Wilderness Act, commonly attempts to define wilderness through a single universal set of purposes, each of which could also be received in many locations besides wilderness, and which may not be received in every area protected as wilderness.

It was not until a couple of months later during that same summer, while traveling through the Alaska night from above the Arctic Circle to Anchorage, that the dilemma solved itself for me. Although I had felt insecure, undeserving,



Article author Alan E. Watson, photo by B. Roukema.

uncertain somehow about how to answer this student and many others who had repeatedly voiced the same question, it became clear to me during that night drive that what attracted many of us to wilderness in the first place was the fact that it couldn't be defined. Wilderness is difficult to define, yet it has nearly universal and immediate appeal. That is the reason debates like the one described earlier can be such a dilemma, and why many people remain confused about what wilderness means. It is difficult to describe in a universal way exactly for whom we are protecting wilderness, what is being protected in wilderness, why it is being protected, and from what it is being protected. Wilderness, therefore, means different things to different people. When we try too hard to define it precisely, we are at risk of losing meaning for some people. Much as Leopold found in his essay on the "River of the Mother of God," when we find what we are looking for, we may have lost something (Flader and Callicott 1992).

Through the past 10 years of my work to help the *International Journal of Wilderness* succeed, knowledge development as a federal scientist since 1988, and a career of deep involvement with university programs, the strength of my confidence in the conclusion that one of the primary values of wilderness to society is its difficulty to be defined has only increased. I am suggesting that we acknowledge and celebrate that wilderness character implies different things to different people, and approach the challenge of defining wilderness character through describing, understanding, and even monitoring the relationship people have with wilderness. This type of research may offer more insight into the fundamental definition of wilderness character than have efforts aimed at monitoring aspects of the wilderness itself.

Is Wilderness Character in Black and White or Living Color?

Measuring observable characteristics of the wilderness itself and thinking of it as wilderness character is like a black and white photo. There is no understanding, no depth of meaning, and little insight into the values of that wilderness. Focusing on human relationships with wilderness, however, gives color to the image. Although relationships with wilderness vary, they are definable. Defining these relationships provides direction to protecting or restoring them, and through focus on relationships people have with wilderness, the impossible task of defining wilderness in black and white terms is avoided. Wilderness character becomes a concept that is used to describe the relationship one particular person or social group has with wilderness, or the multitude of these relationships.

Who Is It Protected For?

Some of us have gravitated toward referring to the different people or groups of people with a stake in wilderness as stakeholders. They are not simply customers, they are not necessarily users or visitors. There are many different types of people with very different relationships to wilderness. They can include recreation users, but also include those interested in wilderness for its scientific values, those depending upon wilderness resources for subsistence, those for whom wilderness is part of their lifestyles and not a diversion, and those distant urban residents who depend upon wilderness watersheds for crucial water supplies.

There is no single, easy-to-define stakeholder group to go to for a definition of wilderness because there are many different types of relationships with wilderness, and most people will

define wilderness character from their own orientation toward it. The Wilderness Act in the United States provides a definition from one particular orientation, that of the people who engineered the legislation to capture a definition of wilderness character that fit their relationship with wilderness. It was described as a place where humans do not remain, where they return from to their urban homes at the end of a trip. It is a place where they can go to find solitude or exhibit primitive skills, much in contrast to their daily urban lives. It is a place where they can assume they are witnessing natural processes as a dominant force, and they can assume that humans have not intervened and are not intervening directly to influence the landscape. Not everyone describes wilderness character along these same dimensions, however. Recent research by Whiting (2004) illustrates these differences. Native villagers in the western Arctic of Alaska value wilderness for spiritual, emotional, and humility reasons, and it contributes to their identity to go there and engage in hunting and gathering activities. These are not purposes described in the U.S. Wilderness Act because they were not the type of relationship the authors of the act had with wilderness.

What Is Protected?

Different groups of stakeholders also use different terminology to describe the attributes, or qualities, of a place that embodies wilderness character. In the United States, the Wilderness Act speaks of wilderness being untrammelled, whereas in South Africa, the term *uncontaminated* has been used to describe wilderness character by some parts of that society (Shroyer, Watson, and Muir 2003). Untrammelled suggests a landscape that is not tampered with, unfettered, and unmanipulated, although all factions may agree that this



Figure 1—Debates over requiring permits to visit wilderness represent different relationships with wilderness. Photo courtesy of the Aldo Leopold Wilderness Research Institute.

is only a perceptual attribute. In reality, there was long-term intervention by indigenous people to increase their chances for survival, and perpetual intervention by more modern society to manipulate game populations, influence the role of fire in the ecosystem, and create travel corridors for human travel, even if by primitive means. Uncorrupted is also a perceptual attribute, related to the purpose of a human intervention on the land or water. If the human impact is done to support privatization or commercialization of nature at the expense of spiritual or intrinsic values associated with that wild place, it becomes corrupted. Distant urban populations would probably be uninterested in both trammeling and corruption, and more likely define wilderness character of a water catchment in terms of a lack of



Figure 2—Inhabited wilderness implies a very different set of values from the ones described in the U.S. Wilderness Act. Photo courtesy of U.S. Fish and Wildlife Service.

alien plants, natural hydrologic cycles, and lack of all sources of erosion.

Why Is It Protected?

The values, or reasons for protection, that different stakeholder groups ascribe to wilderness places can also be very different. Wilderness simply means different things to different people. A simple illustration of this is the description by many people of Alaska wildlands as some of our wildest places on the North American continent and in the U.S. National Wilderness Preservation System (Watson, Kneeshaw, and Glaspell 2004). By worldwide standards, these vast, relatively intact ecosystems are among the wildest. However, they differ from most wilderness areas in the continental United States by the fact that traditional relationships between rural people and these wilderness places were assured through the Alaska National Interest Lands Conservation Act (ANILCA) of 1980. Native and nonnative, rural people continue to travel through these lands to hunt, fish, gather, learn, and teach younger generations about interacting with the resources there. You are, however, more likely to find aircraft use for access, human-built dwellings, and other motorized forms of access there than in areas not established as wilderness through ANILCA. Humans are at home in this landscape, they leave much more than their footprints, and the skills they use to travel and harvest resources here are not considered by them to be primitive, but instead well developed—crucial to survival of whole communities. In many places around the world, including Alaska, inhabited wilderness implies a very different set of values than the ones described in the U.S. Wilderness Act (see Figure 2).

Recently organized efforts have included attempts to define the values

or meanings that different stakeholders ascribe to areas protected for their wilderness character. Some of the values associated with wilderness in the circumpolar north, for example, are very similar to those associated with wilderness in other latitudes, but some are very unique (Alessa and Watson 2002). They are unique to the local rural people with a long history of association with these areas, as they are unique to the distant populations of the world who receive very different benefits from their protection.


What Are We Protecting Wilderness From?

Perceptions of wilderness character differ and can partially be defined by the forces of change that are believed to influence it. Historically, wilderness management research has focused on the threat posed by one dominant force, that of recreation use (Watson and Williams 1995). An expansion of interest to other threats is fairly new, but most of this work remains focused on understanding the threat to wilderness attributes, not to the meanings people receive from interaction with wilderness places (Landres, Cole, and Watson 1994). In the circumpolar north, some unique influences on wilderness values are believed to include the lack of appreciation of multiple orientations toward wilderness resources, energy exploration and development, north-south regionalism and political conflict, fragility of ecosystems, and pressures related to tourism development, in addition to other forces (Alessa and Watson 2002).

Conclusions

Our mandated responsibility extends beyond stewardship of our transactions with wilderness—like counting the number of campsites we find in an area or the number of people we encounter during a hike there—to stewardship of

the relationship people have with this area. Collectively, we motivated our congressional representatives to create this system of wilderness on our behalf and for future generations. Only recently has it been recognized that many evaluations by the public of wilderness policy are rooted in larger contexts than just individual visits to a wilderness (Borrie and others 2002; Watson and Borrie 2003).

A new era of stewardship is facing us, not only with expectations of stewarding our public lands, but also with us becoming deeply cognizant of our role in stewarding the relationship between the public and public lands. Local communities are vocal in their assertion that we need to understand the values they receive from wilderness and other lands and demonstrate to them that we consider these values in making decisions, while also meeting the primary intent of the legislation and policy that guide us in our management decisions. Wilderness character is perceptual, with different people perceiving it very differently, and these perceptions are bound to be changing through time. Our jobs as scientists include providing adequate understanding of the range of these relationships with wilderness places and the things that influence them, in a way that enables managers to set objectives for protection, and even restoration, of human relationships with wilderness landscapes. 

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bugs there would be people all over the place” (p. 21). This statement alludes to a theme that runs through the entire book: the Barrens are unique and “special” in their wilderness state.

Parts IV through VI offer a look at the human side of the Barrens, such as the memorable characters and places in the region and the way Hall’s family has been affected. The seventh and final part examines and summarizes how the enjoyment of paddling Arctic rivers is connected with its conservation. Thirty years of canoe tripping has allowed Hall to experience the increase in tourists and how the north has adapted to growing tourism. Throughout it all, Hall and others have fought to protect the Barrens for its wildlife and intrinsic value. Hall points out protection and activism battles won in the past, perhaps in hopes that they will inspire others to act in the future. Major tracts of land have been saved, but in a changing world with changing politics, for how long?

Overall, *Discovering Eden* is an enjoyable read; a light-hearted but valuable contribution to literature on wilderness conservation. The personal accounts and humorous tales also present a strong message that even if you are only one conservationist and you persist, then perhaps your determination will be rewarded. As Hall notes, “The choices we make in the next decade or two may well determine how much biological diversity persists over the next hundred, thousand or even million years. ... Only through the foresight and sheer determination of a coalition of northerners and other Canadians will an Eden this large be preserved intact for future generations” (p. 216).

Reviewed by PATRICK MAHER, a Canadian Ph.D. candidate at Lincoln University, New Zealand, examining the experience of visitors to the Ross Sea region, Antarctica. E-mail: maherp@lincoln.ac.nz.

Developing Indicators to Monitor the “Outstanding Opportunities” Quality of Wilderness Character

BY PETER LANDRES

Wilderness managers are often faced with difficult and complex tasks. One such task is fulfilling the legal mandate of the 1964 Wilderness Act (Public Law 88-577) to provide opportunities for use and enjoyment of wilderness while protecting and preserving the wilderness character of the area. The ideas of *use and enjoyment* and *wilderness character* are expressions of societal values for wilderness, but we lack a full understanding of what these ideas mean. As a result, it may be difficult for managers to evaluate the success of their accomplishments as well as some of the far-reaching outcomes of their decisions and actions in wilderness.

This article describes an effort by the USDA Forest Service Wilderness Monitoring Committee to develop national protocols to monitor trends in selected conditions and stewardship actions related to wilderness character. An important part of this effort is to develop monitoring related to the “outstanding opportunities for solitude or a primitive and unconfined type of recreation” dimension of wilderness character. This article then describes the purpose and scope of a workshop held in February 2004 to develop a better understanding of these “outstanding opportunities” that would be used in developing this monitoring. Last, the article introduces several perspectives from the workshop on this dimension of wilderness character.

Why Monitor Wilderness Character?

Although several agency programs (e.g., air, water, wildlife) monitor a variety of resources in wilderness, none systematically monitors at the national scale what makes wilderness unique among all other lands—its wilderness character. There are two basic reasons for monitoring wilderness character:

(1) fulfilling the statutory mandates of the 1964 Wilderness Act and subsequent wilderness legislation, and (2) to improve wilderness stewardship. The 1964 Wilderness Act mandates agency responsibility for preserving wilderness character. Section 2(a) states that wilderness areas “shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character” (emphasis added). In addition, legal scholars Rohlf and Honnold (1988) and McCloskey (1999) assert that Section 4(b) gives the primary management direction for wilderness agencies, that “each agency administering any area designated as wilderness shall be responsible for preserving the wilderness character of the area.” This assertion is reinforced by the *Congressional Record* (U.S. Congress 1983): “The overriding principle guiding management of all wilderness areas, regardless of which agency administers them, is the Wilderness Act (section 4(b)) mandate to preserve their wilderness character.”

Monitoring wilderness character provides information to help improve wilderness stewardship in several ways. First, describing wilderness character in tangible terms allows planners and managers at all administrative levels to evaluate potential impacts of proposed actions and decisions on this fundamental wilderness concept and ideal. Second, a formal monitoring program allows the information to become a legacy that managers may then use to evaluate trends in how wilderness character is changing over long periods of time that may span many careers. Third, using nationally consistent monitoring protocols allows the information to be compiled at the regional and national levels to help program managers review and revise current programs and policies.

What Is Wilderness Character?

The 1964 Wilderness Act doesn't define wilderness character, there is no legislative history on the meaning of this phrase (Scott 2002), and there are many meanings and ways to describe wilderness character. For the purpose of monitoring, wilderness character can be described as the combination of biophysical, experiential, and symbolic ideals that distinguishes wilderness from all other lands. These ideals combine to form a complex and subtle set of relationships among the land, its management, and the meanings people associate with wilderness.

There are certain aspects of these biophysical, experiential, and symbolic ideals that apply to every wilderness because all wilderness legislation contains a provision that ties management of the specific wilderness back to the provisions of the 1964 Wilderness Act (Hendee and Dawson 2002). Although individual wilderness acts often include specific exceptions or special provisions, for example allowing the use of motorized vehicles or installations in particular wildernesses, no act changes the 1964 Wilderness Act, Section 2(c) Definition of Wilderness or the Section 4(b) mandate for "preserving the wilderness character of the area" (Hendee and Dawson 2002). There are also unique, place-dependent aspects of these same ideals that apply to each wilderness.

How Will Wilderness Character Be Monitored?

The Forest Service Wilderness Monitoring Committee developed the conceptual foundation for this monitoring in the draft "Monitoring Selected Conditions Related to Wilderness Character: A National Framework" (hereafter called the Framework). This

Framework is currently under review and will be published in late 2004. The committee, through subject-matter experts and their associated teams, is currently developing detailed monitoring protocols—the what, when, where, and how data will be collected and used—in the "Technical Guide for Monitoring Selected Conditions Related to Wilderness Character."

The Framework develops a set of logical steps linking the statutory requirement to preserve wilderness character ultimately with indicators and measures (See Figure 1). This figure, and the logic behind it, forms a conceptual model that is the basis for this monitoring effort. The two elements of this figure enclosed by the box are derived directly from the 1964 Wilderness Act, whereas the Committee developed the four elements outside the box. The first step uses the Section 2(c) Definition of Wilderness to identify specific qualities of wilderness that are related to the concept of wilderness character. Each of these legislative qualities of wilderness is sequentially broken down into a set of relevant monitoring questions, indicators, and measures. This hierarchical approach ensures that key national indicators and measures are logically linked to the Section 2(c) Definition of Wilderness, and by inference to wilderness character.

This first step derives four legislative qualities of wilderness that were chosen to represent the most general level of the different concepts and ideals, and sometimes the subtle distinctions among them, from Section 2(c) of the Wilderness Act. These qualities, quoted from the 1964 Wilderness Act and followed by the Committee's interpretation of this quality, are:

- "Untrammelled"—wilderness is unhindered and free from modern human control or manipulation.

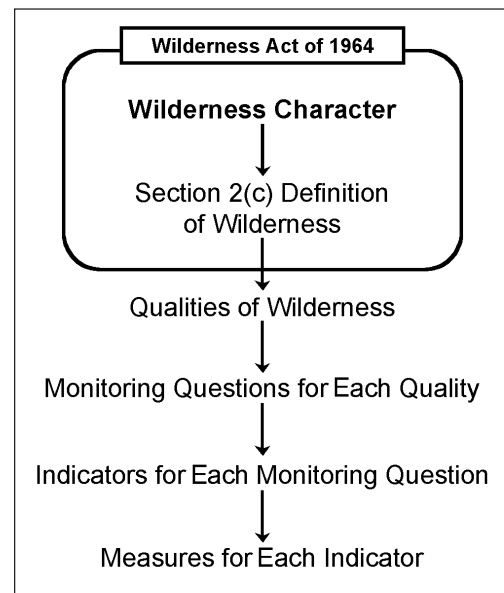


Figure 1—The conceptual or logical basis for this monitoring effort, showing the inferences (arrows) used to develop the indicators and measures. The arrows show that the statutory requirement to preserve wilderness character drives selection of all the subsequent elements and ultimately the data that are collected.

- "Natural"—wilderness ecological systems are substantially free from the effects of modern civilization.
- "Undeveloped"—wilderness is substantially without permanent improvements or modern human occupation.
- "Outstanding opportunities for solitude or a primitive and unconfined type of recreation"—wilderness provides opportunities for people to experience solitude or primitive and unconfined recreation, including the values of inspiration and physical and mental challenge.

These four qualities mutually reinforce one another and together comprise an approximation of wilderness character for the purposes of this national monitoring program. All four of these qualities are equally important, and none is held in higher regard or to a higher level of stewardship than the others.

This monitoring provides information about whether selected indicators related to these four qualities of wilderness, and by inference to wilderness



Figure 2—Olympic Wilderness in summer with Mt. Olympus the third largest glacial system in the conterminous United States. Photo by Bryan Bell and courtesy of National Park Service, Olympic National Park, Wilderness Information Center.

character, are stable, improving, or degrading over time within an individual wilderness. No national standards will be developed because every wilderness is unique in its biophysical, social, legislative, and administrative setting (see Figure 2). Moreover, change in the indicators is determined only relative to prior conditions within a particular wilderness; standards and trigger points for action can therefore only be determined by each wilderness.

Key national indicators of selected conditions and stewardship actions will be chosen for each of these four qualities of wilderness. These indicators will apply to all wildernesses regardless of their location, size, ecosystems, use, or place-dependent aspects. Although potential indicators are identified in the Framework document, teams developing the Technical Guide will choose the final indicators. Indicators will be chosen primarily based on three criteria: (1) relevance to the wilderness quality, (2) usefulness to local wilderness managers, and (3) feasibility of using data that are already being collected or could be collected with little or no extra cost as part of an existing monitoring program. For example, the primary potential indicator for the untrammeled

quality is actions that manipulate vegetation, wildlife, or aquatic systems. Forest Service administrative processes already track actions, hence there is no cost to collect data for this indicator, and trends in the number of these actions over time provide direct feedback to managers on their management for this untrammeled quality of wilderness. Similarly, a process for recording most constructed features such as system trails, signs, recreation developments, or administrative structures is already established so there is no additional cost for tracking trends in this potential indicator of the undeveloped quality of wilderness over time.

A Workshop to Develop Indicators for the “Outstanding Opportunities” Quality of Wilderness

The Committee felt that the best way to approach developing indicators for the “outstanding opportunities” quality of wilderness would be to convene a workshop of scientists and managers who had direct experience with this quality of wilderness. There were two purposes for this workshop. First, participants would review and vali-

date, or modify as needed, the Committee’s conceptualization of this “outstanding opportunities” quality. Second, participants would identify a potential set of indicators that the team developing this quality for the Technical Guide would use as a starting point. An additional purpose of the workshop, if time allowed, was to identify information needs and develop a research agenda for this quality of wilderness.

To facilitate discussion the workshop was limited to a small number of people, and included six wilderness managers, two agency scientists, and six academic social scientists. The workshop was structured around discussion of the following questions, which set the goals for monitoring this “outstanding opportunities” quality of wilderness:

- What are the meanings and indicators of solitude?
- What are the meanings and indicators of primitive recreation?
- What are the meanings and indicators of unconfined recreation?

To develop potential indicators for these monitoring questions, the following constraints were imposed on selecting indicators: (1) they would

apply to any wilderness throughout the National Wilderness Preservation System (see Figure 3) and not to the place-dependent aspects of a particular wilderness; (2) they would be useful to local managers and apply to the entire wilderness; and (3) they would measure the opportunities for experiences but not the experiences themselves.

This last constraint is crucial and requires some explanation. The 1964 Wilderness Act mandates that managers provide “outstanding opportunities” for certain types of experiences. Managers have a profound impact on the wilderness setting by what they do as well as what they don’t do, and monitoring this quality provides managers information on how their actions affect the setting for these types of experiences. This setting directly affects, in both positive and negative ways, the opportunity for visitors to have certain types of wilderness experiences (see Figure 4). For example, requiring visitors to use designated campsites reduces resource damage, but also reduces opportunities for experiencing the unconfined quality of wilderness. Providing shelters or toilet facilities reduces resource damage, but also restricts opportunities for the primitive aspect of wilderness experiences. Providing a bridge across a wild river allows visitors to experience parts of the wilderness they may not otherwise be able to, but also reduces opportunities for the challenge and discovery that comes from fording the river. (David Cole explores these issues in greater detail in his article entitled “Wilderness Experiences.”)

Workshop participants generally felt that there is sufficient scientific understanding to begin developing indicators of the “outstanding opportunities for solitude or a primitive and unconfined type of recreation” qual-

ity of wilderness. However, participants also felt that a deeper and better understanding of these foundational concepts of wilderness is sorely needed. Workshop discussions clearly showed a variety of opinions about the dimensions that could be, and should be monitored within this quality of wilderness. There was considerable discussion about these and related issues, including:

- whether the single “outstanding opportunities” quality should be split into three separate qualities of solitude, primitive recreation, and unconfined recreation;
- whether the language from Eastern Wilderness Act of 1975 (Public Law 93-622) on “physical and mental challenge” and “inspiration” applies to all wildernesses and therefore should be part of this national monitoring effort;
- whether monitoring should focus on the opportunities for wilderness experiences or the experiences themselves, or both;
- whether monitoring should focus on the needs of local wildernesses versus national monitoring; and
- how actions taken to protect one aspect of this quality may (and often do) negatively impact a different aspect of this same quality.

The following articles provide readers with an understanding of the different perspectives that exist on these issues. The variety of views expressed demonstrates that there are different ways of looking at these core values of wilderness, and perhaps even more importantly that this variety is an important and vital part of wilderness. The variety of these perspectives also suggests that managing for this quality of wilderness character is fundamentally a difficult and



Figure 3—Great Sand Dunes Wilderness managed by National Park Service (CO). Photo courtesy of NPS.



Figure 4—Washington Islands Wilderness managed by the U.S. Fish and Wildlife Service (WA). Photo courtesy of USFWS.

contentious task, one that requires thoughtful and deliberative discussion among managers, scientists, and the public. Much of this discussion applies to wilderness and similar backcountry areas around the world that may have objectives comparable to the U.S. National Wilderness Preservation System.

In the articles that follow, Chad Dawson shares his perspectives on the nature of solitude, potential indicators, and research questions about indicators of solitude; Steve McCool looks at unconfined recreation by exploring a commonly experienced vignette; Bill Borrie examines the assumptions behind the idea of primitive recreation; and Joe Roggenbuck offers a detailed exploration of the origin, benefits, threats, and indicators of primitive recreation. David Cole completes this set of articles with thoughts about what

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Monitoring Outstanding Opportunities For Solitude

BY CHAD P. DAWSON

Introduction

The legislative definition of wilderness in the United States includes the requirement for several specific characteristics or conditions, including “has outstanding opportunities for solitude” (P.L. 88-577, Sec. 2c). Since solitude is a distinguishing characteristic of wilderness, the various interpretations of its meaning have led to a substantial amount of management discussion and research to define or measure its important components. This article’s emphasis is on the characteristics or conditions that can be managed in wilderness areas and that are necessary for visitors to achieve solitude. It is also recognized that the visitor’s experience of solitude (e.g., psychological-social experiences) and achievement of solitude are important, but they are not the subject of this article.

Solitude in the context of wilderness does not mean complete isolation, nor is solitude at the other end of a continuum from crowded. Rather, it has been construed to mean separation from others and the influences of others. The conditions necessary for solitude often refer to some degree of separation in sight, sound, and distance between visitor groups who are within the wilderness and from outside the wilderness (see Figure 1). The word *solitude* is generally used to refer to a small group of people—sometimes solitary individuals—who are separated from other groups and encounter relatively few other groups of visitors along trails (e.g., away from access points), at hiking destinations (e.g., lakes, vistas, and landscape features), and at campsites for overnight visitors. Crowding and congestion at access points can affect the opportunities for solitude. Solitude is not the only appeal of wilderness, and for many visitors it is not the most important condition; however, it is an expected condition by many visitors.

Research on wilderness visitors supports the importance of solitude as a condition or characteristic of wilderness and as an experience achieved, to some degree, by visitors.

Historically, visitor density and group-to-group encounters were considered to be the best guide for determining if there were opportunities for solitude and to use in correlation with visitors’ self-reported achievement of solitude (Gramann 1982). Visitor research has shown relatively weak statistical relationships between some wilderness conditions (e.g., visitor density, group-to-group encounters) and visitor experiences (e.g., perceptions of crowding, achievement of solitude and privacy, group-to-group conflicts). However, there exists enough published information to support the concept that certain density and encounter conditions are related to perceptions of crowding or achievement of solitude as an outcome or experience (Manning 1985 and 1999; Patterson and Hammitt 1990; Hollenhorst, Frank, and Watson 1994; Watson 1995; Stewart and Cole 2001).

Privacy is a concept related to solitude and is considered to focus on a group experience; provide freedom of choice in social settings; have an element of reducing vulnerability to others outside the group; and to include some degree of autonomy from other groups (Hammitt and Madden 1989). Privacy includes solitude as one of its dimensions, and Hammitt and Rutlin (1995) argue that privacy may be a better concept to use when studying visitor-to-visitor encounters because it includes aspects of social control, freedom of choice, management of interactions with others, and solitude. Although studies of privacy have provided some insights into the concept of solitude, the Wilderness Act specifically refers to solitude.

Coping mechanisms used by visitors to maintain solitude or privacy have been studied as a way to see how visitors maximize their experiences while in wilderness (Hammitt and Patterson 1991; Johnson and Dawson 2004). Coping mechanisms include changes in physical behavior (e.g., spatial and temporal choices) and changes in social behavior (e.g., avoiding social interaction, cognitive coping). Measuring coping mechanism use is an indirect approach to understand the

conflicts, hassles, and disruptions in solitude that were experienced by visitors. Quantifying these impediments and limitations to solitude may be easier to measure than solitude or privacy achievement and could provide insights into what detracts from outstanding opportunities for solitude (i.e., indicator of the lack of outstanding opportunities for solitude).

Various indicators of the quality of recreation experiences in wilderness have been used and proposed to help managers monitor if they are providing wilderness characteristics through management activities and regulations (Manning and Lime 2000). The use of indicators is well known in the Limits of Acceptable Change planning process; however, selection of indicators and monitoring them is not common. Monitoring activities are increasing across a wide range of wilderness planning and management situations due to the development and use of indicator variables by researchers over the last several decades (Hendee and Dawson 2002).

Monitoring Wilderness Solitude

The conditions in wilderness are of primary concern to managers because they are required to directly manage for solitude opportunities in wilderness. The type of use by visitors, number of encounters with other visitors, visitor density, and location and distribution of use are subject to monitoring and control by managers who may establish visitor use levels to protect wilderness solitude. For example, as one measure of wilderness solitude, managers may monitor users to estimate the number of parties encountered per day by a group while traveling on trails or waterways in wilderness.

Some of examples of the potential indicators that managers can use to

measure wilderness conditions related to solitude include three categories of indicators.

1. Presence of others:

- Mean number of group-to-group encounters per day along main and secondary trails (i.e., away from access points).
- Mean number of group-to-group encounters per day at hiking destinations (e.g., lakes, vistas, and landscape features).
- Number of nights camped out of sight and sound of others at designated campsites (i.e., for overnight visitors).
- Percentage occupancy per night at designated campsites.
- Mean number of visitors per mile each day on main and secondary trails by weekday and weekend day and by season.

2. Separation from sights and sounds originating outside wilderness and infrastructure within wilderness (see Figure 2):

- Percentage of wilderness area that is out of sight and sound of human activities originating from outside the wilderness.
- Percentage of wilderness area that is more than one-quarter mile from all wilderness facilities and structures (e.g., lean-tos, ranger cabins).
- Percentage of wilderness area that is more than one-square mile from all wilderness trails.
- Average number of structures per acre (e.g., campsites, bridges) in the wilderness.

3. Disruption, conflict, or negative behaviors of others that reduces solitude:

- Number of enforcement citations issued per year within an area.
- Percentage of visitors who changed trip plans due to the behavior of others.
- Percentage of visitors who changed trip plans due to management actions.



Figure 1—Hikers approaching South Sister in the Three Sisters Wilderness managed by the U.S. Forest Service (OR). Photo by Chad Dawson.

- Average time spent within sight and sound of others during wilderness travel.

Measurement of some indicators, like encounters, may require complex monitoring protocols (Watson, Cronin, and Christensen 1998) due to different types of use, users, and equipment that may be mixed together in some locations and situations (e.g., pack-stock users and day hikers, wilderness experience adventure program boaters and fly-fishing trout anglers). Since access points and the associated congestion are not typical of interior wilderness areas and are not representative of encounter conditions for the area, monitoring the uneven distribution within wilderness is necessary. Other complexities include the fact that recognizing and defining groups traveling together may not be the same as how the group defines itself (e.g., a larger backpacking group may be made up of



Figure 2—Looking over Dillon Reservoir to the Eagle's Nest Wilderness managed by the U.S. Forest Service (CO). Photo by Chad Dawson.

Solitude is not the only appeal of wilderness, and for many visitors it is not the most important condition; however, it is an expected condition by many visitors.

a fast-moving sub group and a slow-moving subgroup of hikers and only recombine at the campsite), and such a distinction is fundamental to measuring separation in sight, sound, and distance between unrelated individuals and groups.

There are numerous challenges and barriers to monitoring the indicators. For example, it cannot be assumed that all encounters are similar in type, because some group-to-group encounters may include conflicts in goals or activities whereas others may not. Also, the perceptions reported by visitors in surveys and interviews are not easy to interpret for monitoring wilderness conditions as these are visitor experiences and not wilderness conditions; visitor experiences are influenced by a wide variety of intervening psychological, social, experience use history, and environmental factors. The wilderness condition indicators monitored by managers need to be quantifiable variables like actual group-to-group encounter level for a specific wilderness area.


Potential Research Questions

One concern is that managers may choose indicators based on other management plans or the variables developed by researchers, and they do not conduct an analysis of the appropriateness of an indicator for their management situation (Watson, Cronin, and Christensen 1998). The technical aspects of implementing a protocol to use a particular indicator is more complex than it may seem at first; for example, whether an encounter in-

dicator is measured per hour or per day or at the most heavily used times of the day, week, or month all require different interpretation. Monitoring of visitor-to-visitor encounters on trails and destinations is best conducted accurately and reliably by different methods (e.g., trained observers, time-lapse photography) under different circumstances. This example is further complicated by the fact that there may be different types of use, users, and equipment mixed together in some locations and situations (i.e., encounters between similar users may be more tolerated than encounters with different types of users).

Although there are many studies that have identified potential indicators (Manning and Lime 2000), better understanding is needed about how to select appropriate indicators in different situations and how to assess the best method for measurement of the selected indicator. In addition, better information is needed about the differences between actual wilderness conditions for solitude and self-reported measures of solitude and privacy achievement from visitor experiences. For example, monitoring the solitude experiences of visitors in wilderness depends on the approach used, since different approaches provide different information (Watson and Roggenbuck 1995).

Substantial progress has been made in identifying potential indicators of solitude and privacy in wilderness; however, the selection of specific data collection protocols that can be implemented across a series of similar areas has yet to be developed. Furthermore,

comparisons between various data collection techniques under different situational factors have not been conducted to assist managers in understanding the various ways that an indicator can be appropriately used. It seems that while the conversations about indicators and the apparent need for their use has been widely engaged, the utilization of the indicators has been limited by the development of practical and tested data collection techniques. 

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Wilderness Character and the Notion of an “Unconfined” Experience

BY STEPHEN F. McCOOL

A Vignette

The two hikers had been on the trail for several days. Although absolute solitude was not their primary goal, escape from the pressures, responsibilities, and intrusions of an industrialized, and now digitized, society was. Getting away from technology and a highly regulated urban scene was critical to a good experience and essential to renewing old friendships. They set up camp in a high mountain glacial cirque, a magnificent and spectacular setting containing a beautiful lake over which their campsite looked. Over the next few hours, four other groups with similar interests and motives camped around the lake, and by evening, the local atmosphere was clogged by the smoke from five campfires, each established as part of an important and highly desired wilderness ritual. The resulting dissatisfaction with the situation was uniform across all five groups. The smoke-filled cirque was only the symptom, however, of an underlying problem, one that permeated the management of this wilderness and most others: apparently too many people seeking experiences that, by their vary character, are not only rare but acutely fragile as well.

The amount of smoke in the cirque was clearly both unpleasant and unacceptable, reducing visibility during the evening twilight hours of the surrounding mountains, forests, and snowfields—a primary reason for selecting that drainage for the wilderness trip. One could easily conclude that the solution to the problem of smoke pollution was a reduction in campers, leading therefore to a decrease in campfires. In addition, the visible impacts on soil and vegetation that signified that a place was also a campsite would come to be viewed as a problem of too many people. By prohibiting fires—or by limiting the number of campers—managers could reduce smoke and demand for wood, and

increase opportunities for solitude. But would they be impacting other dimensions of wilderness experiences?

An Essential Element of a Wilderness Experience

Wilderness opportunities are extraordinarily delicate and susceptible to intrusion of others. They are difficult to find and to experience—in the sense that most lands in the United States are highly developed, show extensive evidence of human occupation, and contain other people, who, significantly, are inescapably subject to thousands of rules and norms regulating and restricting their daily lives. Relative to the population, wilderness landscapes are growing in scarcity. Although more than 100 million acres are currently designated, population growth over the next 50 years will reduce the acres available per person. It seems no matter how friendly adjacent campers may be and no matter how much they share similar values toward wilderness, they impact in a negative way the experience other campers seek.

It is easy to see how these impacts came to be described by the foresters, wildlife managers, and other applied biologists who dominated the early management of backcountry as an impact on the social carrying capacity of a wilderness experience. And given that perspective, it is not a large leap to promulgating rules concerning campfires, developing regulations concerning maximum group sizes, proscribing restrictions on where and how long a group may camp in the backcountry, and implementing limits on the numbers of visitors that may experience the backcountry at one time.

These experiences and the response of managers raise fundamental questions about the capability of wilderness settings, in the face of accelerating demand, to provide the

If wilderness experiences are to be unconfined, what indicators would a manager monitor to ensure that this dimension was not adversely affected?

“outstanding opportunities for solitude or a primitive and unconfined experience” that serve as a primary objective of management for designated wilderness in the United States. Would the campers in the preceding vignette be able to experience wilderness as Congress intended in 1964? Are there some rules that are not as confining as others? If confining rules and limits are necessary, what trade-offs are the campers willing to make? Are these trade-offs similar to managers’ preferences? Are they willing to visit the wilderness under any set of rules and regulations? Is access to this spectacular setting more important than the conditions under which they will experience it? Who should make the decisions, and for whom are they made? What rules are acceptable to whom?

Under some conditions, recreationists may prefer more rules to fewer ones (Frost and McCool 1988). Some have argued that the presence of rules creates a “fairer” environment for recreation than their absence (McAvoy and Dustin 1983), as then all visitors follow the same protocol rather than just some visitors voluntarily practicing camping guidelines. But in wilderness settings, there are distinct experiential trade-offs between intrusive and nonintrusive management actions (McCool and Christensen 1996). And if education or information are preferred methods of influencing, rather than confining, visitor behavior, how do we do it (Vander Stoep and Roggenbuck 1996)?

Certainly, the notion of unconfined is an important dimension of wilder-

ness. If it weren’t, we would assume Congress would not have mentioned it. And yet, the interest in escaping the pressures, regulations, routines, and limiting character of contemporary civilization is growing. This growing interest, combined with the relative scarcity of wilderness and wilderness-like settings, raises important questions and concerns about wilderness stewardship. In particular, there are significant issues about the mandate to provide opportunities for an “unconfined” experience, the subject of this brief article. These issues and questions hold critical implications for attempts to understand the notion of wilderness character, and resulting consequences for understanding whether stewardship agencies are meeting their responsibilities under the Wilderness Act.

Although there are substantial questions about the meaning of “outstanding opportunities,” there are challenging dilemmas concerning the phrase “primitive and unconfined.” First, there is the logical question concerning the conjunction between the words *primitive* and *unconfined*. Congress did not use the word *or*; if it had, that would indicate it viewed each as distinctly separate, but would leave the choice of which to provide to stewardship agencies. Assuming Congress understood the full implications of its statement, the logical conclusion reached from using the word *and* is that Congress intended for opportunities to be both primitive and unconfined. Thus, by using the conjunction *and* it indicated that these are distinctly separate but potentially related qualities of wilderness recreation.

Since others in this issue of *IJW* are addressing the notion of the primitive dimension of these experiences, I will focus on the concept of an “unconfined” experience. I interpret the word *unconfined* as being the antonym of the word *confine*. Lacking a specific congressional discussion on this matter (which would have reduced the uncertainty of its intent), we turn to the dictionary (Merriam-Webster, Inc. 1985). *Confine*, in this context, means “to set bounds, to restrain within limits, to restrict, to limit, to bound, to shut up, to enclose, to keep close.” It also means to be deprived of freedom. These terms certainly indicate that a confined recreation opportunity is one that is limited, restricted, restrained, or otherwise circumscribed. Thus, an unconfined experience would be unlimited, unrestrained, and unrestricted. Visitors would enjoy freedom to select campsites, design their own travel routes, hold campfires, and determine how long they would stay. In the context of wilderness, the word *confine* may also mean that the visitor has been deprived of certain freedoms, such as losing the *internal* locus of control over such decisions as choice of travel route, camping location, date of entry, length of stay, or use of a campfire.

However, this interpretation leads to the logical conclusion that stewardship agencies would not have the ability to manage, control, or regulate visitors—a ludicrous supposition. This thus presents the agencies with a perplexing dilemma. On the one hand, agencies are required to protect the values for which wilderness is designated, and on the other, providing outstanding opportunities for an unconfined experience may lead to wilderness suffering unacceptable biophysical impacts. Managers have the option of managing the impacts of visitors, regulating their behavior or

influencing behavior through education and information (Peterson and Lime 1979). But what technique should they adopt, and what trade-offs occur? A response is that managers should adopt the “minimum tool” that is effective is addressing a particular problem—but is that fair (Dustin and McAvoy 1984)?

Clearly, freedoms are not absolute. Like shouting “fire” in a crowded theater, wilderness visitors do not have the unconditional freedom to do anything they please. And just as clearly, recreation is only *one* of the permitted uses of wilderness; it is not necessarily the dominant permitted use. Primitive and unconfined recreation may only occur if it does not unacceptably alter wilderness values. It would seem then that as a characteristic of wilderness, the notion of unconfined is clearly conditional on the capability of the area to support recreation (see Figure 1).

Finally, unconfined is not either/or, but rather occurs in degrees. If indeed the wilderness ideal of an unconfined experience is conditional, then good stewardship requires some type of control, but such controls, rules, or restrictions should be the minimum needed to accomplish clearly specified and agreed-upon objectives. Until such objectives are identified, it would seem difficult to implement rules and regulations that confine visitors. Without clearly specified objectives and standards of acceptable change, visitors are being regulated to achieve only ambiguously defined benefits.

If wilderness experiences are to be unconfined, what indicators would a manager monitor to ensure that this dimension was not adversely affected? Monitoring such social conditions is challenging and requires a thoughtful analysis of what should be monitored, and when, where, and how frequently

(Martin 1990). Since monitoring is oriented toward setting conditions, what managerial-setting attributes (indicators) can/should be monitored—number of rules, type of rules, location where rules are enforced? Can the unconfined dimension of a wilderness experience be achieved by implementing rules *outside* the area (limiting access, requiring certain equipment, amount of experience, etc.), then allowing visitors to make their own choices *inside* the wilderness?

Perhaps monitoring should be directed toward how confined visitors feel. Monitoring is critical when experiences are confined in order to assess the intrusiveness and confining character of management. Through the data and evaluation that monitoring requires, wilderness stewards come to understand how rules and regulations affect visitors and the willingness of visitors to accept trade-offs.

That the notion of unconfined is an important dimension of wilderness is not a new statement. But, given the mandate to protect wilderness character and increasing demand for wilderness experiences, we need more debate and deliberation not only about what it means, but how it is integrated into other dimensions of wilderness and how this element can be protected (or enhanced if needed). And we need greater understanding of its relationships to other dimensions of wilderness. So, as those two campers contemplate the smoky evening and the intruding sounds of their peers, they will wonder whether it is best to be somewhat confined, and have fewer people and intrusions, or less confined but more people and potentially more biophysical impacts. ♻️

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Figure 1—A lone hiker traveling in the Inyo Mountains Wilderness during winter; area is managed by the U.S. Forest Service and Bureau of Land Management (CA). Photo courtesy of USFS.

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Why Primitive Experiences in Wilderness?

BY BILL BORRIE

Introduction

As defined in the Wilderness Act (PL 88-577), wilderness managers and policy makers must protect and provide “outstanding opportunities for solitude or a primitive and unconfined experience.” The draft report on the “National Framework on Monitoring Selected Conditions Related to

Wilderness Character” interprets this as a call for “a complex and subtle set of relationships between the land, its management, and the meanings people associate with wilderness” (Landres 2004, in this issue). However, the fundamental question is what sort of social relationships are to be validated and encouraged. In defining the nature of primitive experiences in wilderness, we should be informed by its intellectual origins and underlying philosophical assumptions.

Perhaps, some contentious strands of thought

permeate the call for primitive experiences. Wilderness is a sanctuary from modern, technological society. It is a place to reflect, to rejuvenate, and to rediscover ourselves free from the demands and distractions of where we live and work. Wilderness is a contrast and a reminder of how things once were. Two particular eras and lifestyles of American history are also valorized: (1) the simple, close-to-nature lifestyle of indigenous peoples—the “noble savages”; and (2) the virtuous character traits of early European settlers—the “virile pioneers” (Henberg 1994).

The opening sentence of the Wilderness Act is sometimes overlooked, and yet it offers a foundation for the consideration of primitiveness. The Statement of Policy begins:

Sec. 2. (a) In order to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition, it is hereby declared to be the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness.

Note the emphasis on an “increasing population,” on “expanding settlement,” and on “growing mechanization.” This indicates a deliberate setting apart of wilderness from the forces of change that are associated with modern, technological society. It is a statement concerning not just ecological components of a wilderness resource, but also very much the social and cultural components. I believe it acknowledges people’s place in nature, and calls for a definition of appropriate practices, institutions, and attitudes toward nature. Wilderness is symbolic of restraint and reserve, suggesting the importance of lightening the burden of humanity on nature and upon the experience of nature. Choosing to leave behind the trappings and conveniences of modern, technological society is a fostering of primitive experiences. However, this observation should not be interpreted as a call to *save nature from people*. That seemingly innocuous stance opens up problematic questions of: From whom are we protecting nature? For whom? And, whose interests are being served in so doing? These are questions of social justice, equity, power, and fairness and are not easily dealt with herein.

Intellectual Origins

The origin of the notion of primitiveness can partly be found in the early wilderness writings of Teddy Roosevelt, Aldo



Figure 1—Backpacker entering Buckskin Gulch in the Paria Canyon–Vermilion Cliffs Wilderness; managed by the Bureau of Land management (AZ and UT). Photo by Peter Druschke.

Leopold, and Bob Marshall. I offer a few illustrative quotes that indicate the vaunted status of the “virile pioneer” and the “noble savage.” Teddy Roosevelt, for instance, suggested in 1897 that

the untrodden American wilderness resembles both in game and physical characters the forests, the mountains, and the steppes of the Old World as it was at the beginning of our own era. . . . At the time when we first became a nation, nine tenths of the territory now included within the limits of the United States was wilderness. It was during the stirring and troubled years immediately preceding the outbreak of the Revolution that the most adventurous hunters, the vanguard of the hardy army of *pioneer* settlers [emphasis added], first crossed the Alleghenies, and roamed far and wide through the lonely, danger-haunted forests which filled the No-Man’s land lying between the Tennessee and the Ohio. (Roosevelt 1998, pp. 333–335)

In addition to valorizing the pioneers and their rustic way of life, Roosevelt also drops the names of Davy Crockett (“honest, fearless”), Sam Houston (“mighty,” “restless, reckless, and hardy”), Daniel Boone (“the archetype”), and Kit Carson (“daring”). They are members of a “distinctive class, with a peculiar and important position in American life” (p. 341). These heroes “show the qualities of hardihood, self-reliance, and resolution needed for effectively grappling with his wild surroundings” (p. 348). Roosevelt celebrates not only the pioneering lifestyle, but also the character traits that are fostered and reinforced in primitive, frontierlike experiences.

Aldo Leopold similarly writes that public wilderness areas are essentially a means for allowing

the more *virile* and *primitive* forms of outdoor recreation to survive the receding economic fact of *pioneering*. . . . There is little question that many of the attributes most distinctive of America and Americans are the impress of Wilderness and the life that accompanied it. If we have any such things as an American culture (and I think we have), its distinguishing marks are a certain vigorous individualism combined with ability to organize, a certain intellectual curiosity bent to practical ends, a lack of subservience to stiff social forms, and an intolerance of drones, all of which are the distinctive characteristics of successful *pioneers* [emphases added]. (Leopold 1925, p. 401).

Bob Marshall, in 1930, linked the experience of primitive environments with early Native Americans. He suggested that the dominant attributes of a wilderness area are as follows:

First, that it requires anyone who exists in it to depend exclusively on his own effort for survival; and second, that it preserves nearly as possible the *primitive* environment [emphasis added]. This means that all roads, power transportation and settlements are barred. But trails and temporary shelters, which were common long before the advent of the white race, are entirely permissible. When Columbus effected his immortal debarkation, he touched upon a wilderness which embraced virtually a hemisphere. . . . “The land and all that it bore they treated with consideration; not attempting to improve it, they never desecrated it.” Consequently, over billions of acres the aboriginal wanderers still spun out their peripatetic careers, the wild animals still browsed in unmolested

meadows and the forests still grew and moldered and grew again precisely as they had done for undeterminable centuries. (Marshall 1998, pp. 85–86).

Putting aside the anthropological difficulties of Marshall’s views of the presence and practices of American Indians on the North American continent, this is entirely indicative of Native Americans as enlightened cultural role models. Their environmental identities, attitudes, and behaviors are seen to be examples of appropriate cultural relationships with nature. However, that model of the “noble savage” or “green primitive” is problematic.

Problematic Ideals

Indeed, the notions of the “ecologically noble savage,” and the “virile pioneer” are both difficult. Both clearly make a distinction (as does the Wilderness Act) between a genuine, traditional culture and a spurious, modern culture (Vivanco 2003). Whereas the modern is seen as shallow, superficial, and very utilitarian, the traditional is meaning-laden, harmonious, and spiritually engaged. It suggests that particular human cultures are more virtuous than others, and that those cultures have insight and environmental wisdom, or even a clearer view toward ecological sustainability.

The notion of the “green primitive” or “ecologically noble savage” idolizes and sets apart indigenous cultures. In doing so, it can suggest purity, simplicity, and closer connection to nature due to their ability to avoid the “stain” of modern, technological society. It locates indigenous cultures outside the dominant track of history, separate from economic systems of trade and exchange, and almost on the “other” side of the human and nature divide (not quite human). It suggests an unchanging culture that is undermined

The origin of the notion of primitiveness can partly be found in the early wilderness writings of Teddy Roosevelt, Aldo Leopold, and Bob Marshall.


by the adoption of technology and by engagement (however cautious) with politics, legal negotiation, and economic success (Vivanco 2003).

The pioneering lifestyle, though more myth than reality in its time, might also be difficult to argue for as an ideal. It could be seen as endorsing a hunting and gathering, mobile ethos in clear contrast to an agrarian vision (secure title, permanent habitation, and “improvement” of land). I wonder if the attraction of the pioneer model is its rejection of urban servitude and/or rural peasantry. Although not exactly celebrating poverty, is the attraction of the pioneer lifestyle a reaction to the stalled economic status of rural inhabitants, and the perceived lack of ability to develop sustainable

and harmonious relationships to nature? Is the pioneering lifestyle valorizing distant landscapes, open horizons, and sublime mountain landscapes to the inconsiderability of nearby, less iconic landscapes? Although rightfully celebrating distant landscapes, are we also ignoring the less than admirable state of our relationship to nearby nature? When cast in light of these questions, the celebration of a pioneering lifestyle becomes troublesome.

Conclusion

The search for indicators for the wilderness value of primitive experiences is a consideration of appropriate social and cultural relations with nature. In doing so, we need to be wary of the worldviews we would be endorsing.

Those worldviews may not be as politically appropriate and benign as when they were first suggested. 

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we should be monitoring in this “outstanding opportunities” quality of wilderness, and the differences between monitoring for opportunities versus experiences.

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Managing for Primitive Recreation in Wilderness

BY JOSEPH W. ROGGENBUCK

The Issue

The Wilderness Act of 1964 (P.L. 88-577) specifically mandates that lands designated as wilderness shall provide outstanding opportunities for solitude or a primitive and unconfined type of recreation. Yet, as we celebrate the 40th anniversary of the National Wilderness Preservation System, very little thought, discussion, and research have been devoted to defining what is meant by primitive recreation in wilderness, the values of the primitive in the American mind, its importance to wilderness recreational visitors, the degree to which this value is threatened, and to management systems that might facilitate or reduce outstanding opportunities for primitive experiences in wilderness. As an example of the problem, many managers in well-intentioned efforts to protect the aesthetic and natural qualities of wilderness are discouraging the use of campfires for cooking in wilderness and even requiring the use of a late 20th-century mechanical gadget, the backpack stove. Where is the thoughtful discussion on what is lost and what is gained as we require late 20th-century technology running on exotic nonrenewable fuels in wilderness?

Writings of the Wilderness Fathers

The fathers of the movement to protect wilderness in America wrote much and clearly about the meaning and values of the primitive in the American mind. Thoreau went to the woods “to live deliberately, to front only the essential facts of life, ... to live deep and suck out all the marrow of life, to live so sturdily and Spartan-like as to put to rout all that was not life ... lest when I come to die, discover that I have not lived” (Torry and Allen 1949). For us here, the essential path of Thoreau to the wild and to finding truth was to reduce the clutter and the clamor, to simplify, to live life deliberately, and to live in a Spartan-like manner (i.e., to live in a primitive way).

Leopold (1925), at least in his early writings, saw the primary value of wilderness as maintaining and nurturing the essential American character, a character marked by “a certain vigorous individualism ... a lack of subservience to stiff social forms, and an intolerance of drones, all of which are the distinctive characteristics of successful pioneers.” For a young Leopold, wilderness areas were ideal places to allow the more virile and primitive forms of outdoor recreation to survive the receding economic fact of pioneering. Play at pioneering was an improvement over the stern realities of pioneering, because pioneer play could be done under the ethical code of a sportsman. Given this, Leopold defined primitive recreation as knowing there were blank spots on the map, having the opportunity and the skill to lead pack trains of horses away from roads and summer hotels and to tie diamond hitches, and having the opportunity and skill to bag game and catch fish away from roads and the Model T Ford and without a lot of gadgets and gimmicks.

Marshall (1930) added greater specificity to Leopold’s statement of the values of primitive experiences in wilderness. For Marshall, wilderness

denoted a region with no permanent inhabitants, possessed no possibility of conveyance by mechanical means and is sufficiently spacious that a person crossing it must have the experience of sleeping out. The dominant attributes of such an area are: first, that it requires any one who exists in it to depend exclusively on his own effort for survival; and second, that it preserves as nearly as possible the primitive environment. This means all roads, power transportation and settlements are barred. But trails and temporary shelters, which were common long before the advent of the white race, are entirely permissible (p. 141).

Thus, like Leopold, Marshall valued primitive recreation in wilderness for the individuality and skill it fostered (see Figure 1). But in addition, Marshall valued self-sufficiency. For Marshall, the wilderness trip was not mediated; there was no guide.



Figure 1—Man on horseback with pack trail in western U.S. wilderness. Photo courtesy of U.S. Forest Service.

Olson, the bard of the Boundary Waters, perhaps more than any other wilderness writer, developed a philosophical foundation for the value of primitive experiences. In so doing, he provided insight into what is a primitive experience and how it unfolds in wilderness. As a guide in the Boundary Waters, Olson (1938) noted how quickly a man sheds the habiliments of civilization and how soon he feels at home in the wilds. Before many days have passed, he feels that the life he has been living was merely an interruption in a long wilderness existence and that now again he is back at the real business of living. And when we think of the comparatively short time that we have been living and working as we do now, when we recall that many of us are hardly a generation removed from the soil, and a scant few thousand years ago our ancestors roamed and hunted the fastnesses of Europe, it is not strange that the smell of woodsmoke and the lure of the primitive is with us yet. Racial memory is a tenacious thing, and for some it is always easy to slip back into the deep grooves of the past. What we feel most deeply are those things which as a race

we have been doing the longest, and the hunger men feel for the wilds and a roving life is natural evidence of the need of repeating a plan of existence that for untold centuries was common practice. It is still in our blood (p. 397).

In this and other writing, Olson (1945) suggested that primitive recreation is not primarily meditation and contemplation in idyllic settings. It instead unfolds over some time, typically some days. It is fostered by battling the raw elements of nature. Primitive experiences slowly unfold during a life on the move, and they prototypically involve woodsmoke.

Defining Primitive Experiences in Wilderness

Given the writings of the wilderness fathers, a wilderness experience is primitive to the extent to which it represents living/eating/sleeping/traveling/playing in a simple, unguided, multiday, nonmotorized, nonmechanized, non-electronic, and nonfacilitated way. Prototypically, primitive experiences represent immediate and deep contact with raw nature without the clutter and aid of modern conveniences. Defining what is modern is of course a value judgment. Marshall suggested that the demarcation

line might be the arrival of Columbus on the American continent. But most of us with our Kevlar canoes, nylon tents, and polypropylene vests are not quite so primitive.

Benefits of Primitive Recreation in Wilderness

Wilderness managers, as they select indicators, standards, and management strategies to facilitate primitive experiences, should consider the probable benefits of such experiences. The wilderness philosophers and more recent empirical research (e.g., Talbot and Kaplan 1986), suggested the following direct and immediate positive effects: learn woodsman/pioneer outdoor skills, nostalgia or connection with pioneers and early American explorers, learn skills of exploration and travel in wild places, and learn nature's processes and ecology. Likely second-order or indirect positive effects include becoming hardy in body and mind, self-reliant, self-confident, becoming a creature of the Wild or an ecological citizen, developing respect for nature, and increasing humility and joy.

Importance of Primitive Experiences for Current Visitors

Thus far this essay has taken a historical perspective on the values of primitiveness. Do today's wilderness visitors, whose perceptions of nature may be most influenced by the TV, the web, the mall, and Disney (Roggenbuck 2000), seek and receive primitive experiences in wilderness? Shafer (1993) and Shafer and Hammitt (1995) measured the importance of five different experience dimensions of Okefenokee and Cohutta Wilderness visitors, and found the primitive dimension to be second in importance to natural, and more important than solitude, unconfined, and remote. Borrie and

Roggenbuck (2001) measured the extent to which Okefenokee Wilderness visitors experienced “simple living” and “living like a pioneer” during their stay. Primitive living scores were quite low among respondents, but they increased progressively across time in wilderness. Watson and Roggenbuck (1998) found that challenge/primitive/way-finding was one of four important dimensions of the wilderness experience at Juniper Prairie Wilderness in Florida.

Threats to Primitive Conditions in Wilderness

This analysis suggests the following types of wilderness conditions are conducive to primitive experiences: blank spots on the map, long stays, no or few basic facilities, simple trails/pathways, no motorized travel, no mechanical conveniences, no electronic devices, unfacilitated or nonmediated experiences, and simple gear for survival, not comfort. Hende and Dawson (2001) recently listed 17 threats to wilderness resources and values, five of which involved primitive experiences: excessive administrative access, facilities, and intrusive management; advanced technology; trespass and legal use of motorized and mechanical equipment; aircraft noise from aircraft overflights, and urbanization encroaching on the wilderness boundaries. The most insidious of these threats arising from visitor use might be categorized as arising from changes in the structure of leisure time in America (which in turn is shaped by changes in the workplace), changes in the views of nature in America, the revolution in information transfer, and the recent explosion in technology, especially electronic technology.

In recent decades, leisure has become available in smaller and smaller blocks of time, and there is increasing

need for and a capability of last-minute planning. Visits to wilderness are becoming shorter and closer to home. Thus, an increasingly large percentage of all wilderness visits are for a day or less. This reduces the likelihood of attaining primitive experiences.

Because more and more Americans likely learn of nature through TV, the web, the mall, and Disney, more and more wilderness visitors will likely expect the wilderness to be safe, sanitized, clean, comfortable, and exciting. But nature, especially wild nature, is none of these things. To buffer the messiness, unpredictability and unresponsiveness, and slow rhythms of nature, wilderness visitors will turn to outfitters, guides, and travel agents to mediate their experiences in wilderness. This change almost surely reduces contact with raw nature, and primitive experiences are correspondingly reduced.

Leopold (1949) wondered about the value of forty freedoms without a blank spot on the map. Today with the explosion of satellite mapping, remote sensing, and instant two-way communication on the Internet, are we losing the values of freedom, the freedom to explore, and the freedom to escape (Freimund and Borrie 1997)? Today we can click onto the Internet and find out at any moment the availability of permits at each put-in point into the Boundary Waters Canoe Area Wilderness; we can peruse suggested travel routes; we can learn about characteristics of individual campsites; we can hear the call of the loons; and we can select an outfitter to help us find the loons, the moose, and the big fish. To be sure, much good is coming of this shift. But for certain, some values are being lost, and one of these is the experience of the primitive (i.e., the surprise of encounters with the unknown and the wisdom of direct

contact with the slowly unfolding rhythms of nature).

The explosion in technology with respect to wilderness use and enjoyment is perhaps the most pervasive and complex of all changes regarding wilderness in the 21st century. This is because technology not only changes wilderness, inside and out, but it also changes us (Borrie 2000). Communication and marketing technology is changing our image of what wilderness is, what it can be, and what it should be. The media can convince us that wilderness is what it is not, or at least convince us that wilderness is different from the intent of wilderness managers and wilderness legislation.

Technology has produced lots of innovations to increase the comfort and safety of the wilderness encounter. This permits more people to go more deeply into wilderness at more dangerous times and places. But with the use of increased technology, people can get soft and lazy, they can lose skills and self-sufficiency, and they can develop a false sense of security. With modern conveniences, going to the wilderness can become a lark, simply a fun diversion. People may lose the desire to experience nature on its own terms, and may lose humility and respect for nature. In effect, they may lose the experience of the primitive.

Technological stuff that has altered primitive recreation in wilderness might be classified as four types: those that allow people to live and play comfortably, create ease of travel, permit contact with the outside, and provide entertainment (Sawyer 2002). All, except entertainment, can increase perceived safety and control. For obvious reasons such technological advances are seen as beneficial, but if pushed too far they can reduce or eliminate feelings of the primitive.

Primitive experiences represent immediate and deep contact with raw nature without the clutter and aid of modern conveniences.

Possible Indicators of Opportunities for Primitive Experiences

Wilderness managers must consider three additional practical considerations when they select indicators of primitive experiences. First, wilderness managers are mandated to provide opportunities for primitive experiences. Managers and nature provide opportunities; recreational visitors create experiences. Second, the recreationists or the conditions of the environment outside the wilderness often affect opportunities for primitive experiences as much as what happens inside the wilderness. Third, because recreationists construct their own experiences, managers should be cautious about attempting to engineer experiences too much. The oath taken by medical doctors “to do no harm” seems to apply equally well here. With these cautionary notes, this article concludes with examples of possible indicators of opportunities for primitive experiences in wilderness:

1. Lack of Facilities

- Number of structures for aid and comfort of visitors per acre in wilderness
- Number of administrative structures per acre in wilderness

2. Trail Miles and Conditions

- Number of miles of trail per acre in wilderness
- Percentage of miles of trail in various maintenance condition classes in wilderness

3. Blank Spot on the Map

- Percent of wilderness area more than one mile away from human-made trails and structures

- Percent of wilderness area without available electronic information about its facilities and conditions

4. Multiday Visits

- Percent of visitors who stay more than one day per visit
- Average length of stay per visit

5. Unguided or Unmediated Visits Percent of visitors whose visit is or is not outfitted or guided

- ### 6. Modern Technology—Motorized Use
- Miles/percent of trail or acres of area open to commercial or private motorized use

- Amount of administrative motorized use (in hours per year)

7. Modern Technology—Mechanical Use

- Regulations requiring/forbidding use of backpack stoves

- Percent of visitors who use/don't use backpack stoves
- Percent of meals cooked over fire/cooked over a backpack stove

8. Modern Conveniences—Electronic

- Number of cell phone towers visible from the wilderness

- Regulations forbidding/permitting cell phones
- Regulations forbidding/permitting global positioning systems/units in wilderness

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Wilderness Experiences

What Should We Be Managing For?

DAVID N. COLE

The U.S. Wilderness Act gives wilderness managers a challenging stewardship responsibility: to provide and/or protect opportunities for certain types of human experiences. The act states that wilderness “shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness.” The significant clause that they are to be enjoyed “as wilderness” is further defined under the definitional characteristics of wilderness. Here wilderness is defined, in part, as an area that “has outstanding opportunities for solitude or a primitive and unconfined type of recreation.” This is all the guidance the Act provides regarding the responsibilities of wilderness managers regarding recreational experiences in wilderness.

Since their primary responsibility is to preserve wilderness character, managers need clear objectives regarding human experiences in wilderness, as well as an understanding of how well those objectives are being attained. Several of the other articles in this issue provide perspective on concepts of solitude, primitive recreation, and unconfined recreation. My concern is whether stewardship objectives should relate most directly to the kinds of experiences people are having in wilderness, their evaluations of those experiences, or their opportunities for certain kinds of experiences. The answer to this question is relevant to how we should monitor and assess wilderness character, as well as the indicators we might adopt in a Limits of Acceptable Change or similar type of wilderness management plan.

Settings, Experiences, and Evaluations

To address this question, it is helpful to consider a model that illustrates relationships among four possible assessment domains: settings, experiences, evaluations of experiences, and evaluations of setting attributes (see Figure 1). The setting describes the conditions that visitors experience on a wilderness trip. Commonly, attributes of the setting are classified as being biophysical, social, or managerial. Some of these attributes are

subject to managerial control but many are not. Biophysical attributes that manager can control include how much recreation impact is present and whether there are bridges over rivers. Biophysical attributes managers cannot control include scenery, weather, and bugs. The social setting is more subject to managerial control and includes such attributes as amount and type of use. However, even more important than amount or type of use can be the behavior of other visitors, something managers have less control over. Finally, managers have substantial influence over managerial attributes such as the degree of restriction of free, unconfined, and spontaneous behavior.

Visitor experience is a concept that is frequently articulated but seldom defined. Here I use the term to refer, as McIntyre (1998) does, to what visitors do in wilderness, what they focus on and think about, and how they feel while they are there. What visitors experience is influenced by the setting conditions that the visitor encounters. However, as Figure 1 suggests, the experience is also substantially influenced by how each person appraises and responds to the conditions that are encountered. Different people encountering similar biophysical, social, and managerial conditions often have very different experiences. This variation ultimately stems from

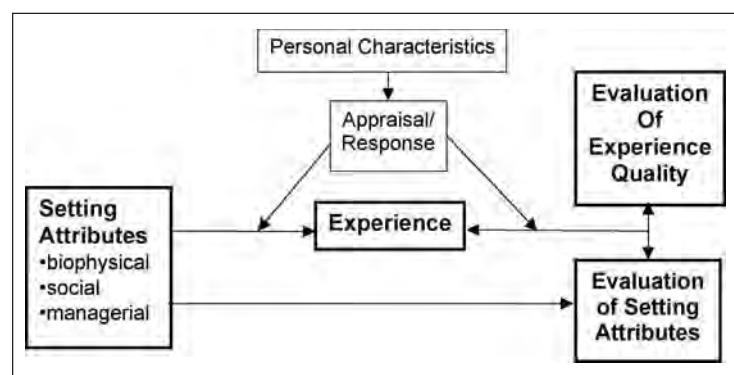


Figure 1—A conceptual model of the relationships between setting attributes, the personal characteristics of visitors, their experiences, and their evaluation of those experiences and of setting attributes.



Figure 2—Hiker ascending an alpine trail in the Mount Rainier Wilderness; managed by the National Park Service (WA). Photo by Chad Dawson.

differences in personal characteristics, such as norms and expectations. One person may be so motivated by a need for some quiet time that a high degree of solitude is experienced despite crowds of people all around. Another similarly motivated person, less tolerant of crowds, may experience resentment and stress while attempting to get away from crowds to find a suitably quiet interlude. Finally, someone else out for exercise and social interaction might never slow down or experience tranquility the entire time—and yet be perfectly satisfied.

Visitors also appraise and respond to what they actually experience in wilderness, creating longer-term meanings and outcomes from the wilderness visit. Survey researchers commonly attempt to evaluate overall experience quality by asking visitors how satisfied they were with their experience. Alternatively, visitors can be asked for evaluations of specific setting attributes, from the adequacy of parking to how crowded they felt.

Basis for Assessment

Clearly, information about each of these four domains has value and can contribute to improved wilderness stewardship. However, which of the four provides the most meaningful basis for assessing wilderness character or for indicators within a planning process such as Limits of Acceptable Change? If the goal of wilderness management is to provide high quality experiences, it would seem that experience evaluations would be most important. The problem is that experience evaluations are almost invariably positive regardless of the conditions that were encountered or what was experienced. Substantial research has been conducted showing that variables such as the number of other groups encountered have relatively little influence on the quality of people's experiences (Manning 1999; Stewart and Cole 2001). The experience-quality evaluations of most people are likely to be roughly equivalent whether a wilderness provides a wild experience or one more reminiscent of Disneyland.

Visitors are more likely to negatively evaluate specific setting attributes than their entire experience. Survey results often indicate that the number of people encountered detracted somewhat from experience quality or that signage was considered a problem. However, the large number of attributes that might be evaluated and lack of consensus on their relative importance makes this type of information difficult to interpret. Importance-performance measures have been developed to deal with this complexity, but the shortcomings of this approach include the tendency (1) to aggregate measures across users to develop evaluations of "the average user" and (2) to treat the wilderness experience as a collection of individual attributes rather than as a whole that is more than the sum of its parts (Borrie and Birzell 2001).

The Wilderness Act does not direct managers to provide high quality experiences. It directs them to provide *opportunities* for wilderness to be enjoyed *as wilderness*. This suggests that a better criterion than evaluations of experience quality would be the type of experience that people have in wilderness. There are two problems with this approach. The first problem—which conceivably could be overcome—is that the nature of experience has seldom been studied and is poorly understood. We do not have more than a rudimentary vocabulary for describing experiences in terms that might be arrayed from more to less desirable for wilderness. Recently, interest in describing what visitors experience in wilderness has increased (e.g., Borrie and Roggenbuck 2001). This work should ultimately provide new insights related to effective stewardship of wilderness regarding visitor experiences.

The other problem with using experience as a primary assessment domain is the fact that it is largely determined by factors that are not subject to mana-

gerial control. Some people come to wilderness looking for solitude, while others do not. If we use a variable such as solitude achievement for assessment purposes, wilderness character would vary with the desire of wilderness visitors for solitude—regardless of what was happening to wilderness conditions. Solitude achievement could increase even as wildernesses became more crowded, if visitors became more capable of finding tranquillity among other people. Alternatively, solitude achievement could decrease as more people come to wilderness for purposes other than to find solitude.

Despite the tendency to refer to the manager's job as protecting the quality of wilderness experiences or the importance of understanding what visitors are actually experiencing, both experiences and evaluations are problematic as indicators of either wilderness character or of management success. The alternative is to base indicators on setting attributes that are subject to managerial control. Preserving these attributes—such as low-use density, few encounters, rough trails, few facilities—does not guarantee a particular kind of experience. Rather, it preserves *outstanding opportunities* (to use the phrase from the Wilderness Act) for certain types of experiences, should visitors seek those experiences.

Conclusions

Monitoring wilderness character and managers' success in meeting stewardship objectives are important. Monitoring of setting attributes that are subject to managerial control and related to desired wilderness experiences seems to provide a better basis for assessment than measures of the wilderness experience itself or of visitors' evaluations of the experience. However, our ability to select good indicators of the setting will clearly

increase as we learn more about the nature of human experience in wilderness and how that experience varies with setting attributes. In addition, visitor evaluations and opinions about appropriate setting attributes, along with those of other stakeholders, need to be considered when setting management objectives. ♻️

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Figure 3—Crown Lake and Slide Mountain in the Hoover Wilderness; managed by the U.S. Forest Service (CA). Photo by Peter Druschke.

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Proposed New Idaho Wilderness Area Would Allow Motorized Access

An unlikely coalition of ranchers, off-road vehicle enthusiasts, politicians, and environmental groups has, after years of discussion and negotiation, united to propose the first new federal wilderness area in Idaho in more than 20 years. The official wilderness designation would give protection from almost all development to 511,000 acres (206,882 hectares) of land in and around the Owyhee-Bruneau Canyonlands. Access would be ensured for off-road vehicles

that stay on designated routes; just 40,000 acres (16,194 hectares) would be off-limits to ranching. Senator Mike Crapo, who helped shepherd the negotiations, said the agreement “should set a standard for collaborative decision-making”; he is “very optimistic” that it will pass through Congress. In 2000, the Clinton administration proposed setting aside a much larger 2.4 million acres (1 million hectares) of southwest Idaho as a national monument, which would have placed it under much tighter restrictions, but, said Idaho Rivers United Director Bill Sedivy, “That was a different time, a different place.”

Monitoring Wilderness Conditions in the Green Mountain National Forest

BY KEN NORDEN

Six wilderness areas in the Green Mountain National Forest (GMNF) range in size from 3,738 acres (1,514 ha) in the Bristol Cliffs area to 21,480 acres (8,697 ha) in the Breadloaf area (see Figure 1). These six wilderness areas comprise 15% of the GMNF and are managed under the GMNF Land and Resource Management Plan and individual wilderness plans. Additionally, a U.S. Forest Service Ten Year Wilderness Challenge has begun that requires six out of 10 primary input elements to be met in each wilderness to achieve the management standard of that challenge. The 10 elements of the challenge are: ensuring a fire management plan with a full range of response options; implementing invasive plant control; establishing air quality baseline; implementing visitor education plan; protecting conditions for visitor solitude; completing recreation site inventory; providing outfitter and guide operation plans; setting adequate standards to prevent degradation of con-



Article author Ken Norden.



Figure 1—The wilderness areas of the GMNF are characteristic of the rolling topography and natural forested landscapes of the Green Mountains. Photo by Ken Norden.

ditions; fulfilling information needs; and providing baseline workforce. Several of these elements involve monitoring conditions.

Monitoring is conducted periodically to measure the social, biological, and managerial conditions over time. The reasons for monitoring conditions include (1) measuring changes and impacts on conditions over time, (2) ensuring that wilderness is managed in accordance with the Wilderness Act and related legislations, and (3) meeting the Ten Year Wilderness Challenge.

The GMNF field level monitoring generally falls into two categories: (1) visitor use and related impacts (see Figure 2), and (2) biological and resource conditions. The eight types of field monitoring and examples of information obtained are shown in Table 1.

Standards and guidelines are included in the GMNF Land and Resource Management Plan and wilderness plans to help implement management actions. The wilderness plans refer to the Limits of Acceptable Change planning process as a means of setting standards for impacts caused by visi-

Table 1—Field monitoring of conditions in the six wilderness areas of the GMNF

Type of Field Monitoring	Examples of Information
Visitor Use and Impacts	
Trail self-registrations	Day vs. overnight users, group size, and residence area
Trail counters	Visitor spatial and temporal distribution of use
Trail condition inventory	Tread erosion, blowdown on trail
Campsite condition inventory	Vegetation and soil loss, compaction
Field document sheets	Visitor contacts, trail work needed
Biological and Resource Conditions	
Invasive species	Aquatic and terrestrial plant introduction
Air quality	Acid deposition, haze and ozone
Boundary checks	Boundary marker and sign inventory and regulation postings

tor use. The ongoing planning uses the preliminary monitoring results, and subsequent monitoring results will be used to measure compliance with the standards being developed.

Although staff and funding are limited, we have begun to meet the elements that require monitoring. For example, noxious and invasive plants like Japanese barberry are being hand pulled in these relatively small wilderness areas. Studies of visitor impacts on trails and campsites are being measured as wilderness visitor education programs are implemented (see Fig-

ure 3). Changes in visibility determined by measurements of air quality range of view help compile information on impacts from downwind pollution sources.

This is the beginning of what will be a long-term monitoring effort to ensure wilderness qualities for present and future generations. The decision was made to start these monitoring processes on the wilderness areas of the GMNF under the assumption that these modest beginnings were a positive step toward the information database needed to steward these valued resources. 🌀



Figure 2—Visitor impacts accumulate around attractive features like lean-tos in wilderness. Photo by Ken Norden.



Figure 3—Boundary signs on the Lye Brook Wilderness, GMNF. Photo by Ken Norden.

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From DAWSON on page 14

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Renewing Wilderness and Wild and Scenic River Stewardship in the U. S. Forest Service

BY MARY WAGNER

Wilderness is special. That's the message we at the U. S. Forest Service (USFS) wanted to send to the international community of wilderness conservationists, through the IJW, on the 40th anniversary of the 1964 Wilderness Act. Furthermore, because wilderness is special, we decided to reorganize the Forest Service and name our first national director of wilderness; Mary Wagner will lead our wilderness program. Mary has extensive wilderness experience, both personal and professional, and a deep commitment to the wilderness resource. Under her leadership, I am confident that we will be able to deepen the appreciation that Americans feel for the special value of their wilderness, and also communicate to our international colleagues that we look forward to increased collaboration as we collectively protect and sustain the world's wild areas.

—Dale Bosworth, Chief,
U. S. Forest Service

Introduction

The Wilderness Act—40 years old in 2004—has given the American public a tremendous resource and legacy. It seems fitting that the Forest Service chose this year to create a new senior position—director of wilderness and wild and scenic rivers—and it is a tremendous honor and responsibility for me to be the first such director. It's an honor because the people in the Forest Service and the nongovernmental organizations that have advocated for such a position have been true leaders in wilderness stewardship. I have admired them for their personal contributions and commitment. It's a responsibility because the National Wilderness Preservation System—although providing enormous benefits and values—also faces threats that need to be addressed to ensure an enduring resource of wilderness.

The Legacy of the Wilderness Act and the Wild and Scenic Rivers Act

Since the early days of Aldo Leopold, Bob Marshall, Arthur Carhart, and other wilderness visionaries, the Forest Service has played a leadership role in wilderness stewardship. Long before the Wilderness Act, we protected wilderness values on millions of acres of public land. Today, the NWPS

contains almost 106 million acres (14.6 million ha) in 662 areas. The USFS manages one-third of the total. Wilderness makes up about 18% of the National Forest System, some 35 million acres.

In addition, we administer roughly 48% of the rivers in the National Wild and Scenic Rivers System (NWSRS). Rivers are a valued part of our nation's life and culture, and the Wild and Scenic Rivers Act of 1968 builds an American legacy of protected rivers, containing some of the premier river reaches within the nation. The act provides future generations with free-flowing rivers possessing outstanding natural and cultural values. Intended to balance demand for power and irrigation with the desire to protect some of our most precious rivers, the act forms a cornerstone of our country's conservation agenda.

Currently numbering 163 rivers (11,303 miles), the NWSRS is administered by four federal agencies Bureau of Land Management (BLM), National Park Service (NPS), USFS and U. S. Fish and Wildlife Service (USFWS) and, for 17 rivers, by states. The Forest Service administers 100 rivers and 4,346 miles, more rivers and miles than any other WSR-administering agency. Management of these designated rivers and protecting the eligibility of the nearly 700

study rivers identified to date contributes directly to the Forest Service Strategic Plan and its goals of ecosystem health, multiple benefits to people, scientific and technical assistance, and effective public service.

Management of the System

The NPS, BLM and the USFWS also share in the responsibility to manage the NWPS and the NWSRS. This shared responsibility creates an environment in which sharing information, joint problem solving, mutual strategies and strengthened coordination have much promise. We need to build on the existing interagency relations and identify specific actions to; recommend and advocate coordinated agency actions, coordinate and improve consistency in the interpretation and implementation of the Wilderness Act; increase internal and external awareness, understanding, and support for the NWPS; and evaluate the effectiveness of agency efforts to improve preservation, management, and support for the NWPS. The continued efforts and focus of the Interagency Wilderness Policy Council will achieve the outcomes envisioned by agency leaders who chartered this group, and it will take continued emphasis and energy to realize the promise.

Expectations for the Director

The specific expectations, expressed by Deputy Chief Tom Thompson, for the director of wilderness and wild and scenic rivers include:

- broadening Forest Service ownership of the wilderness and wild and scenic river resource, encouraging various staffs to give wilderness and wild and scenic rivers the integrated management they need and deserve;
- collaborating with partners and the National Forest Foundation to achieve the Ten-year Wilderness Stewardship Challenge;

- enhance our ability to meet our regulatory and stewardship responsibilities for wild and scenic rivers;
- enhance our capacity for leadership within the National Wilderness Preservation System and within the global movement for protected area management;
- strengthen our relationships with nongovernmental and partner organizations that have long clamored for such a move; and
- raise public visibility of wilderness and wild and scenic rivers, thereby increasing understanding and support for these resources.

Foundations That Guide Work in the Forest Service

We will work along with partners, nongovernmental organizations, Forest Service employees, other federal agencies, and state, local, and tribal governments to fulfill our stewardship responsibility to these resources and to realize the promise of shared leadership for wilderness and wild and scenic rivers.

We will secure resources and support for education, training, information, and research. The history of leadership and creativity in meeting the needs of the field and the needs of the NWPS has given us the resources of the Arthur Carhart Interagency Wilderness Education Institute and Aldo Leopold Wilderness Research Institute. The task today is to ensure these institutions have adequate resources to sustain excellence in education, training, information, and research.

We will support and increase wilderness and wild and scenic river field presence. We have the benefit of a wilderness manager workforce in the Forest Service—members continue to find creative approaches to working on the basic stewardship responsibilities. They are working with partners, associations, national organizations,



Figure 1. Lassen Peak and Lake Helen in the Lassen Volcanic Wilderness managed by the National Park Service (CA). Photo by Peter Druschke.

and local, grassroots organizations to fulfill the stewardship of the resource. To recognize the exemplary efforts of this workforce, a series of awards are presented annually by the chief of the Forest Service in recognition of employees, partners, and researchers for wilderness stewardship. They are the heart and soul of wilderness leadership, and we will work to shore up and support their efforts.

We intend to maintain a small staff within the newly created director area. To build on the accomplishments of the past and to meet our regulatory and stewardship responsibilities we will use within the new area the tremendous talent of the existing staff: the regional wilderness and wild and scenic rivers specialists; the regional recreation, heritage, and wilderness directors; and the other chartered teams like the USFS chief's Wilderness Advisory Group, the Wilderness Monitoring Committee, the Wilderness Information Management Steering Group, and the Interagency Wild and Scenic Rivers Coordinating Council.

We will capitalize on the ideas that have been generated in previous reports

Since the early days of Aldo Leopold, Bob Marshall, Arthur Carhart, and other wilderness visionaries, the Forest Service has played a leadership role in wilderness stewardship.

and strategies. Existing reports, strategies, and agendas point to where the Forest Service needs to strengthen its focus. The Pinchot Report, *Ensuring the Stewardship of the National Wilderness Preservation System* (Brown 2001), provides a number of recommendations and principles that serve as a strong foundation for pursuing renewed agency leadership in stewardship of the National Wilderness Preservation System. We will use the Pinchot Report, the Forest Service's "Think Like a Mountain: A Contemporary Agenda for and Enduring Resource of Wilderness," the Interagency "Wilderness Strategic Plan" and the "Wild and Scenic Rivers Program Agenda, Free Flowing Forever," as roadmaps to ensure we are maintaining focus on critical stewardship issues.

Forest Service Wilderness and Wild and Scenic Rivers Program Highlights

The chief asked the National Wilderness Advisory Group, a cross section of field-going wilderness managers, to identify key areas where the agency could truly make a difference in wilderness stewardship. Recently, they recommended, and the National Leadership Team endorsed, the Ten-Year Wilderness Stewardship Challenge, with the goal of bringing all wildernesses administered by the Forest Service to a clearly defined minimum standard by the 50th anniversary of the Wilderness Act. This includes accomplishments such as successful

treatments for noxious/invasive plants, development of fire implementation plans that allow for a full range of fire management options in wilderness, and implementation of wilderness education plans. To illustrate the urgent need for increased focus on wilderness, the Wilderness Advisory Group reported that in 2002, only 8% of the 406 wildernesses under Forest Service stewardship met the minimum standard criteria. This goal is not one that the Forest Service can accomplish alone. Collaboration with partners will be essential to success. The National Forest Foundation has led the charge to meet the Ten-Year Wilderness Stewardship Challenge by initiating a matching grant program to support it. The grants have gone to nonprofit organizations working with the Forest Service on diverse projects, including treating invasive species, restoring white bark pine forest, monitoring stream health, monitoring and restoring sites impacted from recreation use, and extensive trail restoration. The leadership of the National Forest Foundation is a model for how partners and foundations can directly improve the wilderness resource. It is through exemplary partnerships such as this that we will fulfill our stewardship responsibilities to the American public and assure an enduring wilderness resource for future generations.

A Forest Service team, with interagency participation, has developed a monitoring protocol titled Monitoring Selected Conditions Related to Wilderness Character:

A National Framework. The team has been accelerating development of a technical guide for applying the protocols at the field level. The purpose of the monitoring protocols is to improve wilderness stewardship by providing managers information on trends in key national indicators that tie directly to the statutory requirements of the 1964 Wilderness Act and Forest Service wilderness policy to "preserve wilderness character."

The Wild and Scenic Rivers System encompasses regionally and nationally significant rivers that represent a broad range of biological, ecological, cultural, and recreational resources. The framework provided in the act for protecting rivers' free-flowing condition, water quality, and outstanding natural and cultural values is viewed within the Forest Service and by the public as the standard for river conservation and watershed protection. The actions identified in the Forest Service Wild and Scenic Rivers Program Agenda will help us achieve this vision, and we will accomplish this work through partnerships and interagency coordination.

There are partners, academic institutions, and nongovernmental organizations imagining innovative and creative approaches to stimulate projects and work to address important wilderness stewardship issues. We are collaborating with the National Forest Foundation, nongovernmental organizations, and academic institutions to explore a partnership to bolster the ranks of skilled citizen stewards. We look forward to building relationships and partnership capacity by exploring ideas for expanding the role of partner organizations and community-based conservation organizations in stewardship of wilderness and wild and scenic rivers. We are also working with the WILD Foundation to support the International Wilderness Law and Policy Roundtable, and an International Government Manager Symposia at the 8th World Wilderness

Mary Wagner, A Personal Side



The following are extracts from an interview between *IJW* and Mary Wagner:

IJW: Mary, what was your reaction when learning that you would be named as the first U. S. Forest Service (USFS) national director of wild and scenic rivers?

MW: Well, of course there was a great sense of responsibility and duty to the agency and to the National Wilderness Preservation System. But, I actually couldn't wipe the smile off my face! It was a real thrill, as it signaled an alignment of my values from personal to institutional to national. I loved it!

IJW: Tell us about the early experiences in your life, connected with wild country, that helped shape your growth and ideas.

MW: There were three main experiences. First, was simply growing up in southern California in a family that loved to camp. For example, we would pile into the RV for a weekend at Joshua Tree (at that time a

national monument), and wander the desert, away from the crowded cities ... it both made sense to me as well as left a lasting impression. The second thing was a book that my father gave me when I was in 5th grade. It was the compelling story of the plight of the whooping crane and the impacts of people that caused it to go extinct. Even at that age I was heavily influenced by the fact that human actions right now are the greatest impact on what will be wild in the future. The third formative experience was going into a career center at the junior college in which I was enrolled, and simply going through the job and training possibilities in an alphabetical order, starting with *A*, then *B*, *C* ... etc. When I got to *F* it said "Forestry"—and this simply rang a bell with me. I suddenly realized that I could actually pursue a career working with the forests that I love so much.

IJW: And the early part of your career?

MW: After that third experience I immediately transferred to Humboldt State College in California and graduated with a BS degree in forest management. In the third year of that program I was selected for the USFS Cooperative Educational Program, where you worked part-time and finished your degree part-time ... I had to get into the forest! I worked seasonally with the botany program and got exposed to the San Gorgino and San Jacinto Wilderness Areas in the San Bernardino National Forest. Fabulous ... a dream come true! Later, I was working as a district ranger in northern Utah, and I realized that none of my forest manage-

ment studies actually prepared me for work in a large organization. So, I enrolled in a program for a master's of public administration (MPA) that was tailored for practitioners and working professionals. It was during that time, too, that I was able to read and understand much more of the amazing legacy of the National Wilderness Preservation System, and the outstanding history of the USFS leadership in protecting wilderness areas while managing the nation's forests.


IJW: What's your vision as you take on this new job?

MW: First and foremost I want to enhance the understanding and appreciation of America's wilderness system. This is both in public outreach and, of course, within the agency itself. Only a relative few of us actually work with wilderness on a daily basis, and we need to convey the importance and excitement of that to the many thousands of others who work in the science, management, administration, enforcement, and other areas of the USFS. Secondly, I'd like to take up the challenge issued by the "Brown Report" [2003] and set a high performance standard for the wilderness system in terms of inventory, monitoring, and assessment. Finally, I really want to expand the resources and capacity that are available for wilderness stewardship in the USFS. In-house, we call it "increased field presence." In simple terms, it's taking care of wilderness better, now, so it can take care of us in the future.

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Congress (Anchorage, Alaska, 2005.) This is just one of many examples of our commitment to partnerships that will expand and enhance our mutual wilderness stewardship objectives. 

Does Wilderness Impoverish Rural Regions?

BY F. PATRICK HOLMES and WALTER E. HECOX

Abstract: A study of 113 rural counties in the American West, 43% containing designated wilderness areas, shows that for the period 1970 to 2000 there is a significant positive correlation between the percent of land in designated wilderness and population, income, and employment growth. New forms of economic activity accompany wilderness: growth of investment income and nonfarm self-employment income are correlated with the presence of wilderness.



Article co-authors F. Patrick Holmes (left) and Walt Hecox (right). Photo by Sam Rees.

Introduction

Some areas seek regional economic prosperity through continued resource extraction in preservation of a traditional way of life. Others seek alternative uses of the land for recreation and tourism as well as to gain spiritual fulfillment and to preserve intergenerational opportunities in safeguarding ecological integrity (Morton 2000). Pervasive frontier resource-extraction arguments (Patric and Harbin 1998), emphasizing theories of economic growth and development based upon the appropriation and use of natural resources, continually clash with preservationist arguments that emphasize regional development based upon protection of lands creating natural amenities and desirable lifestyles (Rasker and Roush 1996; Power and Barrett 2001). New

notions that wealth stems from the existence of intact ecological systems, scenic opportunities, and desirable lifestyles contest traditional notions that “true wealth comes from the ground.” The American West, both old and new, frontier and sublime, is continually re-creating itself as a result of the pulling between these disparate notions of regional development.

The stated objectives of the 1964 Wilderness Act include the goals to preserve areas primarily affected by the forces of nature and to afford the American public with opportunities for solitude (Wilderness Act, Section 2[c], 1964). A paradox thus is introduced: “Setting aside” relatively undisturbed tracts of land actually brings them into the realm of human affairs, inevitably accentuating their inextricable linkages to surrounding natural, political, and cultural landscapes (McCool and Cole 2000). Thus, wilderness designation plays an important role in influencing the quality of life experienced in adjacent and surrounding local communities.

The highly contested debate over federal wilderness designation ultimately involves the real and perceived economic effects of such a designation (Duffy Deno 1998). Oftentimes a community will assert that designated wilderness is an impediment to economic growth by locking up potentially valuable resources. They claim that traditional extractive industries like farming, mining, logging, and ranching will suffocate from wilderness use and management restrictions. Others assert that the political act of preserving wilderness

(PEER REVIEWED)

natural amenity attributes like scenic beauty, clean water, pristine air quality, and recreational opportunities will create new jobs by providing attractive places to live, work, and do business (Power 1996).

This research updates the analysis of economic conditions in rural counties in the American West that contain formally designated wilderness. Results provide empirical evidence in support of the argument that protected wilderness is likely to be an asset and not a liability. They show that counties containing high proportions of their lands devoted to federally designated wilderness have experienced economic prosperity in the rural American West. Similar analysis of the relationship of public “wildlands”—federally owned lands in rural counties that are under management by the Bureau of Land Management (BLM), the U.S. Forest Service (USFS) and the National Park Service (NPS)—to measures of economic prosperity reveal weaker but still significant correlations. The results provide additional support to the logic of amenity land values contributing to economic prosperity and viable rural communities.

Community Values

Many people fear government’s protection of the land will be at the expense of whole communities and their economic vitality (Rasker and Roush 1996). These fears have originated from historical conceptions of the community’s economic base and periodic exposure to cyclical boom-bust economies typical of the rural nonmetropolitan West (Power and Barrett 2001). If valid, claims such as these generate considerable opposition for further formal designation of wilderness in rural areas.

The economies of the rural West are undergoing profound changes. Tech-

nological advances in the manufacturing industry have limited the demand for raw materials, and other technological advances in communications and transportation have contributed to rural economic vitality in new ways. Fax machines, modems, efficient delivery carriers like Federal Express, and increased commuter air travel destinations have all contributed to the ability of small firms and individuals to work where they want to live rather than live where the jobs exist (Johnson and Rasker 1995a, 1995b). Access to natural amenities like scenic beauty, recreational opportunities, clean air, and small communities takes precedence over the typical business and individual location decisions based on low cost of living and job opportunities (Rasker 1993). Counties with high amenity values should be experiencing economic growth dominated by industries that benefit from the presence of tourists, retirees, and entrepreneurs. Population growth in these regions should stimulate new business development and the expansion of old businesses.

Study Design

A study area of 113 rural counties in the American West, of which 50 counties contained a portion of their land formally devoted to wilderness, was chosen in order to conduct an analysis of income, employment, and population growth relative to the proportion of lands in the National Wilderness Preservation System (NWPS). Of the 50 counties containing wilderness, the percent of total land area designated as wilderness ranged from less than 1% to 50%. The western United States was chosen in part for its high abundance of wilderness areas and because it is the region containing the most public wildlands still under consideration for wilder-

ness designation. The western region was delineated as the continental portion of the western census region as determined by the U.S. Census Bureau (AZ, CA, CO, ID, MT, NM, NV, OR, WA, WY). Due to its high degree of geographic isolation and limited access to supply of labor and other capital, Alaska was excluded from this analysis. Appropriate counties for the study were selected from a rural-urban continuum code developed by the U.S. Department of Agriculture Economic Research Service. These classification codes describe counties by degree of urbanization and adjacency to metro areas (Butler 1994). Because of the study’s intent to focus on rural regions and local economic prosperity, only completely rural counties containing urban populations of no more than 2,500 people were included. Of the 113 rural counties, 83 have a further attribute of not being adjacent to another county with urban characteristics (see Figure 1). This distinction, of rural counties adjacent versus not adjacent to urban counties, controls for intercounty commuting and cross-boundary economic effects.

Data for population, total employment, and total personal income for the period from 1970 to 2000 were

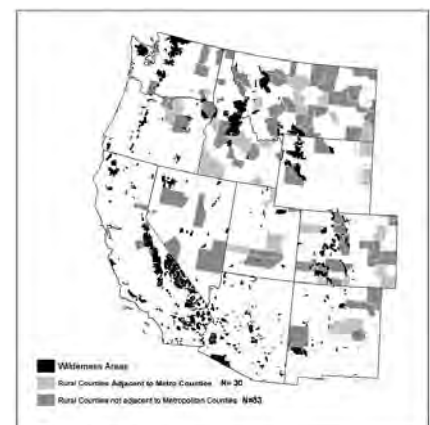


Figure 1—Study Area Counties

Figure 1—Study area counties in the western United States

Table 1—Pearson’s correlation coefficients between percent wilderness and other land management categories, and growth indicators in the American West

	Income growth 1970–2000	Employment growth 1970–2000	Population growth 1970–2000
Completely rural counties			
%Wilderness	0.295	0.311	0.310
%BLM + USFS	0.227	0.248	0.227
%BLM + USFS + NPS	0.229	0.248	0.235
Rural Nonadjacent counties			
%Wilderness	0.354	0.410	0.411
%BLM + USFS	0.330	0.346	0.418
%BLM + USFS + NPS	0.331	0.344	0.417

obtained from the U.S. Bureau of Economic Analysis’ Regional Economic Information System (REIS) CD-ROM. These data were used to calculate percent growth for the period 1970 to 2000 and average annual growth for the same time period.

Data for nonlabor income returned on investments and data on income earned by nonfarm self-proprietors were also collected from the REIS CD-ROM. Together these two nontraditional income types were used as surrogates for new types of economic activity in rural areas. Investment income (from dividends interest and rent) can bring an influx of “new” money into a region to spur other economic growth. Nonfarm self-employment income, (nonfarm proprietor’s income) is defined as the income of sole proprietorships, partnerships, and tax-exempt cooperatives outside of agriculture. Growth here can be an infusion of entrepreneurship and

a healthy business environment into a rural region.

These nontraditional income types were analyzed over the period 1970 to 2000 using shift-share analysis to determine each county’s competitive advantage in attracting new income relative to the American West as a whole. A geographic information system was used to calculate the percent of each county’s total land area that is preserved as part of the NWPS. The percent of land devoted to formally designated wilderness was then correlated with the competitive advantage calculations and the economic growth indicators. In addition, correlations were calculated between the economic growth indicators and the percent of land owned by the BLM, USFS, and NPS.

Finally, the U.S. Census Bureau’s County Business Patterns data set was used for the period 1980 to 1997 to profile service employment characteristics

in wilderness versus nonwilderness counties of the rural West. These data were used to explore the quality and type of employment growth occurring in wilderness counties relative to nonwilderness counties. A midpoint method was used to estimate data for employment figures in cases where information was not disclosed for confidentiality reasons. In cases where county annual payroll data were not disclosed it was not possible to estimate the missing data, and those counties were excluded.

Results and Discussion

The correlation between designated wilderness area in a county and growth in population, income, and employment is positive and statistically significant (see Table 1). This result suggests that larger proportions of formal wilderness are associated with growth in the completely rural counties of the West. Furthermore, these correlations became stronger as counties adjacent to metropolitan areas were excluded, suggesting that wilderness is strongly associated with successful community economic development in cases of geographic isolation from metropolitan areas. Also, average annual growth in population, employment, and income is higher in rural counties that contain wilderness than in rural counties that have no federal lands included within the NWPS, although both sets of rural counties have lower growth rates than for the entire American West U.S. Census Region (see Table 2).

The correlation between the percent of land in a county protected as wilderness and investment income, relative to the American West, is both positive and statistically significant (see Table 3). A similar correlation holds for the rural counties in the West not adjacent to metropolitan areas.

Table 2—Average annual growth from 1969–2000 in growth indicators for the American West, rural counties with wilderness, and rural counties without wilderness.

	Income growth	Employment growth	Population growth
The American West (11 states)	2.0	2.9	8.7
Rural counties with wilderness	1.9	2.8	8.5
Rural counties without wilderness	1.0	1.4	7.2

Table 3—The correlation between wilderness and competitive advantage in amenity income indicators

	Competitive shift in investment income	Competitive shift in self-employment income
Completely rural counties	0.406	0.362
Rural non-adjacent counties	0.442	0.382

The correlation between the percent of land preserved as wilderness and nonfarm self-employment income is positive and significant overall and with those counties not adjacent to metropolitan areas (see Table 3).

Are these new businesses simply generating low-paying jobs in the services sector? Jobs in mining, logging, ranching, and oil drilling pay higher wages than

do the average service jobs, like hotel room cleaning and fast food service (Freudenburg and Gambling 1994). However, the service sector includes a wide range of professions, from making hamburgers and shining shoes to computer software design and management consulting. Some have suggested that the decentralization of many industries and increased mobility as a result of improved

Table 4—Employment Growth and Change for Select Service and Natural Resource-based Industries in Wilderness and Non-Wilderness Study Counties for the Period from 1980-1997.

Standard industry classification	Wilderness		Nonwilderness	
	# of Employees in 1997	% of Growth in 1997	# of Employees in 1997	% of Growth in 1997
Agricultural services	1,198	194.3%	634	52.0%
Forestry	265	120.8%	167	317.5%
Fishing, hunting, and trapping	20	—	30	-50.0%
Metal mining	3,020	37.1%	3,515	522.1%
Coal mining	60	-93.7%	750	-44.6%
Oil and gas extraction	889	-52.3%	419	-54.1%
Apparel and accessory retail stores	1,343	148.2%	285	-25.0%
Eating and drinking places	9,945	82.0%	4,088	31.8%
Insurance agents, brokers, and service	540	52.1%	496	56.5%
Real estate	2,819	96.4%	542	-10.4%
Hotels and other lodging places	9,614	125.3%	1,800	54.2%
Personal services	743	69.6%	418	30.6%
Business services	1,318	-12.1%	651	171.3%
Amusement and recreation services	10,024	136.8%	750	111.3%
Health services	5,147	156.7%	5,806	190.6%
Legal services	499	40.2%	398	15.0%
Educational services	641	364.5%	412	930.0%
Social services	1,414	169.8%	1,113	87.1%
Membership organizations	1,081	84.5%	837	27.6%

transportation and communications have been the driving forces behind the transition to successful amenity-based economies (Johansen and Fuguitt 1984).

An evaluation of both overall job growth in the service sector and the quality of growth in the service sector in wilderness counties is critical to understanding whether amenity-based development strategies present viable and sustainable options for rural America. Table 4 shows employment growth in a selected set of service sector- and natural resource extraction-based industries in wilderness and nonwilderness counties. Employment is classified by the Standard Industrial Classification system of the U.S. Census Bureau for the period from 1980 to 1997. Employment growth in study area counties containing wilderness outpaces nonwilderness rural county growth in many major service categories except for the insurance agents, brokers, and service category; business services; health services; and educational services. Business services employment marginally declined in wilderness counties during the study period, but remained well above the total amount of employment in nonwilderness counties. Wilderness counties tended to have far more employment growth from 1980 to 1997 in the lower paying industries, including hotels and other lodging places and eating and drinking establishments, than in nonwilderness counties, but simultaneously experienced growth in the higher paying services, such as legal services and real estate services relative to nonwilderness counties in the rural West.

What about growth and change in natural resourcebased employment? Extractive industry employment growth declined for coal mining and oil and gas extraction in both wilderness and nonwilderness counties, a trend that mirrored experience throughout the nation during that time period. The only extractive industry category where wil-

Table 5—Business establishment growth and change for select service and natural resource-based industries in wilderness and nonwilderness study counties for the period from 1980–1997

Standard industry classification	Wilderness		Nonwilderness	
	# of Businesses in 1997	% of Growth in 1997	# of Businesses in 1997	% of Growth in 1997
Agricultural services	200	257.1%	135	145.5%
Forestry	19	111.1%	14	600.0%
Fishing, hunting, and trapping	2	—	5	66.7%
Metal mining	28	-30.0%	21	-4.5%
Coal mining	1	-85.7%	4	-50.0%
Oil and gas extraction	64	-13.5%	51	-17.7%
Apparel and accessory retail stores	207	109.1%	45	-38.4%
Eating and drinking places	1,068	88.4%	635	55.6%
Insurance agents, brokers, and service	153	128.4%	119	88.9%
Real estate	558	186.2%	170	71.7%
Hotels and other lodging places	510	104.0%	218	43.4%
Personal services	151	77.6%	86	-4.4%
Business services	327	463.8%	137	495.7%
Amusement and recreation services	350	284.6%	119	164.4%
Health services	356	68.7%	221	33.1%
Legal services	132	37.5%	83	45.6%
Educational services	56	409.1%	24	300.0%
Social services	232	346.2%	174	270.2%
Membership organizations	323	233.0%	239	184.5%

derness counties lagged substantially behind nonwilderness counties was the metal mining category, where about 2,750 new jobs were created in Eureka County, Nevada, during the study period, accounting for nearly the entire difference.

Table 5 shows growth in the number of business establishments for these same industry categories in the study-area counties. Wilderness counties only lag substantially behind nonwilderness counties in a single category, the metal mining classification, while outpacing nonwilderness counties in business creation in all service categories.

The types of jobs being added in rural counties and the associated average wages reveal much about the

quality of growth. Table 6 shows the average annual wage for selected employment categories in the study region and, for each selected category of natural resource and service-based employment, new growth in jobs as a percent of those selected industries for wilderness and nonwilderness counties. This analysis suggests that although there is some validity to the argument that wilderness counties attract growth in response to added tourism in the lower paying jobs of the service sector, growth is also simultaneously occurring in the higher paying professional services and some natural resource extraction categories at higher rates in Wilderness counties than in nonwilderness counties.

Conclusion

Growth in savings by middle-age workers over the past 10 years has been substantial, creating a new form of “basic” income for local communities as new residents flock to rural regions (Nelson 1999). Likewise, the proliferation of small businesses and a healthy business environment are helping wilderness counties attract both investment and self-employment income. Growth is not just occurring in low-wage businesses. Wilderness counties are experiencing growing employment in many of the high-wage service sector industries in the rural West, as compared with nonwilderness counties of the same study region.


One problem with wilderness designation is not that it limits growth, but rather that it promotes demographic and economic growth at rates that may jeopardize the preservation of the natural amenities themselves (Power 1996). In order to understand the economic impact of wilderness designation decisions, and how best to preserve the ecology of a region, environmentalists must acknowledge the impacts of preservation on local communities, including rapid growth that often outstrips communities’ infrastructure and dramatically changes the character of once-rural towns and counties.

This study has demonstrated that local areas in the American West with designated wilderness are not being impoverished. For the period 1970 to 2000, growth of nontraditional employment and income has been more rapid and sustained in counties that include designated wilderness. Data for the period 1980 to 1997 show that the jobs being created, both in the service sector and the natural resource extraction categories, contain a mix of wage levels.

Local communities need to move beyond the long debate over the economic consequences of wilderness

Table 6—Average annual wage and percent of new jobs in selected industries in wilderness and nonwilderness study counties for the period from 1980–1997

Standard industry classification	Average annual wage	% of new jobs in industry	
		Wilderness	Nonwilderness
Agricultural services	22,966	3.4%	3.0%
Forestry	26,706	0.6%	1.7%
Oil and gas extraction	38,247	-4.2%	-6.7%
Apparel and accessory stores	11,219	3.5%	-1.3%
Eating and drinking places	8,507	19.3%	13.5%
Insurance agents, brokers, and service	21,424	0.8%	2.4%
Real estate	20,987	6.0%	-0.9%
Hotels and other lodging places	12,349	23.0%	8.6%
Personal services	13,253	1.3%	1.3%
Business services	19,344	-0.8%	5.6%
Amusement and recreation services	14,147	24.9%	5.4%
Health services	19,012	13.5%	52.0%
Legal services	21,097	0.6%	0.7%
Educational services	28,044	2.2%	5.1%
Social services	11,244	3.8%	7.1%
Membership organization	9,929	2.1%	2.5%
Total for selected industries		100.0%	100.0%

designation. Rather, the discussion and debate now should be focused on how to make decisions about the types of places rural areas want to become. How can these rural communities be made sustainable, both by protecting their natural amenity capital endowment and by shaping the resulting socioeconomic character of the surrounding regions to maintain healthy communities as growth occurs? These concerns shape the new arena where productive research on rural growth in the American West can be focused and results applied. Results will help inform communities, land managers, and political leaders as well as contribute to well-versed decisions about how best to proceed with the preservation of our remaining wildlands and their associated rural communities. 

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Local economic prosperity in the rural American West is correlated with the presence of wilderness.

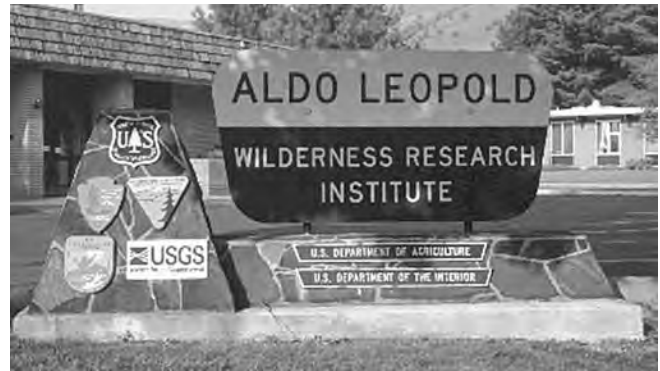
Travel Simulation Modeling

An Emerging Tool for Visitor Management in Wilderness

BY DAVID N. COLE

The amount, type, timing, and location of visitor use all have profound effects on the quality of the natural resources and visitor experiences in wilderness. Therefore, it is important to monitor the flow of visitation, in space and over time, and predict how distributions are likely to change in response to both management actions and factors that are not subject to managerial control. In some situations this is easily done. However, the ease of monitoring and predicting use declines as size of area increases, complexity of traffic flow increases, and the degree to which traffic flow is controlled by management decreases. For all these reasons, monitoring and predicting visitor flows is both difficult and important in wilderness.

Travel simulation models have huge potential as tools for facilitating the planning and management of visitor use distribution in situations where monitoring and prediction of visitor flow is difficult. There are at least three ways in which simulation modeling of recreation use can contribute to improved wilderness management. First, simulation modeling can improve the quality and increase the cost-effectiveness of monitoring programs. Simulation makes it possible to use easily measured indicators (e.g., the number of cars entering through an entrance station or parked at a trailhead) to monitor hard-to-measure parameters (e.g., number of encounters or number of groups walking on particular trails). Second, simulation modeling can help fine-tune existing management programs. For example, how much would visitor use quotas have to be reduced to meet certain social standards? Third, simulation modeling can be used to evaluate alternative future scenarios. Simulation could be used to estimate how travel patterns and the number of encounters between groups might change with increased use in the future.



In a recent issue of *IJW*, van Wagtenonk (2003) described work conducted in the 1970s and 1980s to develop travel simulation models for wilderness. That work was way ahead of its time. The ideas were powerful but technology lagged. Today, technology has caught up and efforts are underway to make wilderness travel simulation a reality. Two efforts have been in the forefront of this work. Bob Manning and his associates at the University of Vermont (particularly Steve Lawson, now at Virginia Tech) have taken a commercially available general-purpose simulation package designed to simulate manufacturing and business systems and used it to model recreation systems. Their work emphasizes such management applications as predicting maximum use levels that can be accommodated without exceeding predetermined standards of use density. Randy Gimblett, University of Arizona, and Bob Itami, Geodimensions Pty. Ltd., have devoted their efforts to development of a special purpose simulator (RBSim), designed specifically to model recreation behavior. RBSim is integrated with GIS technology and allows for rule-based

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Wilderness in the Ruaha National Park, Tanzania

BY MGG MTAHIKO

The Ruaha National Park is in southern Tanzania, an area relatively free from tourism impacts and still exceptionally wild. Its greater ecosystem is approximately 45,000 square kilometers (17,374 sq. mi.), consisting of the park itself (10,200 sq. km [3,938 sq. mi.]) and surrounding game reserves that are used mainly for sport hunting.

The Tanzanian National Parks Authority (TANAPA) manages the Ruaha National Park, and is a trusteeship under the Ministry of Natural Resources and Tourism. Much of its funding is derived from tourism revenues earned from visits to the better-known parks in north Tanzania, such as Serengeti. These revenues are shared by all of Tanzania's national parks. Revenues earned from hunting in game reserves contribute to management of those huge buffer zones around the parks.

TANAPA evaluates the potential for wilderness designation in all national parks. When wilderness is designated and approved by the park's Game Management Plan/Environmental Impact Assessment (GMP/EIA), TANAPA then manages wilderness zones for use that leaves them unimpaired for future generations. For example, wilderness-oriented tour operators that provide opportunities for remote hiking experiences may be authorized to use wilderness areas if they meet the provisions of the TANAPA national policy, comply with the zoning regulations and limits of acceptable use stipulations detailed in the park's GMP/EIA, and comply with all TANAPA regulations and permits.

The Wilderness Zone in Ruaha National Park comprises 6,022 square kilometers (3,733 sq. mi.). Within this area lies a seldom-visited and remote wilderness core known as the Sunguviula Plateau. Recently, the WILD Foundation provided funding with the Sierra Club to support the preparation of a wilderness management plan for the Sunguviula area.

TANAPA History

Protected areas were first gazetted during the colonial era. Following independence in 1961, more conservation areas were gazetted in different categories: national parks (4% of total land area in the country) where no human habitation (except for park and tourism investment staff) and hunting is allowed by law; game reserves (10% of total land area) where tourist hunting is allowed; game controlled areas where residential hunting is allowed; forest reserves (15% of total land area) for conservation of forests; and conservation areas where human habitation and wildlife coexist. Currently TANAPA manages core-protected areas that cover 4% of the country's total land area, in 12 national parks, that form the major samples of different biomes and ecological systems.

To ensure an appropriate balance between preservation and use of resources, TANAPA developed a strategic planning process to prepare general management and zone plans for national parks. TANAPA is mandated to

manage and regulate the use of areas designated as national parks by such means and measures to preserve the country's heritage, encompassing natural and cultural resources, both tangible and intangible resource values, including the fauna and flora, wildlife habitat, natural processes, wilderness quality, and scenery therein. The park resources should provide for human benefit and enjoyment of the same in such manner and by such means as will leave them unimpaired for future generations.



Article author MGG Mtaiko.



Park ecologist, Gladys Ng'umbi, identifies new plant.

History of Ruaha National Park

The area was first recognized as part of the Saba River Game Reserve in 1910, which was regazetted as the Rungwa Game Reserve in 1946. In 1964, the southern portion of this reserve was declared the Ruaha National Park, and in 1974 a smaller section to southeast of the Great Ruaha River was added to complete the boundaries that exist today.

Development of infrastructure has been largely restricted to the eastern-central portion of the park in the Rift Valley bordering the Great Ruaha River.

The first commercial tourism interest in the park was the construction of the Ruaha River Camp (now Lodge) by Foxtreks Ltd. at Mwayangi in 1981. Three more tented camps are operating now: Mwangusi Safari Camp, Jongomero Tented Camp, and Mdonya River Camp. All camps operate within current policy for the preservation and management of wilderness in Tanzania's national parks. Visitors' surveys in 1993/1994 indicated that the park's wilderness character was far and away the most appreciated of its qualities, and the vast majority of visitors pleaded against development that would destroy this. Tourism has increased yearly, and during July 2002 to June 2003 included 7,654 visitors.

The Ruaha National Park realizes only about 30% of its annual budget from revenues that have been collected from visitors to the park itself. All the parks in Tanzania are regarded equally since they are all dealing with TANAPA's main goal of conservation. The revenue collected is shared with all the parks and the head office administration for recurrent expenditures, with some set aside for development programs and government tax. Since wilderness is a zone within the park, it is funded in that context and not regarded separately.

The original Management Zone Plan (1994) described eight zones within Ruaha National Park: Wilderness Zone, Semi-Wilderness Zone, Conservation General Use North Zone, Conservation General Use South Zone, Core Preservation Zone, Conservation Limited Use Zone, Transit Road Zone, and Park Administration Zone.

The 12 park management objectives are to

- protect and maintain the park's exceptional resources, including its wilderness character, as well as its full range of landforms, habitats, and biodiversity;
- ensure that park management is in harmony with the conservation requirements of the entire Ruaha—Rungwa—Kizigo—Muhesi ecosystem;
- introduce better control over fire, the use of natural resources, and the occurrence of exotic species in the park;
- develop and promote a range of low volume, low impact but high quality, high return, visitor recreation and tourism investment opportunities, including wilderness walking, within stated limits of acceptable use;
- provide education and appropriate infrastructure for administration and tourism, subject to the assessment and monitoring of their environmental impact both pre- and post-construction;
- develop interpretation facilities and services for better visitor appreciation of the park's resources;
- establish an ecological research and monitoring program to provide baseline resource information, and monitor rates and degree of change in relation to acceptable limits;
- ensure that local communities share in benefits accruing from the park and encourage local inhabitants to

Primary objectives/purposes of national parks are to preserve

- areas possessing exceptional values that illustrate the natural or cultural resources of the country;
- areas that offer superlative opportunities for public benefit, enjoyment, or scientific studies;
- areas with outstanding examples of a particular type of resource; and
- water and soil resources critical to maintain ecological integrity and that support the subsistence needs of people outside park boundaries.

And to ensure that

- parks retain a high degree of integrity as true, accurate, and unspoiled examples of a resource;
- management plans for parks are developed by interdisciplinary teams composed of appropriate professionals with the best available information to achieve a balance between preservation and use that does not adversely impact park resources and values;
- a quality visitor experience rather than mass tourism at the expense of park values and resources; and
- optimum levels of revenue and benefits accrue to the national economy, the parks, and communities, without impairing park resources.

- become involved in sustainable natural resources management;
- identify and protect significant historical or contemporary sites of cultural significance, and allow access to appropriate social groups;
- raise conservation awareness among local communities through a targeted education program;
- preserve the park's water catchment areas and hydrological functions, particularly in respect to the Great Ruaha and Mzombe Rivers; and
- balance the park's budget primarily by increasing revenue from tourism.

Unlike South Africa and other countries where “wilderness” is a legally recognized designation, in Tanzania the term refers to a form of resources management in a zone within a core protected area. This is by far the largest zone and comprises most of the park above the Ruaha escarpment (6,022 sq. km [3,733 sq. mi.]; 59% of the area). It is an area stretching approximately 170 kilometers (105 mi.) between the park's northeastern and southwestern extremities, with a variable width of up to 60 kilometers (37 mi.) and bounded to the north by the southern edge of the Semi-Wilderness Zone. For descriptive purposes, it is subdivided into three sections.

The section to the east of the Msembe—Mpululu Road is fairly flat country with relatively few small, mainly granite hills. This area is covered by a mosaic of mainly *Combretum-Commiphora* dominated mixed woodland and shrub. Few major drainage lines occur and no significant permanent water sources exist. Acacia species are more common along drainage lines. Some more open areas do occur on very shallow stony soils, but these contain sparse shrubs, and the only real grasslands are

limited to a few fairly narrow areas that become waterlogged in the rainy season. Rainfall averages 400 to 500 millimeters (16–20 in.) increasing to the west.

The central section, a large wedge of slightly higher land, is separated from the previous section by the Msembe—Mpululu Road. It is less flat, but still with few significant hills. The vegetation is classified mainly as *Miombo* transition with increasingly typical *Brachystegia* woodland occurring at higher altitudes and toward the west. Drainage lines are more prominent, together with their accompanying vegetation of Acacia woodland on the fringes and fairly narrow, coarse grass centrally.

The southwestern section is varied terrain and contains several high ridges of mountains culminating in the Insunkavyola plateau on the park's western boundary. This high ground is interspersed with wide valleys. The vegetation is dominated throughout by *Miombo* woodland. There are many rivers and streams, and many of the wetlands are semi-permanently waterlogged. Water is freely available to wildlife all year round. Annual rainfall averages 500 to 800 millimeters (20–32 in.), increasing from east to west and with increasing altitude.

Issues and Challenges

The main management problems and concerns that the GMP has sought to address are

- Biodiversity—There is a scarcity of dry season surface water sources because most rivers are sand rivers, only flow on the surface during the rain season (mid December through mid May) and cease flowing on the surface during dry season. Controlled use of surface water will maintain the flow, which is important for existing biodiversity.
- Endangered species—The park is endowed with different species of



Environmental education introduced into community schools.

flora and fauna, some of which are classified by IUCN as endangered (African hunting dog), endemic, threatened (e.g., cheetah, leopard, elephant, etc.), and rare. These require sound management initiatives for their survival. The core preservation zone is set to secure sensitive and fragile parts of the along the Great Ruaha river.

- Wildlife behavior—It is necessary to ensure naturalness of the park through proper use of designated facilities so as to protect the animals from continuous disturbance in their habitats.
- Vegetation and soils—The park aims to control usage of surface water to sustain vegetation and maintain natural processes.
- Water resources—Continuous surface and subsurface water recharge flows are critically important in ecological processes that require constant availability.
- Visitor experience/limits of acceptable use—Visitor use limits are set to ensure minimal impact of human activities to the park resources for optimal visitor experience.
- Cultural and scenic resources—The resources will have adequate protection for continued usage by the neighboring communities and tourists.
- Neighboring communities—The park has negligible/low impact on

quantity and quality of the water that runs through it, and it is the obligation of the park to ensure that this is continued for use of the downstream users.

- Park operations—Maintain signs on all park boundary lines for ease of recognition by the communities and other stakeholders.
- Revenue and tourism—Develop game-viewing facilities for game drives, and provide optimum enjoyment and benefit without impairing resources and proper administration of revenue collection.
- The Great Ruaha and Mzombe Rivers—These two river systems partly form the boundary of the park. The Great Ruaha River forms the main water source for animals during the dry season (July through December). The river ceases to flow during the dry season due to various uncontrolled human activities farther upstream of the park boundary.
- Unique interface on miombo and east african *Acacia/Commiphora* communities and riverine communities—this is a unique interface of vegetation communities in the park and needs protection and prevention of introduction of species that are not common to the ecosystem.

- Significant wildlife resources—Elephants, sables, roan antelopes, and greater and lesser kudu are important wildlife species. Their abundance and unique coincidence in Ruaha is one of the park's major attractions. The park shall ensure protection of all wildlife in and around the park.

Local Community Involvement

The declaration process of a national park starts with the local communities in the adjacent areas of the intended protected area. The communities are given opportunity to give their opinion, starting with the local villages and continuing to the district and regional levels. During these stages, all matters forwarded by the communities are discussed and sorted out jointly between the government and communities. Having been agreed to by all concerned parties, the matter is forwarded to the responsible ministry with the relevant proposals. With the satisfaction of the ministry responsible, a document is prepared for the cabinet to discuss, including the legal issues—especially on the proposed boundaries—before the bill is tabled for the parliament. This process sometimes takes much time, but it is important, as the communities are the key stakeholders.

Conclusion

TANAPA has the task of protecting the park's resources, as well as developing appropriate tourism facilities. It must also ensure that the communities adjacent to the park benefit from the revenues collected. There is always an issue of how to balance development for tourism and conservation. Limits of acceptable use as specified in the GMP/EIA provide appropriate safeguards.

The management of the proportionately immense Wilderness Zone in the Ruaha National Park creates inevitable budget challenges. Scarce funds must be utilized where the need is greatest. This situation is expected to improve as revenues from tourism in the park, and from other sources, increase. Amid globalization, it may be inconceivable to maintain areas that do not generate enough funds. However, the organization's main goal of sustainable conservation of resources and habitats remains. All parks are of equal status and in terms of conservation and needs are rated on a similar level, no matter the amount of revenue collected. 🌀

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simulations, in addition to the probabilistic simulations used in the original Wilderness Use Simulation Model and in the applications that Manning's group has conducted.

Recently, the Aldo Leopold Wilderness Research Institute, with support from the National Park Service, has been working with both groups of modelers to share ideas and work to-

ward more coordinated development of this technology. Differences between approaches are being explored and new applications are being undertaken. We are currently writing a report that will describe the status of travel simulation modeling for parks and wilderness, including case studies that illustrate how the models work and what they can be used for. 🌀

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Announcements and Wilderness Calendar

COMPILED BY STEVE HOLLENHORST

40th Anniversary of the Wilderness Act



Many events and activities have been held through the United States over the last 12 months to celebrate the 40th anniversary of the U.S. Wilderness Act. For example, Jackie Twiss and staff at the Black Hills National Forest designed and sold a lapel pin to commemorate the celebration. For other information, go to www.wilderness.net.

Australian Indigenous Protected Areas

An area of the Arnhem coast that contains some of the most remote and intact large natural systems in Australia has received funding from the Australian government to investigate its development as an Indigenous Protected Area (IPA). Dr. Sharman Stone, parliamentary secretary for the environment and heritage, congratulated the Anindilyakwa Land Council, traditional owners and members of the Anindilyakwa community for their efforts in protecting and conserving their country. "Anindilyakwa (Groote Eylandt) is located in a biologically important area. It includes important

breeding areas for six species of marine turtles and its many islands are important refuges for species under threat on the mainland," Dr. Stone said. The IPA program is a part of the Natural Heritage Trust, the largest commitment by an Australian government to environmental management and sustainable agriculture. Over five years, the IPA program has added 13.8 million hectares (34.1 million acres) of unique ecosystems to the National Reserve System. For further information on IPAs, see the Australian Department of the Environment and Heritage website at <http://www.deh.gov.au/indigenous/ipa/>.

USGS Publishes New Wilderness Map

For the 40th anniversary of the U. S. Wilderness Act, the U.S. Geological Survey (USGS) has published an updated map of the National Wilderness Preservation System. Also for the first time, this large format product (42 inches by 46 inches) shows Alaska and Hawaii at the same projection as the contiguous United States and features a striking back page that incorporates facts, figures, and original artwork. The map is available for purchase online at the USGS Store (www.usgs.gov/) either by searching for the product number,

101414, or for the product name—National Wilderness Preservation System. Cost is \$7.00 plus shipping and handling.

Mexico Designates 34 Areas As Protected Marshland

Mexico's Environmental Department designated 34 areas as protected marshland, ensuring they will fall under the protection of the international Ramsar Convention on Wetlands. This designation means 51 areas in 17 states are now protected by the Ramsar Convention, making Mexico the nation with the third-highest number of convention-protected areas worldwide. Signed in Ramsar, Iran, in 1971, the Ramsar Convention is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and correct use of wetlands. There are more than 1,350 Ramsar Convention-protected sites worldwide, spanning 119.6 million hectares (295.5 million acres). Among the areas designated as protected wetlands were the Laguna de Sayula, in Jalisco state, where Guadalajara is located, as well Tortuguera Mexiquillo Beach in Michoacan state. The new areas include more than 4 million hectares (10 million acres) of marsh and swamp that

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

are home to dozens of species of birds, fish, and diverse wildlife. Environmental Secretary Alberto Cardenas said the Ramsar Convention requires Mexico's government to increase spending to protect the newly designated areas, but he would not say how much additional conservation efforts in the areas will cost. "Today we want to give our commitment to protecting our wetlands as well as our adherence to the Ramsar Convention a big jump-start," Cardenas said. Source: Associated Press.

No Protection for Some Threatened or Endangered Species

Hundreds of imperiled species around the world, from a tiny opossum to a radiant blue bird, lack protection from human encroachment despite the vast amount of land set aside for conservation, a new study warns. Researchers said the findings are a wake-up call pointing to the need for new strategies to ensure that protected lands and the home ranges of threatened species overlap. The findings appear in the April 8 issue of the journal *Nature*. In the study, researchers from nine nations compared maps of more than 100,000 protected areas around the globe to maps of the ranges of 11,633 animal species—mostly tropical and many threatened or endangered. They found that for about 12% of the species, their ranges did not include parks or nature preserves that would protect them from human activities such as logging, hunting, or mining operations. And among 3,896 species deemed threatened, they found that 20% had no protection. About 300 of those animals are on the verge of extinction. They include a tiny Colombian marsupial called Handley's slender mouse opossum and Indonesia's cerulean paradise-flycatcher, a bright blue bird with 100 or so survivors confined to a single forest-topped extinct volcano. Smaller studies have shown gaps between

protected areas and threatened species, but the new work offers the first global view of that situation by evaluating the predicament of some of the best documented animal species, said Ana S.L. Rodrigues, a research fellow at Conservation International in Washington, D.C. "Even for these species that we know well, we're finding these levels of unprotection, of gaps. It's alarming," said Rodrigues. Source: Associated Press.

Wilderness Conference in Former Soviet Union States

The First International Wilderness Conference for former countries of the Soviet Union took place on April 24–25, 2004, in Kiev. It was organized by the Kiev Ecological & Cultural Center (on the occasion of its 15th anniversary), the Ukrainian Coalition for Wilderness, and the International Social-Ecological Union. Financial support was provided by the MacArthur Foundation. The purpose of conference was to coordinate cross-sector efforts on protection of wilderness in the former Soviet Union states. The meeting introduced the wilderness concept, provided practical information on protection area management, allowed for the exchange of experience between public and private environmental organizations in wild nature, and created a mechanism for these countries to participate in the upcoming 8th World Wilderness Congress. Forty-five participants attended, representing public agencies, nonprofit groups, academics, and managers of reserves and national parks in Ukraine, Russia, Belarus, and Poland. In addition to the plenary sessions, roundtable discussions on problems and issues were held. Consensus was reached on the necessity of protecting wilderness not only for its nonmaterial and economic values for human civilization, but also because wild nature has an inherent right to exist. The participants considered

many other points, among them: the important nonmaterial values of wild areas, the need for inventory of wilderness areas, creation of a state register in Ukraine of wild areas and wild rivers, and close support from and cooperation with the World Wilderness Congress. For more information, contact Anatoliy Podobaylo at podob@biocc.univ.kiev.ua.

Bush Administration Proposes Repealing Roadless Rule

The Bush administration has proposed a repeal of the Roadless Area Conservation Rule, issued in the waning days of the Clinton presidency. The proposal announced, by U.S. secretary of agriculture Ann M. Veneman, would replace a January 2001 rule banning building roads and cutting timber on 58.5 million acres (23.7 million hectares) of roadless terrain in national forests with a policy giving state governors a say in how the backcountry was managed. Most of the land is in 12 western states. The proposal would give governors considerable input on the future of roadless areas. It would be up to the states to petition the federal government if they wanted to maintain road-building bans on all or part of the affected forestland. They also could ask federal officials to open the land to road construction, whether for logging, gas or oil development, or off-road vehicle use. The final decision on the petition would be made by the U.S. agriculture secretary. Mark E. Rey, the agriculture undersecretary who oversees the U.S. Forest Service, said the proposed regulations were an attempt to resolve a 40-year-long fight over the roadless areas, which make up about 30% of the country's national forests. Environmental groups have criticized the move. The proposed rule is at www.roadless.fs.fed.us.

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Letter to the Editor

Telling the Truth about Wilderness

A Call for Honesty

BY CAROL GRIFFIN

A recent e-mail made me question the degree to which minor errors—bending the truth—occur in nongovernment organization (NGO) communiqués. The messages are usually designed to motivate citizens to call or write agency personnel or members of Congress in a concerted effort to protect wilderness. We do a disservice to wilderness protection efforts when we bend the truth.

An urgent message arrived in my e-mail announcing a bill making its way through Congress. The bill addressed the Fee Demonstration Program as it applied to the National Park Service (NPS) backcountry. Although backcountry is not the same thing as congressionally designated wilderness, the NPS often uses *backcountry* as an umbrella term that includes wilderness, areas recommended for wilderness designation, and nonwilderness areas.

Upon reading the e-mail, I was surprised to learn that “National Parks are now adding further new fees (on top of entry fees) such as backcountry hiking fees, parking fees, etc.” This piqued my curiosity, so that day I e-mailed the author and asked, “Which National Parks have backcountry hiking fees?”

Three days later the author sent me an e-mail in response stating that one park had a voluntary backcountry fee, and another park had a backcountry camping fee. I checked the relevant NPS websites and found a statement that one of the parks noted in the e-

mail requires “free wilderness permits ... for all overnight trips. ... They are not required for day hikes.” The other park requires wilderness permits “for all overnight camping outside designated campgrounds. ... Permits are *not* required for day hikes, except in the Mt. Whitney area.” The main trail to Mt. Whitney is managed by the USFS and it requires a permit, but there is no cost unless the hiker wants to reserve a campsite. Thus, the two examples cited are erroneous; there is no fee required for backcountry hiking as they stated.

I e-mailed this information back to the author, noting that in some cases land management agencies require a free permit, but that I knew of no cases where a visitor is assessed a fee for hiking as the e-mail had stated. I also noted that some areas require a fee for backcountry camping, but hiking and camping are not the same thing. The majority of backcountry users are day-use hikers, not overnight campers, and despite the e-mail’s allegation, they are not being charged a backcountry hiking fee.

To the organization’s credit, they revised the next e-mail request for action sent out five days after my question. This time the e-mail said, “National Parks are now adding further new fees (on top of entry fees) such as backcountry hiking *and camping fees*, *parking fees*, etc. [emphasis added].” Though an improvement, it remains inaccurate in the implication that there are fees for backcountry hiking. (It is of course true, that to do backcountry camping you must park somewhere and hike, but you can hike without camping.) Hikers can end up being charged to hike if a trailhead occurs outside a national park—on BLM or USFS land if they have decided

to make the parking area part of the Fee Demonstration Program.

What are the consequences associated with this error? First, I wonder about the accuracy of the rest of the information contained in the e-mail. Second, what will happen if readers cite the erroneous information in their letters to Congress? Will the senator’s staff check the claim because so many people mention it? Will the subcommittee he’s chairing subsequently dismiss public comment because it contains inaccurate information?

Finally, if instead of a legislative committee, we had been entreated to comment to an agency on a backcountry or wilderness plan, what would the fate of our comments be? The NGO in question reminds the reader that we can use its sample letter, but that we should “add to it and use your own words! Look-alike e-mails carry less weight.” If we all included the same inaccurate data, our letters and e-mails may be given less weight or disregarded all together.

Protection of wilderness requires a well-educated and involved public. NGOs provide a valuable public service in commenting on legislative proposals and agency plans, and in distilling lengthy reports into a more readable format for the public. NGOs cannot afford to have the veracity of their information called into question. If NGOs bend the truth and the public believes it, both groups’ participation may be diluted in their effectiveness. The ends do not justify the means. Surely wilderness demands this kind of honest effort.

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Book Reviews

Reconstructing Conservation: Finding Common Ground.

Edited by Ben Minter and Robert Manning. 2003. Island Press, Washington DC, and Covelo, CA. 334 pp. \$55.00 (hardcover).

William Cronon's *The Trouble with Wilderness* was a real shot across the bow for protected area/resource managers and the conservation movement. Much as Lynn White's *Historical Roots of our Ecologic Crisis* affected the environmental movement in 1967, Cronon's work is already a seminal article, one that has and will continue to change the course of wilderness and conservation thought, research, management, and policy.

Reconstructing Conservation is yet another example of the power of Cronon's article, as it attempts to "re-construct" this constructivist analysis of the wilderness movement in particular and the conservation movement in general. The editors wished to

assess the meaning and relevance of our conservation inheritance in the twenty-first century and to chart a course for revising the conventional narratives and accounts of the tradition so that a 'useable past' might be uncovered that could inform present and future conservation efforts. (p. 5)

What follows is a revisionist history of many of the familiar figureheads (e.g., G. P. Marsh, Leopold) and events (e.g., the Muir/Pinchot battle) in the history of wilderness and conservation. Occasionally, the rewriting of this familiar history is a little forced, and it is unclear how a constructivist approach really changes these historical events. However, many of the outstanding multidisciplinary authors

bring new perspectives and challenges that help the reader reconceptualize conservation in the 21st century.

Most of the authors seem to agree that the contemporary conservation movement is weakened by focusing on protecting specific parcels of land rather than ecological processes at large scales, ignoring nonwilderness landscapes, conceiving of nature as a steady state system, and using the same approaches (e.g., wilderness protection) despite major changes in society that require new approaches and techniques.

In the concluding chapter, Minter and Manning provide an excellent synopsis of the approaches recommended by the book's authors. I couldn't help but be struck by the convergence of approaches recommended by these authors (mainly social scientists) and those posited by many landscape ecologists and conservation biologists. The similarities reflect a major, ongoing paradigm shift in conservation.

Their recommended approaches to conservation include (1) the need to create "social capital" in communities to better engage citizens in decision making; (2) the associated call for community-based conservation; (3) having less emphasis on wilderness to better protect urban, rural, and cultural landscapes; (4) focusing on ecological processes (e.g., land health or ecological integrity) rather than landscapes (e.g., protected areas); (5) using adaptive management and incorporating a plurality of values into conservation; and (6) incorporating questions of social justice and power inequities.

Although it is unfortunate that a more critical analysis of these recommendations is not provided, *Reconstructing Conservation* provides a fascinating, well-

written revisioning of conservation, one that makes genuine and positive attempts to answer some of the pointed questions about wilderness and conservation posed by constructivists.

Reviewed by JOHN SHULTIS who is the Book Editor for *IJW*.

Discovering Eden

By Alex Hall, 2003. Key Porter Books, Toronto. 224 pp., \$27.95 CAD (softcover).

Within Canada's Northwest Territories and Nunavut lie the Barren Lands, the largest wilderness left in North America. Twice the size of Texas, it is 50 million acres (20.2 million ha) of roadless, rolling tundra, providing breeding grounds to countless birds and a home to migratory herds of ungulates and their predatory partners. *Discovering Eden* is the author's account of more than 30 years of canoeing and guiding experience in this region. As a collection of stories, essays, and commentaries, Alex Hall attempts to convey what this land has taught him and open the eyes of the reader to its value.

Discovering Eden is divided into seven parts, detailing various aspects of Hall's experience in the Barren Lands. Hall begins (parts I and II) with a history of his initiation to the region, and the passion that kept him coming back. This section is followed by accounts of the trials and tribulations of running a small, but successful, operation in the region year after year. Part III offers short glimpses of regional wildlife in both summer and winter, including more than just the charismatic megafauna. In response to clients who curse the insects for ruining this paradise, Hall replies, "If it wasn't for the

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