



State of Science

Using wilderness character to improve wilderness stewardship

By Peter Landres, Wade M. Vagias, and Suzy Stutzman

Abstract: This article describes how understanding wilderness character leads to improved communication among staff and with the public, helping park staff make more informed decisions about park planning, management, and monitoring in wilderness. Wilderness character is defined in terms of five qualities: natural, solitude or primitive and unconfined recreation, undeveloped, untrammled, and other features. These qualities can be used to improve wilderness stewardship and foster consistent stewardship across the National Wilderness Preservation System (NWPS).

Key Words: management, monitoring, planning, wilderness character, wilderness stewardship

Introduction



The qualities of wilderness character are evident in this desert landscape and clouds lit by the setting sun in southern Death Valley Wilderness. This detailed photograph by Peter Landres—a composite of 39 individual images stitched together—tied for third place in the recent Park Science wilderness photo content.

The 1964 Wilderness Act (Public Law 88-577) established the National Wilderness Preservation System (NWPS) “for the protection of these areas, the preservation of their wilderness character” (Section 2a). In congressional testimony clarifying the intent of wilderness designation, Zahniser (1962) said, “The purpose of the Wilderness Act is to preserve the wilderness character of the areas to be included in the wilderness system, not to establish any particular use.” Congress (United States Congress 1983) and legal scholars (Rohlf and Honnold 1988; McCloskey 1999) subsequently confirmed that preserving wilderness character is the act’s primary legal mandate. Further, the policies of all four agencies that manage wilderness state that they are to preserve wilderness character in all areas designated as wilderness.

Despite a clear legal mandate and agency policies, in the 47 years since passage of the 1964 Wilderness Act, there has been no legal definition of wilderness character (Scott 2002) and no National Park Service guidelines or direction to assess how management affects wilderness character or to measure its loss or preservation. Compounding this lack of definition and management guidelines, the complexity of wilderness and the values and meanings associated with it have at times led to a lack of understanding about wilderness and its stewardship, miscommunication among agency staff, and miscommunication between agencies and the public.

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Defining wilderness character

Based on Section 2c, “Definition of Wilderness,” in the 1964 Wilderness Act and building on the writing of Howard Zahniser (Zahniser 1956; Harvey 2007), wilderness scholars (Rohlf and Honnold 1988; McCloskey 1999; Scott 2002), and earlier work to describe and use wilderness character (Landres et al. 2005; Landres et al. 2008b), an interagency team published *Keeping It Wild* (Landres et al. 2008a), which identified four distinct and necessary “qualities” of wilderness character. These qualities were selected to be tangible, link local conditions and management directly to the statutory language of the 1964 Wilderness Act, and apply throughout the entire area of a wilderness. They apply to every wilderness regardless of size, location, agency administration, or any other attribute.

1. Natural. Wilderness ecological systems are substantially free from the effects of modern civilization. This quality is degraded by many things, such as loss of indigenous species, occurrence of nonindigenous species, alteration of ecological processes such as waterflow and fire regimes, effects of climate change, loss of dark skies, and occurrence of artificial sounds. It is preserved or improved, for example, by controlling or removing nonindigenous species or restoring ecological processes.

2. Solitude or a primitive and unconfined type of recreation. Wilderness provides outstanding opportunities for solitude or primitive and unconfined recreation. This quality is primarily about the opportunity for people to experience wilderness, and is influenced by settings that affect this opportunity. It is preserved or improved by management actions that reduce visitor encounters and signs of modern civilization inside the wilderness. In contrast, this quality is degraded by agency-provided recreation facilities, management restrictions on visitor behavior, and actions that increase visitor encounters.

3. Undeveloped. Wilderness retains its primeval character and influence and is essentially without permanent improvement or modern human occupation. This quality is influenced by what are commonly called the “Section 4c prohibited uses,” that is, the presence of modern structures, installations, habitations, and use of motor vehicles, motorized equipment, or mechanical transport. The removal of structures and not conducting these prohibited uses preserve or improve this quality. In contrast, the presence of structures and prohibited uses degrades this quality, whether by the agency for administrative purposes, by others authorized by the agency, or when there are unauthorized uses.

4. Untrammeled. Wilderness is essentially unhindered and free from the actions of modern human control or manipulation. This quality is influenced by any activity or action that controls or manipulates the components or processes of ecological systems inside the wilderness. Management actions that are not taken support or preserve the untrammeled quality, while actions that are taken degrade this quality, even when these actions are taken to protect resources, such as spraying herbicides to eradicate or control nonindigenous species or reducing fuels accumulated from decades of fire exclusion.

In addition to these four qualities, there may be a fifth quality, called *other features*, based on the last clause of Section 2c in the 1964 Wilderness Act, that a wilderness “may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.” Unlike the preceding four qualities that apply to every wilderness, this fifth quality is unique to an individual wilderness based on the features that are inside that wilderness. These features typically occur only in specific locations within a wilderness and include cultural resources, historical sites, paleontological sites, or any feature not in one of the other four qualities that has scientific, educational, scenic, or historical value. While many different types of features could be included, the intent is to include those that are significant or integral to the park and wilderness. Features mentioned in park or wilderness enabling legislation would likely qualify, such as the historic sites in Death Valley Wilderness and volcanoes in Katmai Wilderness. Likewise, significant cultural sites, whether mentioned in enabling legislation or not, occur in most wildernesses and have scientific, educational, scenic, or historical value.

These five qualities interact in direct and subtle ways, ways that may complement or conflict with each other. For example, allowing a natural fire ignition to burn preserves both the natural and untrammeled qualities of a wilderness. In contrast, suppressing a natural ignition degrades the untrammeled quality, the use of helicopters or other motorized firefighting equipment degrades the undeveloped and solitude qualities, and the long-term effect of suppression may degrade the natural quality. Sometimes a decision to protect one quality of wilderness character may directly degrade another quality. Designated campsites, for instance, may be necessary to protect solitude or prevent vegetation trampling but degrade the unconfined quality of wilderness character by requiring visitors to camp only in designated sites. In all cases, using wilderness character does not drive a particular decision or management action—it is a tool to help staff be comprehensive, systematic, and consistent in evaluating potential benefits and impacts to make an informed and transparent decision.

Like a violin composed of separate pieces that interact to form something greater than the sum of its

parts, these five qualities together form a complex set of relationships among the land, its stewardship, its users, and the values and benefits that society derives from wilderness. These five qualities form the physical and stewardship setting of a wilderness. This setting in turn provides tangible scientific, cultural, educational, and economic values to society that are not directly part of wilderness character, but are derived from it (Cordell et al. 2005). For example, the scientific value of wilderness as a reference baseline to assess and understand the effects of climate change results from this setting. Similarly, spiritual (Ashley 2007; Moore 2007), ethical (Cafaro 2001), and other intangible values and benefits to society derive from this wilderness setting.

Using wilderness character improves communication and decision making

Defining wilderness character provides a standard nomenclature to help staff understand wilderness and assess stewardship trade-offs. At the national level, wilderness character provides a framework for consistent stewardship across all wildernesses. At the local level, understanding these qualities improves internal and external communication, and helps staff make more informed decisions.

Better communication. Understanding wilderness character improves internal and external communication. Internally, staff would understand how wilderness is the responsibility of all divisions and programs within a park and how their work directly contributes to wilderness stewardship. For example, a wildlife biologist would understand how data on small-mammal populations directly contribute to tracking change in the natural quality of wilderness character. Trail crews would understand how motorized equipment and mechanical transport degrade the undeveloped quality of wilderness character and why these are generally prohibited even though they may be convenient. Externally, standardized nomenclature provides a clearer basis for discussions with the public about wilderness and its stewardship. Wilderness issues are often value-laden and public discussions can quickly bog down on words and ideas that have different meanings for different people. Wilderness character offers a tangible, consistent, and positive vision for wilderness and its stewardship, in turn fostering better discussion with the public. Using wilderness character can also help interpretation and education staff design programs to help the public understand the values and meanings of wilderness and its stewardship.

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Better decisions. Understanding wilderness character can help all staff see how various management pieces fit together to affect wilderness, and how individual decisions and actions work toward degrading or preserving it. Discussing how proposed actions affect the five qualities is an easy way to improve transparency and accountability, and help staff evaluate the impacts of potential decisions more quickly and systematically. For example, a proposal to install a toilet in a heavily used area to reduce resource damage can be evaluated in terms of the positive and adverse effects of the toilet on the natural, undeveloped, and solitude or primitive and unconfined qualities.

Using wilderness character improves planning, management, and monitoring

Wilderness character can be integrated into existing procedures to develop management plans, evaluate project impacts and management decisions, and develop monitoring direction.

Planning

Wilderness character can be integrated into most aspects of the planning process, resulting in proactive wilderness stewardship. Wilderness character can drive the process of developing general management plans (GMPs), GMP amendments, park foundations, and wilderness stewardship plans. It can also be incorporated into other types of plans, such as fire management plans, invasive or exotic species plans, resource stewardship strategies, and long-range interpretive plans.

Preserving or enhancing wilderness character should be the purpose of wilderness stewardship plans, with specific goals and objectives stemming from the five wilderness qualities. Issues, challenges, and opportunities can all be framed and discussed within the context of wilderness character, allowing a dialogue and common understanding of the choices made during public involvement and agency and tribal consultation. A central part of planning is developing alternatives, and the concepts that define and differentiate alternatives can be driven by wilderness character. For example, one alternative may emphasize preserving the untrammeled quality and limit actions that might otherwise be taken for ecological restoration. Another alternative may emphasize improving the natural quality by allowing ecological restoration actions that in the short term would degrade the untrammeled quality. Zones may be established within a wilderness, and wilderness character can drive desired conditions and management actions, resulting in different effects on wilderness character in different zones.

Most plans have a common framework to establish desired conditions, measures, standards, and a range of management actions if the standards are exceeded. Commonly used frameworks such as user (carrying) capacity in GMPs, Visitor Experience and Resource Protection, and the Limits of Acceptable Change processes are largely structured around visitor experience and visitor impacts on resources. Integrating the concept of wilderness character into a planning framework embraces more of the complexity and wholeness of wilderness. Environmental compliance documents that affect wilderness resources can focus on the qualities of wilderness character in the description of the affected environment and analysis of impacts, resulting in a clear understanding of the different outcomes by managers and the public.

Management

Cumulative impacts of management decisions are a growing concern among wilderness managers. The holistic framework of wilderness character can help minimize this “tyranny of small decisions” (Odum 1982) by clarifying the breadth of agency responsibilities in managing wilderness, and by helping staff understand their role and responsibility to preserve all five qualities of wilderness character. Wilderness character can be incorporated into training and operational procedures of all divisions, encouraging an ethic that promotes the preservation of wilderness character in search and rescue, maintenance of structures in wilderness, visitor contacts, ranger activities, safety, interpretation, education, and other park programs and activities.

A Minimum Requirements Analysis (MRA) is required by NPS policy for all actions in wilderness. Effects on wilderness character are a formal part of the MRA process for determining whether the action is necessary, and if it is, for then identifying the minimum activity. Similarly, wilderness character is used as the basis to evaluate impacts from proposed science activities in wilderness (Landres et al. 2010). Science is one of the stated legal values of wilderness and is essential for helping managers make informed decisions, but it may also have adverse impacts on wilderness character. For example, a proposal to trap and collar endangered wildlife may not require motor vehicles or mechanical transport, but the process of trapping would degrade the untrammeled quality

and installing radio collars would degrade the undeveloped quality. Using wilderness character to understand these impacts allows up-front and explicit communication between scientists and managers, increasing the likelihood that high-quality science proposals that provide crucial benefits will be approved and wilderness character will be preserved.

Monitoring

Tracking change in wilderness character over time provides answers to crucial on-the-ground questions such as how management decisions and actions, and external activities affect wilderness character. Such questions can be answered using the interagency monitoring strategy in *Keeping It Wild*, which provides a way to track change in wilderness character on the ground in each wilderness while maintaining national consistency. The basic elements of this strategy are as follows.

Keep it useful. Use measures that are identified by local staff as relevant to that particular wilderness.

Keep it practical. Use existing data whenever and wherever possible.

Keep it simple. Use the smallest number of measures to track change in the five qualities over time.

By tracking change in locally relevant measures of wilderness character, each wilderness will have the information about trends to help staff understand the consequences or outcomes of their decisions and actions. For example, if the use of designated campsites is initiated in a particular area to reduce vegetation impacts, the trend in the natural quality should improve while the trend in the unconfined quality will degrade.

Using the procedures from *Keeping It Wild*, the trend of each measure—improving, stable, or degrading—is combined to yield overall trends in each quality and of wilderness character. These trends can be compiled across wildernesses to assess whether wilderness character is being preserved across a region or the nation. This strategy allows each wilderness to use unique measures yet still contribute to an NPS-wide and NWPS-wide assessment of trends in wilderness character (see [Adams et al.](#), this issue).

Conclusions

The National Park Service is in a unique position to demonstrate leadership in wilderness stewardship by preserving wilderness character now and into the future. Integrating wilderness character into planning, management, and monitoring helps enhance communication, accountability, and consistency of wilderness stewardship in the National Park Service and across the National Wilderness Preservation System. Understanding and preserving wilderness character sustains the values and benefits of wilderness for future generations. More information about wilderness character is available on the wilderness.net Web site and the Wilderness Character Integration Hub (SharePoint site) at <http://share.nps.gov/wci>.

Acknowledgments and literature cited

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