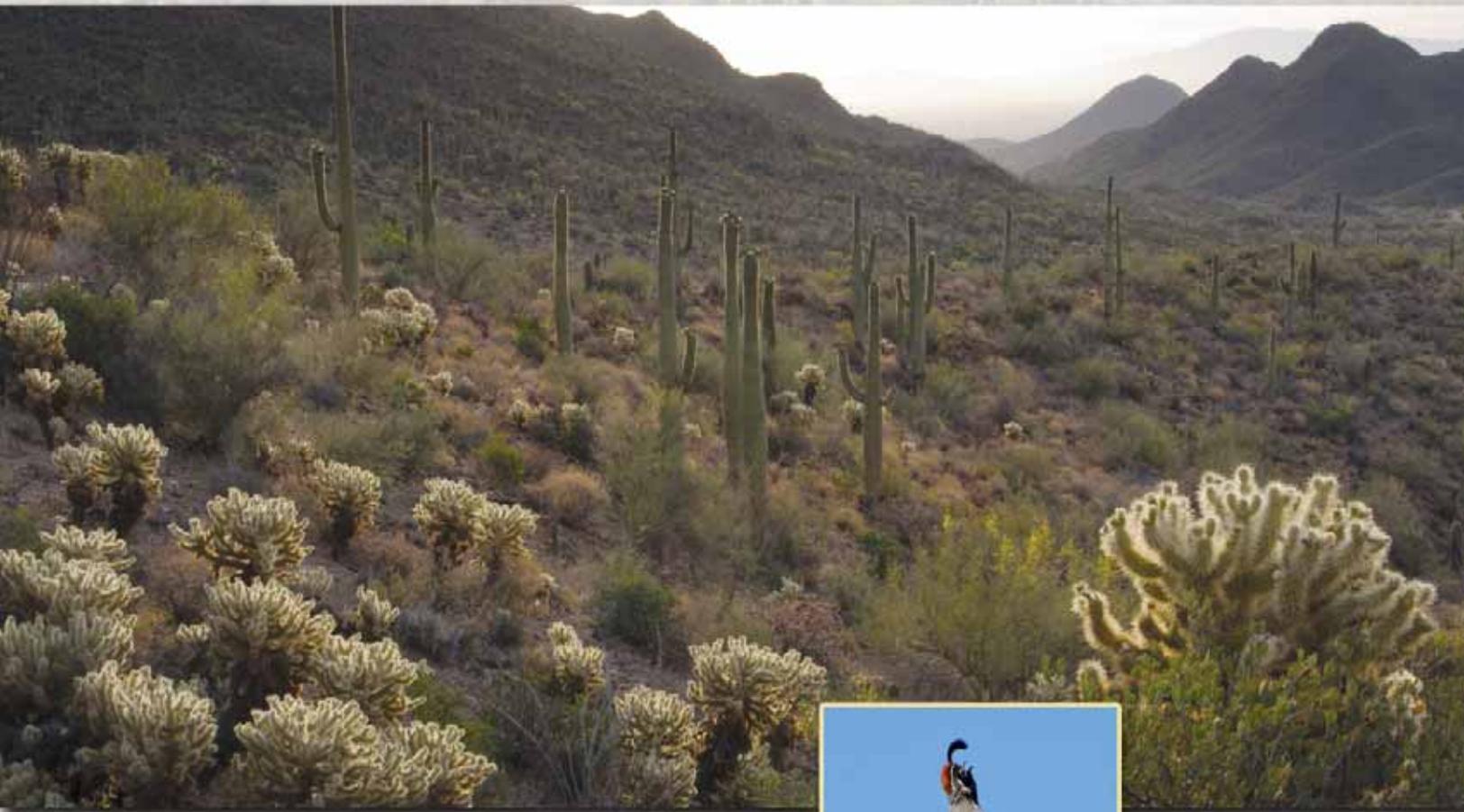


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Planned Diversity

The Case for a System with Several Types of Wilderness

BY DAVID N. COLE

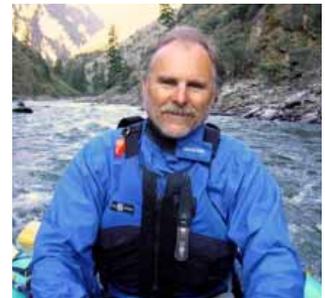
Although the U.S. Wilderness Act of 1964 legally designated only one type of wilderness, the full array of wilderness values might be better protected by setting aside several important and different types of wilderness. Wilderness serves many different needs, having multiple and varied values and purposes (Cordell et al. 2005). Although many assume that these values and purposes are congruent and that all can be provided in optimal measure in one type of wilderness, this is not the case. Wilderness values such as freedom and solitude are often in conflict (Seekamp and Cole 2009), as are values of wildness and naturalness (Cole 2001; Aplet and Cole 2010). Doing the “right” thing for one wilderness value is often the “wrong” thing for another. Therefore, a complex set of wilderness values is better optimized by maximizing different values in different places than by compromising among these values everywhere. Recognizing this, there has been a long history of interest in purposely planning for a diverse system of different types of wilderness areas. Although never successfully translated into legislation or policy, the case for planned diversity in wilderness is growing.

Aldo Leopold, Bob Marshall, and The Wilderness Society

As early as 1925, Aldo Leopold wrote that “wilderness is a relative condition,” that we need “*all degrees*” of wilderness, “from the wild, roadless spot of a few acres left in the rougher parts of public forest devoted to timber-growing, to wild, roadless regions, approaching in size a whole national forest or a whole national park” (p. 399). Recognizing the need to purposely plan for a spectrum of wilderness “degrees,” he noted that “by skillfully adjusting one use to another, the land planner builds a balanced whole without undue sacrifice of any function, and this attains a maximum net utility of land” (p. 400).

Bob Marshall further developed the concept of varied wilderness types and the need to carefully plan a diverse

wilderness system. When asked to write the recreation section for a highly influential Forest Service report to Congress, *A National Plan for American Forestry*, he devoted much of the section to describing seven different types of recreation areas, four of which preserve values important in wilderness (Marshall 1933). “Superlative



David Cole rowing a raft through the Frank Church-River of No Return Wilderness in Idaho. Photo by Wendell Beardsley.

areas” would be localities (with no minimum or maximum size) of unique scenic, natural, or scientific value. Many of these areas are iconic, such as the Grand Canyon or the mountains of Glacier National Park. “Primeval areas,” sometimes called natural areas, would be virgin tracts unmodified by human activities, representative of all major vegetation types. Devoted both to scientific study and contemplative recreation, these areas need not be large; neither should they be small (ideally at least 5,000 acres/2,023 ha). “Wilderness areas” would be large (at least 200,000 acres/80,937 ha), places where “it is possible to retire completely from the modes of transportation and the living conditions of the twentieth century” (p. 474). They would have no permanent inhabitants, no roads, settlements, or power transportation, and visitors would have to be self-sufficient for survival. The environment was to be primitive but not necessarily primeval. Finally, “outing areas” would be places, often close to population concentrations, where people could pursue non-motorized outdoor activities in a natural environment, escaping for short periods from the demands of everyday life. Marshall (p. 479) used what is now Desolation Wilderness, near Lake Tahoe in California, as an example, noting that the place “has neither remarkable beauty nor remarkable timber” (so is not superlative or primeval) and “is much too small for any real wilderness journey, but is



Figure 1—The type of wilderness most consistent with the language of the Wilderness Act emphasizes wildness over naturalness and biodiversity conservation, as well as low-density recreation use, even if limits are required; John Muir Wilderness. Photo by Garry Oye.

splendidly adapted for a day's walk or an overnight trip."

Marshall (1933, p. 471) argued that "due to the varied purposes of those who seek recreation...and the different forms that the realization of these purposes assumes...each of these types has its own standards of size, beauty, and administration and...a separate recreational program must be developed for each." That is, these areas need to be designated and managed separately, for different purposes, rather than managed for divergent purposes and protect divergent values in a single land classification called "wilderness."

In 1935, this need for multiple types of wilderness was reiterated in the four-page platform of the newly formed Wilderness Society (Sutter 2002), of which Aldo Leopold and Bob Marshall were founding members. The platform advocated for five types of wilderness, four of which are conceptually analogous to Marshall's types of recreation area: superlatively scenic areas, primeval areas, extensive wilderness areas, and restricted wild areas (areas free from the sights and sounds of mechanization and

nearby population concentrations). The fifth conceptual type, "wilderness zones," would occur in corridors along mountains or rivers.

The Wilderness Act

As he developed the language that ultimately became the Wilderness Act of 1964, Howard Zahniser, executive director of The Wilderness Society, did not push for designation of the multiple types of wilderness that are needed. Rather, the Wilderness Act mandates only one of these types of wilderness, using language most similar to the description of "extensive wilderness areas"—the type most reflective of the values of The Wilderness Society. The act designated tracts of land characterized less by their preservation of primeval environments than by the extensive recreational opportunities they provide on lands that appear undisturbed and free from the sights and sounds of mechanization. This type of wilderness does less to preserve scientific and biodiversity values than designation of primeval and superlative areas would have and

does little to meet the needs of an expanding population for outings in nature, as respite from everyday life, values that would have been provided by designating restricted wild areas.

Wilderness history since passage of the Wilderness Act can be interpreted, to a substantial degree, as an effort to make up for disregarding these other wilderness values. Subsequent acts designating wilderness have added areas that are small, representative of diverse ecosystem types, close to population centers, and that contain highly modified landscapes. Unfortunately, these lands are designated as if they were extensive wilderness areas, using the language of the Wilderness Act of 1964. Marshall's (1933) admonishment that given the unique and often conflicting purposes of these varied lands, separate management programs should be developed for each has largely been ignored. Instead all these lands are called the same thing, with no policy or guidance suggesting that they should be managed in different ways. The result, not surprisingly, is conflict between wilderness values, confusion about appropriate management, and, ultimately, the homogenization and compromising of wilderness values.

Recent Interest in Different Wilderness Types

Although original interest in different wilderness types revolved around questions of recreational values, more recent interest has reflected concern for scientific values and increasingly sophisticated ecological knowledge. In the latter half of the 20th century, ecologists came to realize that nature is characterized more by flux than by balance and to appreciate the ubiquity of human influence. Even the most remote wilderness has not escaped the far-reaching influence of human

activity. In the postscript of a popular accounting of this paradigm shift, Botkin (1990) devoted several pages to wilderness in the 21st century, arguing that we need three different types of natural areas: no-action wilderness, preagricultural wilderness, and conservation areas. No-action wilderness areas are to be “untouched by direct human actions, no matter what happens” (p. 194). The other two types are to be actively managed. For preagricultural wilderness, the idea is to maintain areas so they give the “feeling of being untouched by people,” and “appear as they did when first viewed by the European explorers” (p. 195). Conservation areas are to be actively managed to conserve biological diversity, either particular species or ecological communities. Echoing Marshall, Botkin (1990) points out the inconvenient truth that “it is not going to be possible to manage the same area to be all three at once.”

In an article on the dilemma posed by intentional manipulative intervention in wilderness, Cole (1996) elaborated further on the notion of having both wilderness where “no action” is taken, where wildness is maximized, and places where actions are taken to protect biological diversity and naturalness. Managing different wilderness areas or different places within wilderness for divergent purposes is also a way to deal with the dilemma of restricting access to insure low-density wilderness experiences (Cole 2001). Some wilderness lands in high demand from urban populations could be managed to support heavy recreation use, despite adverse effects on opportunities for outstanding solitude. Use could be restricted on other lands to ensure a wilderness experience closer to the ideal.

Most recently, recognition of the severity and implications of climate

change has further spurred writers to advocate having multiple types of wilderness. Cole and colleagues (Cole et al., 2008; Cole and Yung 2010) argued that climate change, among other things, has made the concept of naturalness, central to the language of the Wilderness Act, an inadequate foundation for making wilderness stewardship decisions. Put simply, climate change has increased the lack of congruence among the multiple meanings of naturalness and the diverse values of wilderness. Conserving biological diversity will require more heroic efforts than imagined, more intrusive and widespread manipulation in wilderness. Alternatively, taking no action, protecting the autonomy of nature (Ridder 2007), will lead to conditions that are unprecedented, perhaps undesirable, and far from “natural.” For example, some have suggested that, given climate change, biodiversity conservation—an important wilderness value—may require assisted migration, actively moving propagules or individuals to new habitats where they are better adapted (Hoegh-Guldberg et al. 2008).

Which is a greater degradation of wilderness character, intentional manipulation of species distributions or loss of biodiversity? Given uncertainty about the future and the likely effectiveness of climate change adaptation strategies, future risk is reduced by doing different things in different places, not putting all one’s eggs in the same basket.

In the context of wilderness stewardship, this means having different types of wilderness, managing for different purposes and values in different places. Cole and Yung (2010) suggest a number of different wilderness purposes that might be used as management objectives in different wilderness situations, including protecting nature’s autonomy, preserving historical fidelity, building ecosystem resilience, and maintaining ecological integrity. In a popular book on global warming, Barnosky (2009) arrives at similar conclusions, arguing that we need two different kinds of wilderness—one to protect biological diversity and ecosystem services, another to protect the feeling of wilderness.



Figure 2—Where biodiversity conservation is an overriding goal, manipulation of wilderness ecosystems may be necessary, as in this landscape adapted to frequent fire; Sequoia-Kings Canyon Wilderness. Photo by Dave Parsons.



Figure 3—Where the goal is to provide the benefits of wilderness recreation to millions of people living in metropolitan areas, heavy use may have to be tolerated, as at this lake located within a one-hour drive and one-hour hike from downtown Seattle; Alpine Lakes Wilderness. Photo by Troy Hall.

The Case for Planned Diversity

Wilderness is not a singular concept. Rather it has multiple meanings, values, and purposes. Wilderness should protect biological diversity and ecosystem services and provide a scientific baseline. But it should be a place that is managed with restraint, symbolizing the fact that humans do not always know the right thing to do. It should provide opportunities for unique and increasingly rare human experiences, from solitude to connections to the past. But it should also be accessible, so wilderness benefits are available to the population. All of these meanings, values, and purposes cannot be protected in one place. Consequently, as the founders of the modern wilderness movement first articulated 80 years ago, several different types of wilderness, managed in different ways, are needed.

Only by designating different types of wilderness is it possible to meet the needs of diverse recreational

tastes and situations. The original wilderness recreation ideal was a long trip in a remote area, where few other visitors are encountered. This reflects Marshall's (1933) definition of wilderness as a place "sufficiently spacious that a person may spend at least a week or two of travel in them without crossing his own tracks" (p. 473), and the Wilderness Act's definition of wilderness as a place that provides "outstanding opportunities for solitude." However, Congress has designated wilderness areas with boundaries that border suburban backyards. Today, most wilderness visits are day visits to areas close to the major metropolitan areas where most people live (Cole and Hall 2008). Although most visitors value solitude, most do not expect to find it everywhere in wilderness, nor do most consider it critical to having a high quality wilderness experience (Cole and Hall 2008). Clearly, there is value in having wildernesses close to and far from population centers, some that are large and others

that need not be, some where it is easy to get away from people and others where this is less critical.

Diverse wilderness is also needed to protect the full range of values wilderness provides. Wilderness stewards increasingly will have to decide between protecting nature's autonomy, conserving biodiversity, or preserving primeval historical conditions. Since each has value and is central to what wilderness is and why it should be protected, different values will have to be given highest priority in different places. Moreover, in an age characterized by rapid change and an unpredictable future, diversification is a means of hedging bets and reducing risk. Society needs the different types of baseline that can only be provided by leaving some wilderness alone and managing others to mitigate human influence (Cole 1996). The uncertainty of climate change makes it critically important to thoughtfully plan diversity and redundancy into any management response (White et al. 2010).

Finally, it is important that diversity be planned and not occur by happenstance. It is common to hear that stewardship decisions need to be made on a case-by-case basis, based on ethical considerations, using a structured decision-making process to work through to decisions. Although structured decision making is better than being haphazard, this approach will not result in planned diversity. It is virtually impossible for hundreds of wilderness stewards to individually make local decisions that collectively complement each other such that the diverse values of wilderness are optimized. The small scale at which decision-making authority is distributed does not match the large scale at which the situation needs to be assessed and solutions need to be crafted. Optimal diversity will require either

top-down planning or some mechanism for individual stewards to come together to develop large-scale plans that will form the basis for individual decisions. Whether from the top down or the bottom up, individual decision makers must have their management discretion constrained by the needs of the larger wilderness system.

Conclusion

The need for multiple types of wilderness areas, managed in different ways and for different purposes, was advanced by the founders of the wilderness movement. The importance of a diverse wilderness system, established through careful planning at large spatial scales, has only increased with time. Following from the discussion above about different recreation situations and divergent wilderness values, the most important elements of diversity to build into the wilderness system appear to be size of area, accessibility to large populations, and the degree and type of ecological manipulation. The three primary wilderness types needed are:

1. Large wildernesses that are off-limits to ecological manipulation and managed to ensure low-density recreation use, even if this means limiting use.
2. Wilderness of varied size (or portions of larger wildernesses), where ecosystem manipulation to achieve ecological values is appropriate, where needed, and recreation use is not allowed to impair ecological values.
3. Wilderness of varied size (or portions of larger wildernesses), where ecosystems are managed to appear natural and recreation is managed to be as accessible as possible to recreationists.

Within these three primary types there is likely to be further variation, among

ecological values (e.g., biodiversity conservation, ecosystem services, and historical fidelity) and recreational tastes (e.g., large groups and educational groups). It is also important to make clear that all wilderness types need to be consistent with the fundamental concept of wilderness, which excludes commercial enterprise, commodity extraction, mechanized transport, and permanent structures.

With the benefit of hindsight we can lament the fact that only one type of wilderness was legislatively codified or that Congress has aggravated this problem by designating lands with diverse purposes and values without

The need for multiple types of wilderness areas, managed in different ways and for different purposes, was advanced by the founders of the wilderness movement.

apparent concern for lack of congruence between these values and purposes and those codified in the Wilderness Act. But it is more useful to focus on what we can do going forward to optimize wilderness values, given this situation. Although a thorough discussion of possible paths forward is beyond the scope of this article, several options are obvious.

The first choice is between providing these varied types of wilderness within the currently designated National Wilderness Preservation System (NWPS), or designating additional lands outside that system for purposes not entirely consistent with the language of the Wilderness Act. The

International Union for Conservation of Nature (IUCN) protected areas management classification provides an example of managing the larger landscape for multiple protected area values, beyond those of strict wilderness. One problem with this approach is that many areas currently within the NWPS are better examples of other wilderness types than of extensive wilderness. Perhaps the ideal choice would be to both designate new lands and reorganize the existing NWPS to better match existing wilderness with the purposes and values they best serve.

There are also several approaches to working with the existing NWPS. One option is legislative change, a legislated system of different wilderness types, as Marshall envisioned. This might involve revising the Wilderness Act, undesignating some wilderness and/or reclassifying areas into different wilderness types. In theory, legislative change might seem the optimal approach in that it would extend the protection of congressional designation to all wilderness types, ensuring a high degree of permanency to lands designated for each wilderness purpose. It could include language that would codify the objectives and appropriate management regime of each wilderness type in law. Practically, however, there is likely to be little enthusiasm for revising the Wilderness Act; the potential for all sorts of harmful amendments is too great.

The remaining, perhaps most practical, option is to build diversity through administrative action, allocating different wildernesses or portions thereof to different wilderness types. This would require developing a typology of wilderness types, each with different objectives and appropriate management guidelines. To be successful, it would be necessary to establish procedures that make it very difficult to reassign lands

to a different wilderness type and to hold managers accountable for meeting appropriate objectives and following requisite guidelines. Two arguments against this approach have surfaced. Many argue that allowing substantial ecological manipulation and heavy recreation use are inconsistent with a strict interpretation of the Wilderness Act. Others simply do not trust the land management agencies and note that the intent of the Wilderness Act was to ensure that wilderness decisions were made by Congress rather than the land management agencies.

Each option has its pros and cons and will have its supporters and detractors. No option is obviously the correct course to take and none of the options will be easy. The least attractive option, however, is to continue on our current path, pretending that these multiple purposes and values do not exist or that they do not conflict, making decisions on a case-by-case basis. This is a recipe for a homogenized wilderness system in which all values are compromised and none are optimized. It is time to develop the institutional capacity to plan for and implement a diverse system of wilderness types, founded on an articulation and celebration of the diverse purposes and values of wilderness. This will require recognizing that these purposes and

values often conflict, that trade-offs must be made, and that the right thing to do for wilderness can only be identified by situating stewardship decisions in the context of a large-scale wilderness strategy.

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