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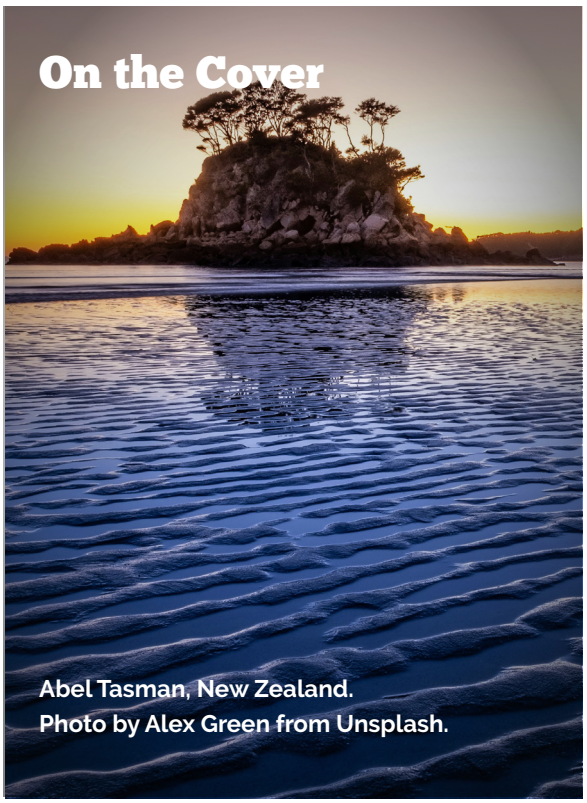

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IJW Editor-in-Chief Emeritus

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International IJW Journal of Wilderness

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EDITORIAL PERSPECTIVES

Please Hold, Connecting Your Call Now. . . to the Wild

by Robert Dvorak

Robert Dvorak

Welcome to the 31st year of the International Journal of Wilderness.

In our previous issue, our editorial, "Missing the Forest for the Algorithm," examined the application and implications of artificial intelligence (AI) for wilderness and international conservation. It was interesting to reflect on the rapid pace AI is integrating into our lives. Little did I know that this reflection would grow into a deeper dive into the AI world.

Conversations with colleagues led me to Google NotebookLM, a virtual research assistant tool for quick summarization and notetaking using their Gemini 2.0 software. Google describes it as "the ultimate tool for understanding the information that matters most" and provides an audio overview of information as a "deep dive podcast discussion" between two virtual personalities. Intrigued by the concept, I uploaded the "Missing the Forest for the Algorithm" editorial, along with the basics of the International Journal of Wilderness, and was quickly provided with a 20-minute conversation about wilderness and the impacts of AI . . . by two artificial intelligence–created podcasters. It was quite remarkable how the software was able to analyze the questions and concepts raised in my editorial and begin to have a dialogue regarding the role of wilderness and nature within humans' lives. Honestly, it was slightly surreal to listen to a thoughtful and poignant reflection of my written work synthesized and presented by a computer.

There was then an opportunity to take the conversation further. I had the chance to be a guest on a real podcast, the "Voice of Wilderness" hosted by Jackie Batrus and the WILD Foundation. In our episode, "AI in the Wild: Help or Harm?," we reflected on this idea, originating in an IJW editorial, of how it might more deeply connect to questions within the conservation community. The reflection revealed that our community is experiencing rapid change environmentally, socially, technologically, and politically. Circumstances call for more immediate responses and reactive answers, and these rapid changes stress our ability to be proactive or forward-thinking in planning and decision-making. Despite the chaos and uncertainty that such an atmosphere creates, it has reinforced for me the idea of a greater need for a connection with the wild.

Recent events—such as this season's California wildfire or island nations like Vanuatu struggling with climate destabilizing changes—highlight our profound need to come to terms with our connection with nature. Our behaviors and actions cannot be isolated and independent from the impacts they have on nature. Instead, we must strive to acknowledge and better understand the critical relationship that we humans need to develop more deeply between us and the natural world. From small pockets of biodiversity to vast wild landscapes, our connection to the wild must be felt more broadly by everyone. Our connection to the wild should not be ignored, postponed, or forgotten. If that trend continues, we might have to rely on AI to explain to us what our "connections with nature" should have been.

In this issue of IJW, Pablo Garrido suggests the need for inward inquiry in conservation. Dan Abbe discusses the cross-cultural embrace of wilderness protection. Michelle Reilly considers different misinterpretations of wilderness. Robert Schumacker examines ways to advance wilderness medicine training programs. And Adrian Quijada and others show the creation of sustainable conservation career tracks within Indigenous communities. ijw

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Voices of Wilderness, "AI in the Wild: Help or Harm?" and other episodes of this podcast can be accessed on Spotify and Apple Podcasts at:

Spotify: https://open.spotify.com/episode/5wECtmOBKCCexueY4Rmuq5?si=vhXf7QR2TDC12uewG2LZPQ

Apple Podcasts: https://podcasts.apple.com/fr/podcast/voices-of-wilderness/id1654124951

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Photo credit: Ciucaș Peak, Romania. Photo by Urban Vintage on Unsplash

Humanity Outlook: A Need for Inward Inquiry for Conservation

BY PABLO GARRIDO

Today, we research climate change (Solomon et al. 2009), restorative nature exposure (Hartig et al. 2014), trophic rewilding (Svenning et al. 2016), and even investigate life on distant planets. However, is current research sufficient for contributing to global environmental amelioration? Ubiquitous biodiversity declines (Ceballos et al. 2015, Ceballos and Ehrlich 2018), and accelerated defaunation (Dirzo et al. 2014) and degradation processes are occurring despite all research efforts. This is because human activities are detrimental to our only habitat (Ehrlich and Ehrlich 2013), planet Earth. These detriments have rapidly escalated globally, suggesting the onset of a new geological era, the Anthropocene (Crutzen 2002). Hence, is there any realistic way to sustain global biodiversity and life-sustaining systems without changing the human approach to nature? Due to our irresponsible nature-destructive behavior, we are by far the most significant factor in the ongoing planetary collapse. Consequently, no research can alone address current dramatic global change patterns. What we need to understand is that the only significant change with far-reaching consequences for the planet would be changing ourselves. And what would be our first step in achieving that necessary change? I argue that an inner inquiry, in other words, quieting the mind and questioning ourselves, might deepen and clarify our perception by breaking all past constructions.

Pablo Garrido
Photo by Andrea Friebe.

Until now, we have trusted our ancestors, educators, parent-transmitted values, morals, and traditions. This knowledge transmission has created specific psychological constructs, largely context dependent,

through which we interpret the world. One may identify oneself with a certain nationality for instance, such as Spanish, Russian, or Indian, that in essence is just a human mental construction as we all are universal beings sharing a planet, a sun, and air. Effectively, we are all interconnected. The fact that we are generally unaware of such mental constructions implies the creation of separation from what is not considered like "us," which, through a process of comparison and judgment, makes us behave violently and irrationally toward our human brothers and sisters and other beings. Such separation makes us treat natural resources as proprietary assets to exploit carelessly, threatening our survival as a species. With such vast psychological conditioning, how can we see the reality as it is? Our unconscious, inflexible limitations have led to tremendously advanced modern high-tech societies but have left us psychologically prehistoric. We have constructed societies where conflict and violence are a constant, fed by judgment and contributing to and exacerbating even further perceptual differences among us.

Such conflict and violence, however, is merely a reflection of an inner psychological conflict that resonates outward with continued pervasive effects on ourselves, others, nature, and global biodiversity. Let us imagine a white male, who believes (by constructed mental conditioning) he is different in terms of ethnicity. He uses this ethnicity to identify himself with certain other humans, but is that the truth? On the surface it might appear to be so. In the outer realm, we all need to eat, breathe, and socialize to fulfil our basic human needs. In our inner sphere, the same processes prevail . . . is my sensation of anger different from the anger of an Asian or an African person? The fact that we identify ourselves in terms of ethnicity, for example, triggers a constant psychological comparison and judgment toward what is perceived as different. This generates a mental pattern that encourages behaviors, such as violence and resulting conflict, to be constantly expressed. The process can become iterative, as judgment is a comparison between our own psychological structures, ourselves—our ego—that reinforces the structures (the illusive creation of an image of self) and therefore the unconscious pattern of judgment.

How do we possibly, then, move toward a fundamental change in ourselves—one that would preserve biodiversity and life-sustaining systems? Today, we are just a product of being educated to think inside the "box." But how many boxes there are? As many as there are psychological conditionings created in our minds, and of whose constructed nature we are generally unaware. Modern productive systems have created domesticated, mind-busy, goal-oriented ambitious individuals, which unconsciously contribute even further to conflict, violence, and global destruction as the mind is constantly reacting based on our unaware mental constructs. We are constantly reacting as comparison and judgment are exercised compulsively. A reaction to something we want to happen generates craving and results in clinging to things we like to happen over and again, whereas something we don't want to happen creates aversion, dislike, and animosity. These patterns are constantly occurring in our minds whether we are aware of them or not. They both prevent us from being in harmony and create a permanent internal conflict because the old habit pattern is to react. But we are utterly unaware of the true source of our reactive mind patterns and ignorantly believe the cause relies in external objects. Therefore, the cause of our misery, understood as a mind deprived of harmony, is attributed to external objects. The Buddha, however, investigated the issue to the ultimate level.

He found that when any of our five senses plus the mind encounter external objects, a sensation is produced (either pleasant or unpleasant), and our unconscious mind reacts to the sensations of the body. We crave pleasant sensations and generate aversion toward unpleasant ones.

Modern humans have rarely investigated the functioning of the inner self, thus we exercise a reactive pattern that is harmful to ourselves. When we are angry because something we wanted has not happened, that anger does not remain within ourselves. Instead, we tend to harm others and imbue our close environment with negativity. Such is our inner reality. We are unaware of the myriad mental constructions we identify with, including culture, religion, tradition, beliefs, ethnicity, and nationality. Constantly craving pleasant sensations and reacting to unpleasant ones makes constantly agitated individuals. With that tremendous level of mental conditioning, it is virtually impossible to see things as they are as our mind and vision become extremely narrow. It is not surprising, then, that the inability of a constantly agitated individual aggregated in structures such as communities and societies (equally agitated and therefore lacking harmony) to seek true happiness, love, and compassion. How can we humans conserve nature, while simultaneously—and inadvertently—also contributing to current multilevel global crises because of our constant state of agitation?

One way to tackle current global biodiversity decline and life-sustaining systems collapse is through an inward journey—one that is often purposely neglected in modern societies and educational programs. It should rely on two basic pillars: inner inquiry and observation with attention. There are many Eastern techniques available for such purposes; for instance, Vipassana meditation is a technique of mental purification through self-observation. Inner inquiry relates to the capacity of self-observation and the innate ability of observation to enhance the sensitivity of the mind. Developed through respiration techniques such as Anapana, this practice increases the capacity to observe ourselves with full attention. The key to purifying the mind is to observe our breathing and sensations and not to react to the sensations that arise. As our minds get purified, we may then understand that to live is the only purpose of life, and therefore current paradigms, worldviews, and relationships to nature and other sentient beings (including ourselves) will irremediably and automatically change as all mental defilements vanished. Only then may we truly realize that we are nature and nature is us, and therefore any harm to nature is harm to ourselves. This revelation can only come from an experiential understanding and enhanced human consciousness.

“One way to tackle current global biodiversity decline and life-sustaining systems collapse is through an inward journey—one that is often purposely neglected in modern societies and educational programs.”

Different disciplines have already emphasized and argued as crucial and urgent the need for a fundamental change (Cowling 2014; Reddy et al. 2017). For instance, behavioral conservation is an emerging science that merges psychology and conservation. It may facilitate our understanding of the factors that modulate real preferences

within humans and institutions. It may also help us understand when we must make sacrifices in favor of nature conservation. To tackle current global crises, we urgently need to depart from the continuous economic growth paradigm and reconsider our conceptualization of wealth as well as limit population growth and the need to reduce consumption.

In conclusion, we need to change our individual and collective behaviors drastically. For that to happen, it is necessary to de-domesticate or rewild ourselves first (Garrido 2024), something that fortunately is possible today but requires an effort to purify our minds. An experiential understanding or an understanding experimented within ourselves will drive action and change, whereas the prevailing intellectual understanding does not. Not taking this approach may partially explain why, despite our (intellectual) understanding of current human-induced negative effects on life-sustaining systems and global biodiversity we all depend on, there is no significant change in us. We are all aware (again, by intellectual understanding) that to kill any life-form generates suffering, but only a few of us (perhaps those liberated or enlightened beings) who have deeply experienced that truth and, therefore, ceased completely from inflicting harm on any sentient being. It may, then, be that the mind is constantly balanced, in harmony, allowing a greater respect for all planetary beings to prevail. This allows a transmuting from an anthropocentric to an ecocentric paradigm, crucial for the maintenance of the global life-sustaining systems we all need for survival. Such a human metamorphosis, urgently needed and plausible, may guide humankind toward higher levels of consciousness and thus likely new narratives and ecocentric harmonious futures. ijw

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Photo credit: Looking northwest into the Aldo Leopold Wilderness from Hillsboro Peak; Gila National Forest, New Mexico. Photo by D. Abbe.

STEWARDSHIP

The Cross-Cultural Embrace of Wilderness Protection:

How Do We Consider Wilderness Preservation Over the Last 60 Years?

BY J. D. ABBE

I have loved wilderness for decades, and my perception of the concept has evolved. However, I now struggle with what appears to be the success of the idea, adaptations across the globe for wilderness preservation, and the valid arguments for its exclusive nature and history. Can I reconcile these apparent discrepancies and differences?

Dan Abbe

Understanding Wilderness

The National Wilderness Preservation System (NWPS) in the United States was established on September 3, 1964, by "an Act To establish a National Wilderness Preservation System for the permanent good of the whole people, and for other purposes." Most commonly referred to by its short title, the Wilderness Act, it designated 9.1 million acres of wilderness in the United States (Wilderness Connect 2025a). As of June 2024, more than 111.7 million acres comprised the NWPS, a 10+ fold increase encompassing about 5% of all lands in the US. At the turn of the 20th century, there were fewer than a dozen conservation organizations; by the mid-1950s, there were hundreds (Nash 1982). As of 2022, organizations promoting wilderness preservation, a subset of all conservation organizations, included more than 150 nongovernmental organizations. Even with the growth of the NWPS and

organizations supporting its stewardship, it is important to recognize the dispossession of Indigenous people from their lands. Native American Tribal lands were included in early versions of wilderness legislation in the 1950s (U.S. Public Law 88-577). They were removed after consulting Tribal councils; this is not surprising given the persecution of Native Americans. As the US population has grown and development has increased, some Native American support for wilderness has also grown. Alaskan Native input into the Alaska National Interest Land Conservation Act (ANILCA) in the 1970s ensured their continued subsistence use in areas affected by the largest increase in wilderness designation in US history (Nash 1982). The Confederated Salish and Kootenai Tribes' creation of the Mission Mountains Tribal Wilderness in 1982 (Confederate Salish and Kootenai Tribes 2005), the establishment of the Intertribal Sinkyone Wilderness Council in 1986 (InterTribal Sinkyone Wilderness Council. 2025), Crow Tribes' formal request for Wilderness protection of Awaxaawippiia in 2020 (Wild Montana 2021), and the Navajo Nation's support for America's Red Rock Wilderness Act (the 24th Navajo Nation Council 2021) are all examples of Native American support for wilderness.

The Wilderness Act has been criticized for its exclusionary language, its authors' homogeneity, its colonialism, its fortress conservation, and the Judeo-Christian separation of humanity from nature (Callicott and Nelson 1998; Nelson and Callicott 2008). Native Americans were dispossessed, and their homeland was taken and relabeled (Spence 1999; Catton 1997). Wilderness users are often cited as wealthy, well-educated individuals with time to spare while less fortunate people are excluded (Cordell 1999, 2004). These are all valid criticisms and hold truth. With increasingly urban populations, accelerating technologies, changing cultural landscapes, and climate change, I hear talk of a fading need for wilderness lands as described and managed by the Wilderness Act.

My Wilderness Story

I was born and brought up in white, middle-class America outside of Washington, D.C. A little twist: I was born overseas during one of my father's civil service assignments. Growing up, we often had international visitors over for dinner, and we lived abroad as I entered elementary school. I went to public schools, participated in several outdoor-oriented clubs, and watched as suburban sprawl overcame local forests. In college, I studied business, and I drove west after graduating. Drawn to wild places, I worked as a park ranger. The journey included time in the Olympic Mountains, Orcas Island, the Ozarks, Central America, The Outer Banks, Death Valley, Mineral King, Mojave Desert, Sierra Nevada, Alaska Range, and New England. Along the way, I have continually tried to understand wilderness, the concept and the places, and I have felt an itch I couldn't put my finger on or satisfy.

The language of the Wilderness Act resonates with my upbringing and worldview. The romantic idea of a rugged individual in the wilderness spoke to me. Reading Muir, Thoreau, Marsh, Leopold, Nash, Runte, Murie, Abbey,

Olson, Cronon, Woods, and others on the history of the environmental movement and how congressionally designated wilderness came to only deepened my desire to learn more. Reading research by Cordell, Hendee, Dawson, Watson, Hammitt, Cole, Landres, Manning, Hall, and others did the same. Living and working in wilderness fueled an even greater desire to understand why I seemed to need wild places. All this led me to a position where understanding the NWPS, its legal mandates, and its importance are paramount.

My Questions

Protected wilderness is no longer unique to the US or one culture. Efforts to preserve wild places can be found across the globe, and by 2008, statutory or administrative wilderness was recognized in 12 sovereign nations (Kormos 2008). By 2018 the number had and grown to more than 70 (Martin, Rui, and Yue 2018). At a time when we are losing unprotected wildlands in the US (Watson et al. 2016), there appears to be a positive trend in the protection of wilderness globally. I wonder what is driving the protection of wilderness lands. Is it a scarcity issue (Nash 1982), a deep-seated human need for wild places (Meier 1985), the evolution of expanding human ethics (Nash 1989), a combination, or something else? Why has our current social construct of wilderness, as codified by the establishment of the NWPS, come under intense and ongoing criticism while acreage continues to increase? Why are an increasing number of culturally diverse nations protecting wilderness? Is my connection to wilderness lands unique? Is it restricted to those that share my upbringing and worldview? Is there a common human affinity for wilderness regardless of upbringing? Could there be universal values of wilderness, an innate need for humans to connect to wild places? What pieces of the puzzle I am missing to better understand wilderness and its connection to humanity?

Looking for an Explanation

In pondering these questions, I have struggled to visualize a model or cohesive explanation. I see several themes but struggle to find a pathway to clarity. These themes include the growth of the NWPS, a changing society, apparent growing Native American support for wilderness, increasing ecological and economic values of wilderness, international recognition of wilderness, the evolution of human ethics and expansion of rights, and the ongoing wilderness debate among environmental philosophers. Bear with me as I briefly expand on these while I work toward my conclusions.

Acres of Wilderness Protected

After eight years of congressional debate and 66 revisions, President Lyndon Johnson signed the Wilderness Act into law on September 3, 1964, establishing 9.1 million acres of wilderness (Wilderness Society 2025). Every US president since Johnson has signed wilderness legislation, and currently 111.7 million acres have been designated (Chan 2020). There is a positive trend in the cumulative number of acres added to the Wilderness

Preservation System from 1964 to 2019 (Figure 1). Wilderness has also been recognized by individual states, and by 1983, nine had established their own wilderness areas totally 2.6 million acres of state lands (Dawson and Thorndike 2002). The total number of state-designated wilderness acres increased to 3.2 million acres across 12 states by 2007 (Propst and Dawson 2008).

A Changing Society

Demographic and social changes in the US indicate adjustments in how people use wilderness, their acceptance of management interventions, and their values of wilderness. In 1960, the US population was predominately white (88.6%, 10.5% African American, .9% "All Other")(Bureau of the Census 1961). By 2020, the country had more racial diversity (76.3% white, 13.4% African American, 1.3% American Indian and Alaska Native, 5.9% Asian, Native Hawaiian and Other Pacific Islander) (US Census Bureau 2025a). Ethnic diversity within the US changed with an increasing number of people identifying as Latino or Hispanic (18.5% in 2020) (US Census Bureau 2025a). Social changes included increasing environmental awareness and protection, equal rights for women and minorities, acceptance of nonbinary gender identification, and legal protection for same-sex marriages. These dynamic changes have had an impact on

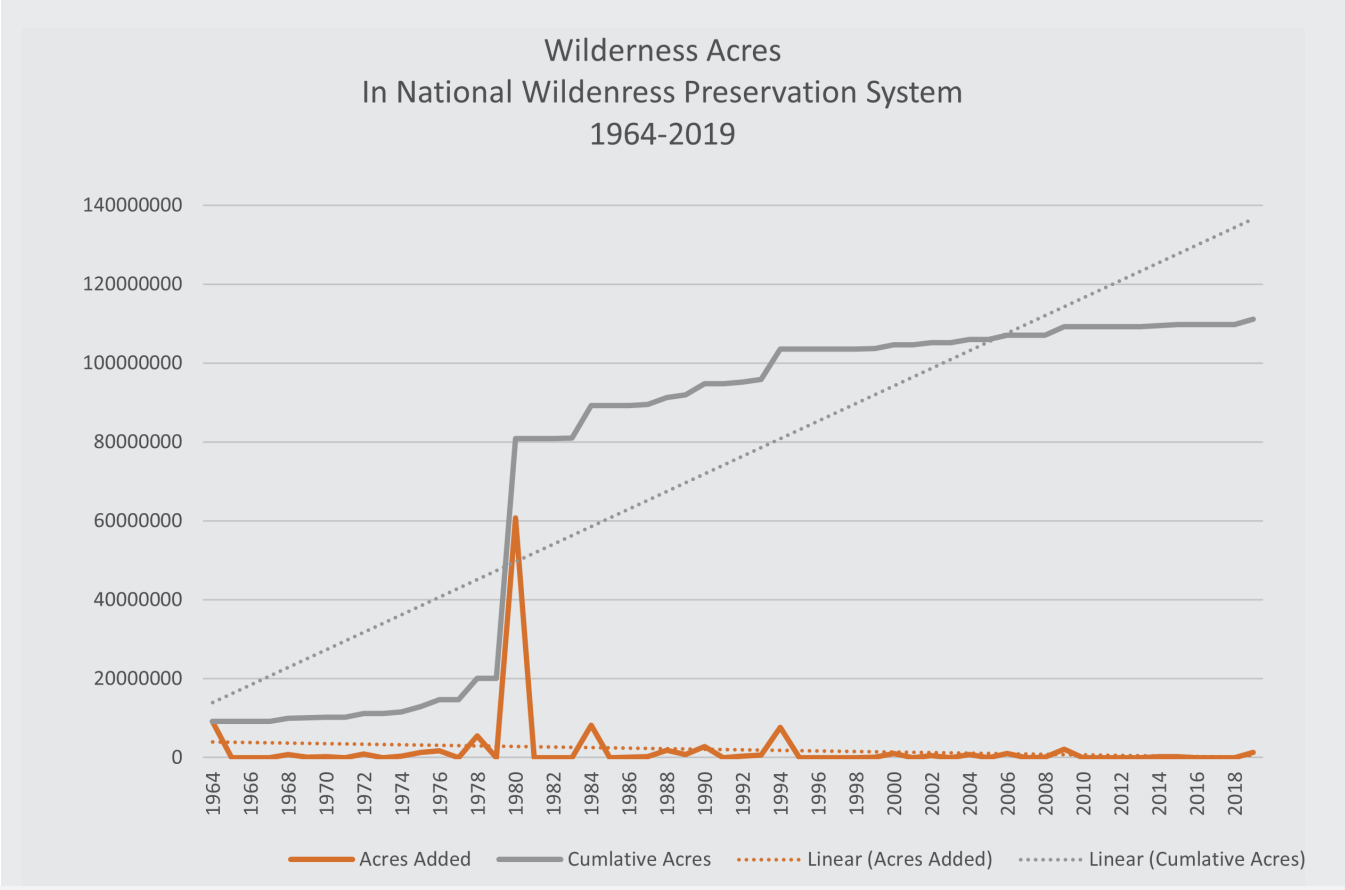

Figure 1 - Wilderness Acres by Year Designated. Data from Wilderness Connect (2025).

"Is wilderness important to humanity? I continue to live and learn. I hunger to better understand why wilderness speaks to me and the wider population of humanity. I see widespread agreement that we continue to value wilderness in socially dynamic ways, and I believe there is a deep-seated need within our species for wild places."

wilderness, manifesting in shifting visitor-use patterns and relationships with wilderness. These patterns include increasing wilderness day use, which may increase by 80% by 2060 in urban proximate areas (Rasch and Hahn 2018); and overuse in wilderness (Wilderness Connect 2025b). In addition, wilderness attitudes are changing, as demonstrated by the following: crowding may be shifting perceptions of solitude (Cribbs et al. 2020); wilderness holds a declining resonance among younger populations (Rasch 2018); rural, proximate communities decreasing support for wilderness (Rasch and McCaffrey 2019); social science is making growing contributions to wilderness stewardship; our understanding of a "perpetual flow of benefits" connected to wilderness preservation is evolving (Holmes 2022); and a robust philosophical wilderness debate continues among authors such as Nelson and Callicott (2008) and Woods (2017).

Native Americans and Wilderness

Native Americans have been persecuted and removed from their ancestral lands by the US government and dominant euromerican society. Theft of ancestral lands, forced displacement and resettlement, and attempts to erase their cultural ways are historical facts. Their deep history and connection to these lands being hampered by the passage of The Wilderness Act is a valid criticism. More recently, with growing populations and accelerated development, some Tribes have started advocating for and supporting wilderness designations. ANILCA, the Mission Mountains Wilderness, the Intertribal Sinkyone Wilderness Council, and Red Rock Wilderness Act mentioned previously are examples. David Treuer wrote,

Americans have gradually assimilated to our cultures, our worldview, and our modes of connecting to nature. The parks enshrine places, but they also emphasize and prioritize a particular way of interacting with the land. In the nation's mythic past, the wilderness may have been a dangerous environment,

something to be tamed, plowed under, cut down. But that way of relating to the land is no longer in vogue. For many Americans, our wild spaces are a solace, a refuge—cathedrals indeed. America has succeeded in becoming more Indian over the past 245 years rather than the other way around. (Treuer 2021)

It is also important to recognize the increasing dialogue between wilderness advocates and Tribal nations. The National Wilderness Workshop in Missoula, Montana, in 2023 was titled "The Future of Wilderness Is Indigenous" and The World Wilderness Congress in 2024 (WILD 12—The Sovereign Wild) have proven to be powerful opportunities for dialogue. Looking toward a future of co-stewardship as is playing out in the Black Hills of South Dakota (Jacobson 2024) provides inspiration and hope.

Ecological Services

Wilderness is increasingly seen as important for the ecosystem services it provides. With increasing levels of carbon dioxide in the atmosphere, forested wilderness areas are acknowledged as carbon sinks (Anderson 2019), sequestering carbon and helping buffer our warming climate. Forested wilderness areas improve air quality by filtering out contaminates that have been linked to higher temperatures. Wilderness areas play a vital role in providing high quality drinking water.

There has been a growing effort to conserve more lands both in the United States and internationally. In the United States, the White House rolled out the America the Beautiful Initiative in 2021 to conserve 30% of our lands by 2030. Additional efforts such as the Yellowstone to Yukon Initiative (Yellowstone to Yukon Conservation Initiative 2025) are pushing toward more connected landscapes. These efforts to conserve more lands, of which wilderness is but one component, are critical for long-term ecological and cultural sustainability.

Link to Health Benefits

The Wilderness Act specifically states in Section 2(a) that it is "the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness." The act implies such a resource would help counter the negative effects of an increasingly industrialized and mechanized society. Sigurd F. Olson said, "During a trip into the wilds, it often takes men a week or more to forget the frenetic lives they have led, but inevitably the feeling of timelessness does come, often without warning" (Olson 2000). He speaks eloquently on the human connection to wilderness. Research has found time spent in nature has both physical and mental health benefits (Yale Environment360 2020). In an article published in the International Journal of Environmental Research and Public Health, the authors open by mentioning the biophilia hypothesis. It proposes humans evolved with nature and have an affinity for it (Jimenez et al 2021). The article goes on to review several conditions that link positive physical and mental health outcomes to nature exposure. Other cultures have recognized the importance of nature connections. Take, for example, the

Japanese practice of shinrin-yoku, or forest bathing. The practice is so well-recognized for its health benefits that guided forest bathing sessions are covered by many health insurance plans (Chadwick 2021).

There is more focused research on the health benefits associated with time spent in wilderness. One article entitled "Wilderness, Biodiversity, and Human Health" considers ecological and human health to be inseparable (Dustin et al 2015). A more recent study suggests the human connection to wilderness reduces disease risk (Baker 2020). And there are even more examples of how caring for our environment and wild places can improve our own social and individual health.

Economics

Today, with nearly 10 million visitors experiencing time in wilderness, we can quantify some of its economic benefits. Those visitors spend about US$500 million in wilderness-adjacent communities, generating about 5,700 jobs and more than US$700 million in total economic output (Hjerpe et al. 2017). In 2014, wilderness was valued at US$85 an acre for a total of US$9.4 billion in annual benefits to the American public (Bowker et al. 2014). These benefits included recreational use, passive use, and ecological services. Wilderness areas have also been attracting more people to live in adjacent communities (Hjerpe et al. 2020). "Amenity migration" was noted in the 1990s, and the COVID-19 pandemic saw remote work explode, with people moving toward wilderness-proximate towns and areas (Hjerpe et al. 2022). One recent article notes, "Wilderness Areas, National Monuments, cool summers, varied topography, forests, and water are the most influential amenities" Holmes 2022).

The growth in wilderness advocacy organizations, public support, and political influence can also point to a growing "industry" of its own. The connection between these groups with the economic benefits of conservation cannot be ignored. In an article entitled "Why Conservation Funding" (2025b), the Wilderness Society states that activities connected to resource conservation contribute at least US$1.06 trillion annually to the economy, support 9.4 million jobs, and generate more than US$100 billion in taxes. Wilderness opponents have often argued that wilderness lands lock up resources and fail to contribute to our economic well-being. Increasingly, this argument is inaccurate.

International Perspectives

In 1948, the International Union for the Conservation of Nature (IUCN) was established to encourage international cooperation as well as provide scientific knowledge and tools to guide conservation action (IUCN 2025). It now consists of more than 1,400 member organizations, 18,000 experts, and is active in m 160 countries (IUCN 2025). The total acres added to conservation lands globally has grown as demonstrated by data provided in Protected Planet Report (Protected Planet 2020) and shown in Figure 2 . The number of protected areas established worldwide rose from almost a thousand in 1960 to more than 110,000 by 2009. More recently, area has grown on a

magnitude of 6x for marine conservation (1.7 km2 in 1990 to 28.1 km2 in 2021 and 2x for terrestrial conservation 10.4 km2 in 1990 to 22.5 km2 in 2021, demonstrating a sustained growth in protected areas (Protected Planet 2020). Unfortunately, data lumps all conservation lands into these two categories. Isolating different conservation classifications, such as wilderness, is not yet possible. Wilderness preservation appears to align with broader conservation efforts for protected areas. In 1994, the IUCN reinforced this connection by establishing the wilderness classification for protected areas (Casson et al. 2016). By 2008, statutory or administrative wilderness was recognized in 12 sovereign nations (Kormos 2008), growing to more than 70 nations in 2018 (Martin et al 2018) using the IUCN system (Figure 2) . The bottom line appears to be an increasing number of cumulative acres for both conservation lands and wilderness.

Explanations

What explains the increase in protected wilderness acreage over the last 60 years despite the persistence of criticisms against their establishment? Is it due to scarcity, economic factors, recognition of its benefits, growing ecological understanding, shifting social values, or some combination of these?

A basic human theory posits that a scarce resource has more value than an abundant one. This is often referred to as the scarcity principle, scarcity theory, or just scarcity. As the human population has swollen from 3 billion+ in 1960 to 8 billion+ in 2024 (US Census

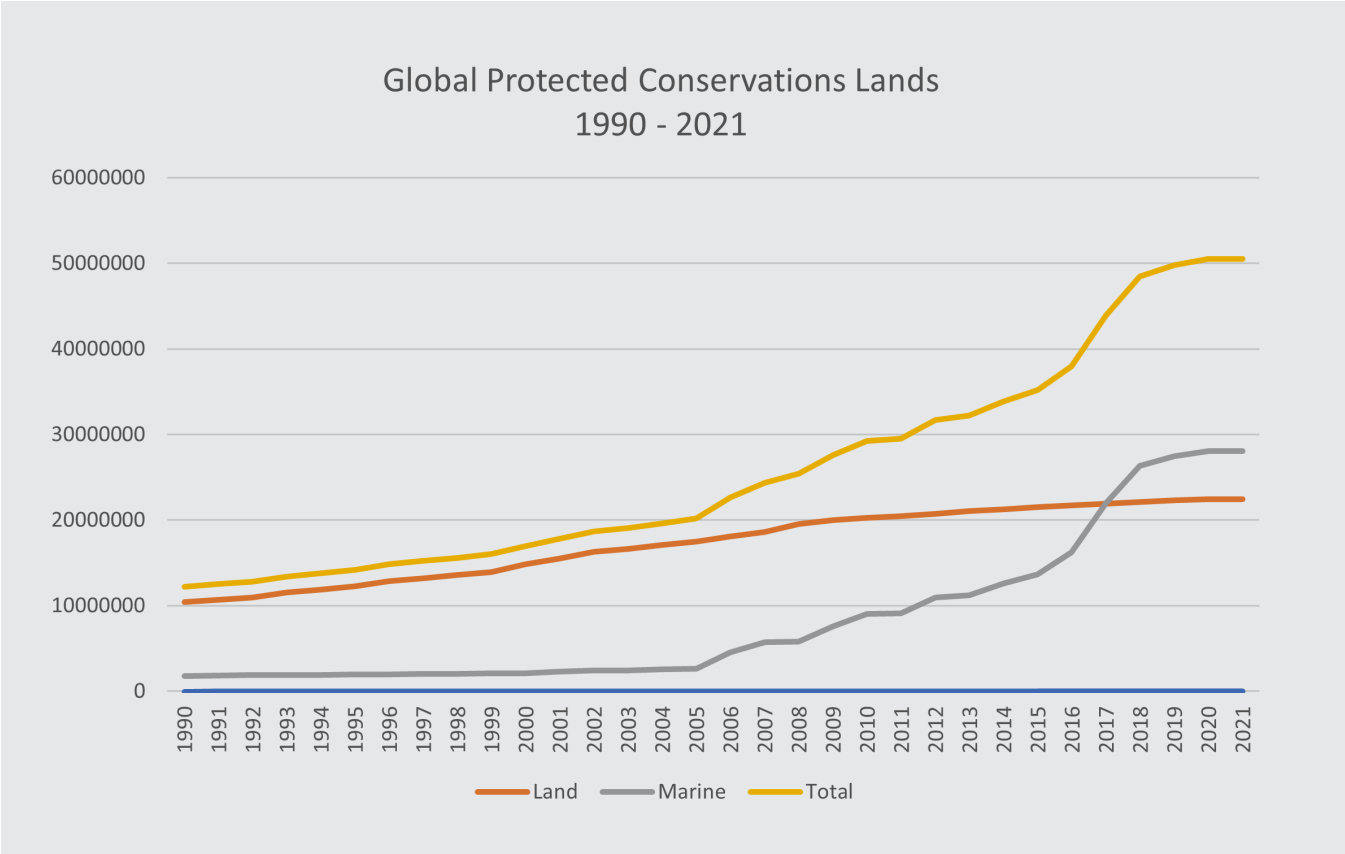

Figure 2 - Change in Protected Area Coverage. Source data from Protected Planet (2020).

Bureau 2025b), human development has consumed ever larger portions of the Earth's surface. The growing population has been recognized as having significant impacts on the natural world, including climate change and accelerating extinctions. Articles have questioned our concept of nature in this era of rapid change (Minteer and Pyne 2015). Recent literature has questioned the ability of natural systems to support life without human intervention (Kolbert 2021). It has also called into question the concept of natural (Cole and Yung 2010) and the continued idea of wilderness (Wuerthner 2018) in the Anthropocene. This does not bode well for wilderness, making it an increasingly rare resource in an era of rapid social and ecological change.

Wilderness lands provide significant ecosystem services to human populations, including clean water, clean air, and carbon sequestration. In addition to these and other environmental benefits, time spent in wilderness has also been linked to improved physical and mental health

Another argument for the protection of wilderness centers on the evolution of human ethics (Nash 1989) and the legal rights of nature (Boyd 2017). The growing bio- or ecocentric worldview can be linked to the evolution of human ethics. In his 1989 book,

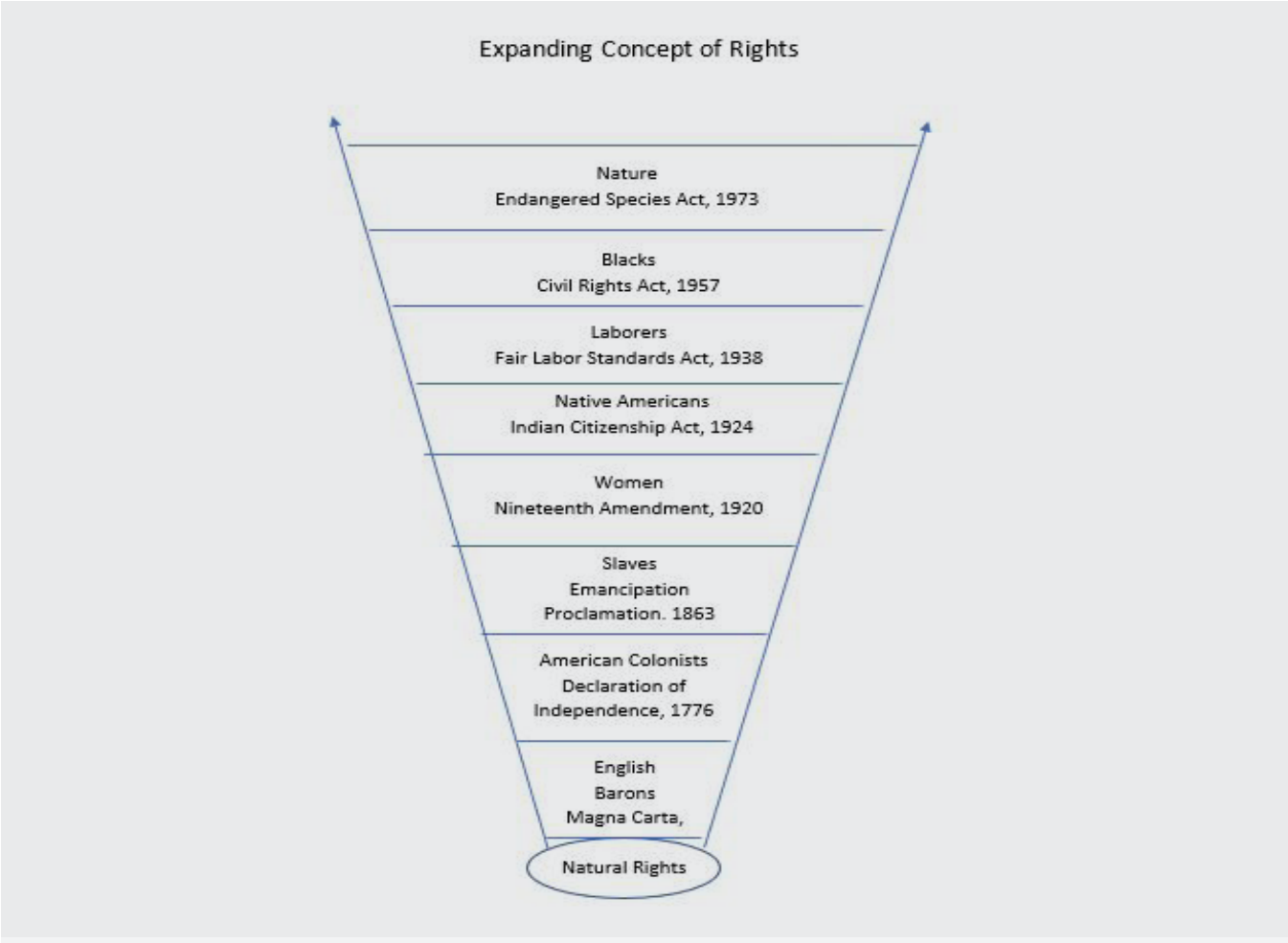

Figure 3 - E Human Ethics and the Expanding Concept of Rights, taken from R. F. Nash, The Rights of Nature, 1989, p. 5)

The Rights of Nature: A History of Environmental Ethics, Roderick F. Nash argues the evolution of ethics will lead to the protection of nature through legal means. He provides a diagram (see Figure 3), in support of this argument (1989). Legal protections from injury or harm often involve granting "human rights" to nonhuman entities. "Rights of Nature is about balancing what is good for human beings against what is good for other species, what is good for the planet as a world"(Global Alliance for the Rights of Nature 2025). Since the publication of Nash's 1989 book, we have seen legal rights argued and established for the Vilcabamba River (Ecuador), Atrato River (Colombia), Narmada River (India), Whanganui River (New Zealand), and Yarra River (Australia) (International Water Resources Association 2019), Lake Erie (US) (Pallotta 2020), and an elephant (Lepore 2021). While the Lake Erie Bill of Rights (established by the voters of Toledo, Ohio) was later struck down by a federal judge (Pallotta 2020), and Happy the elephant was denied rights designed for humans by the New York Court of Appeals (Lepore 2021), the trend for expanding rights of nature continues. David R. Boyd's 2017 book, The Rights of Nature: A Legal Revolution That Could Save the World, provides further evidence of the evolution of human ethics in providing expanding legal protections to the natural world.

Conclusions

Is wilderness important to humanity? I continue to live and learn. I hunger to better understand why wilderness speaks to me and the wider population of humanity. I see widespread agreement that we continue to value wilderness in socially dynamic ways, and I believe there is a deep-seated need within our species for wild places. We have recognized the importance of wilderness in our laws, its economic benefits, and its ability to heal and improve our physical and mental health. We experience its intrinsic and intangible values, and I believe it has brought us closer to understanding and appreciating our connection to the natural world.

Perhaps we strayed, full of hubris, disconnecting from our place in the natural scheme of things. Perhaps there is growing recognition of that hubris and the growing list of its negative impacts. Perhaps an acknowledgment of the importance of traditional ecological knowledge (TEK) as well as the euromerican bias toward western science will provide better harmony. Perhaps we are on the right track with a growing commitment to systemic ecological health and valuing differing epistemologies. Are we on the right track?

There is a hue and cry for human rights, they said, for all people, and the Indigenous people said: What of the rights of the natural world? Where is the seat for the buffalo or the eagle? Who is representing them at this forum? Who

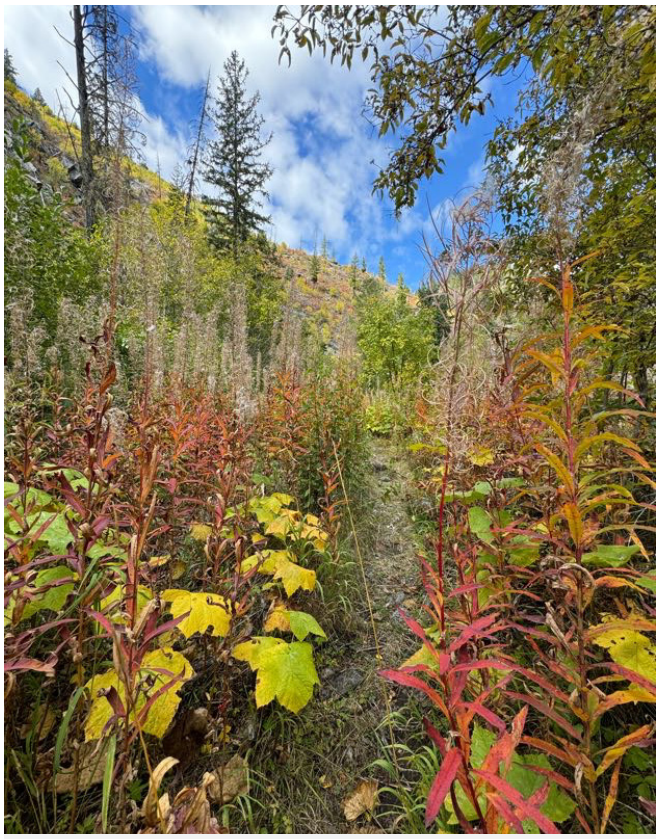

Figure 4 - Hiking in the Welcome Creek Wilderness, Montana. Photo by D. Abbe.

is speaking for the water of the earth? Who is speaking for the trees and the forests? Who is speaking for the fish—for the whales, for the beaver, for our children? (Chief Oren Lyons Jr., Faithkeeper of the Onondaga Tribe of the Haudenosaunee [Iroquois] Nation in Boyd 2017)

The importance of TEK has sustained Indigenous populations for millennia. Western euromerican society, a presence in the US for hundreds, not thousands, of years, has much to learn from the cultures we persecuted and displaced. Using TEK and western science synergistically will push us forward. In his book The Rights of Nature: A Legal Revolution That Could Save the World, D.R. Boyd states, "Respecting the rights of nature will not harm humans, but will enable us to grow as a species, to achieve harmony with the rest of this wild and wonderful world"(2017).

I believe wild, free nature holds a special place in our genetic coding (Figure 4). I imagine I will always be learning the connections of why. I know we face many challenges coming from a storied past to current dynamic debates. Our future is anything but clear, and even so, I am optimistic. If we can continue to expand the dialogue about our connection to wilderness, it will persist. Perhaps you can help me keep the dialogue alive: Is wilderness important to humanity? Please, add your voice to this ongoing conversation!

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SCIENCE + RESEARCH

Through the Historical Looking Glass:

A Discussion About Misinterpretations of Wilderness

BY MICHELLE REILLY

Michelle Reilly

On September 3, 1964, President Lyndon Johnson signed into law Public Law 88-577 stating, "This is a very happy and historic occasion for all those who love the great American outdoors, and that, needless to say, includes me. . . . No single Congress in my memory has done so much to keep America as a good and wholesome and beautiful place to live." The Wilderness Act created a National Wilderness Preservation System (NWPS), designated 54 wilderness areas that included 9.1 million acres, and set up a process for future inclusion of federal lands deemed to contain wilderness character. Since 1964, roughly 125 additional pieces of wilderness legislation have passed, adding more than 100 million acres of already owned federal lands to the NWPS.

But the history of the Wilderness Act is not without struggle. Despite the system's growth and reaffirmation of the idea, criticisms have persisted for decades, arguing that the act is "dualistic, ethnocentric, and static." One critic states the definition of wilderness offered in the Wilderness Act of 1964, "assumes, indeed it enshrines, a bifurcation of man and nature" (Cronon 1995). This article investigates two main criticisms of wilderness and the Wilderness Act: (1) that the Wilderness Act perpetuates a dichotomy between humans and nature; and (2) that wilderness intimates a

purity of nature, the land, and people. In this article, I will use historical documents to search for answers to questions such as: Where do these criticisms stem from? And are they warranted?

Evolution of Concerns About Human Impacts on Nature

Grade-school textbooks state that the birth of the United States occurred on July 4th, 1776, when the Declaration of Independence was signed in Philadelphia, Pennsylvania. Indigenous removal and North American imperialism predate the creation of the United States but were also pursued diligently after the birth of the Nation. In the first half century after US independence, a major proportion of the nation's labor force shifted from an agricultural lifestyle to the manufacturing sector. In 1803, President Thomas Jefferson bought 827,000 square miles of territory from the French government (the Louisiana Purchase), displacing Indigenous groups who lived in the area and resulting in violent conflicts. The War of 1812, a conflict between the US and Great Britian, led to trade restrictions, spurring domestic production in the US. Many Native American Tribes sided with the British forces, hoping the British would help them maintain traditional homelands as America continued to expand west across the country (White House Historical Association 2024). The period between 1820 and 1850 is known as the Removal Era, during which the federal government sought to increase western expansion by removing Indigenous peoples and forcing them west beyond the Mississippi River. This period is marked by the large-scale displacement of Indigenous peoples by war, coercion, illegal seizures, and illegitimate treaty negotiations. In 1830, President Andrew Jackson signed the Indian Removal Act and then another nearly 70 removal treaties throughout his administration. By this time, the US had become one of the world's leading economic powers.

In 1864, less than 100 years after the birth of the nation and just five years after Charles Darwin's On the Origin of Species was published, American scholar George Perkins Marsh wrote Man and Nature, considered the first book to document the effects of human activity on the natural environment. In his book, Marsh argued that human impact on nature was not benign and that abuse of nature led to the collapse of ancient civilizations in the Mediterranean. Marsh wrote the United States a stern warning: The young American republic might repeat the errors of the ancient world if it failed to end its destructive waste of natural resources. Historian William Cronon (1995) states,

Thus the decades following the Civil War (1861–1865) saw more and more of the nation's wealthiest citizens seeking out wilderness for themselves. The elite passion for wild land took many forms: enormous estates in the Adirondacks and elsewhere (disingenuously called "camps" despite their many servants and amenities), cattle ranches for would-be rough riders on the Great Plains, guided big-game hunting trips in the Rockies, and luxurious resort hotels wherever railroads pushed their way into sublime landscapes. Wilderness suddenly emerged as the landscape of choice for

elite tourists, who brought with them strikingly urban ideas of the countryside through which they traveled. . . . In just this way, wilderness came to embody the national frontier myth, standing for the wild freedom of America's past and seeming to represent a highly attractive natural alternative to the ugly artificiality of modern civilization.

The same year that Marsh wrote his stern warning (1864), our 16th president, Abraham Lincoln, signed the Yosemite Grant, setting aside Yosemite Valley and Mariposa Big Tree Grove for "preservation for recreation and public use" (Facemire 2022, p. 24). In 1872, despite never having visited, President Ulysses Grant designated Yellowstone National Park, stating it was "dedicated and set apart as a public park or pleasuring-ground for the benefit and enjoyment of the people." In 1890, President Benjamin Harrison designated our second national park, Sequoia National Park, specifically to protect the giant sequoia. The same year, Yosemite earned national park status. Mount Rainer was designated in 1899, and in 1907, it became the first national park to allow personal vehicles to enter. In 1910, President William Taft designated Glacier National Park in Montana as the nation's tenth national park.

The period between 1876 and 1900 is noted as the rise of industrial America. The expansion of industries led to population growth and a dramatic increase in city life. From 1880 to 1900, cities in the US grew by 15 million people (Library of Congress 2025). During what is called the Progressive Era (1897–1920), many social and environmental movements were stirring (Figure 1). "Progressives" worked to make America a better place by holding companies accountable, improving factory working conditions, and improving living conditions in areas considered slums. Many Progressives were also concerned about the state of the environment. This concern for natural resources grew, and in 1935, the Wilderness Society was formed as an organization to conserve America's wild places.

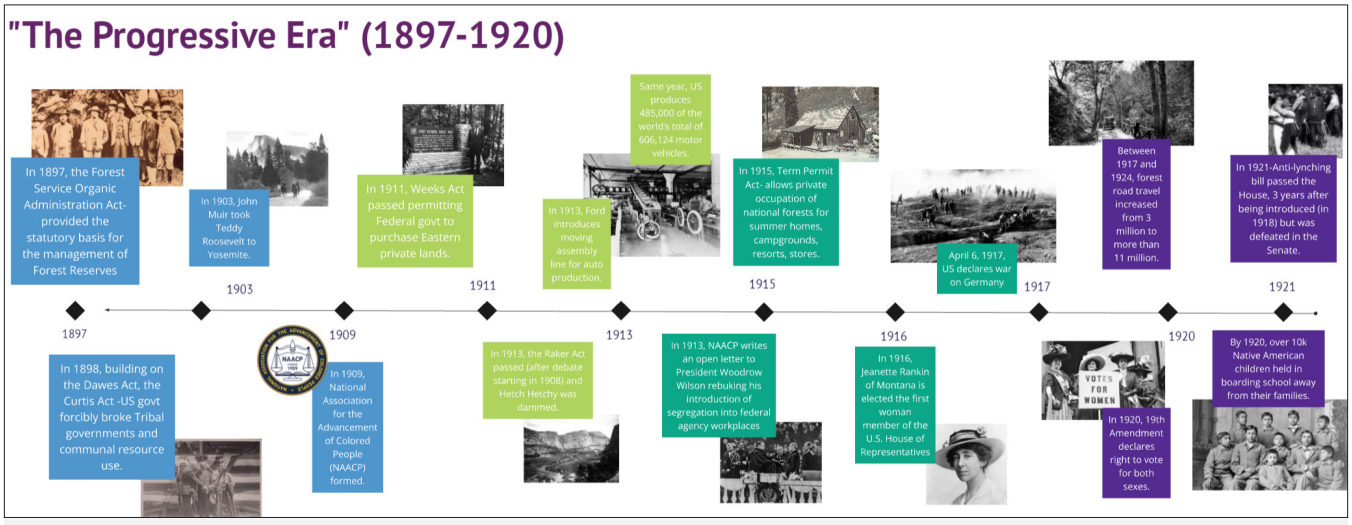
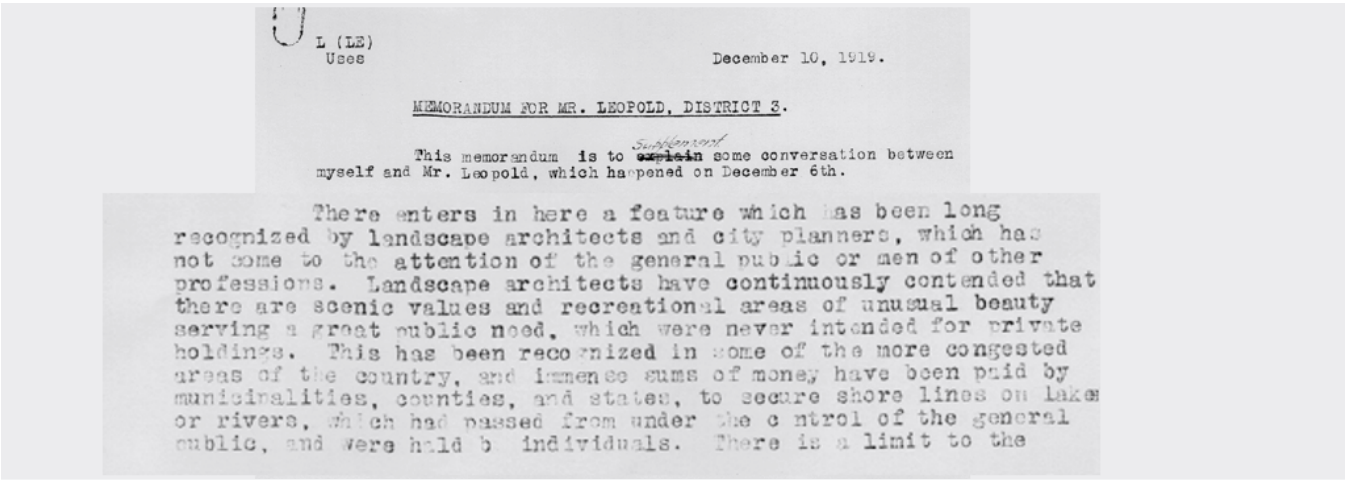


Figure 1 - Progressive Era timeline of some social and environmental events. (Images obtained from the web using creative commons.)



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December 10, 1919.

MEMORANDUM FOR MR. LEOPOLD, DISTRICT 3.

This memorandum is to ~~explain~~ supplement some conversation between myself and Mr. Leopold, which happened on December 6th.

There enters in here a feature which has been long recognized by landscape architects and city planners, which has not come to the attention of the general public or men of other professions. Landscape architects have continuously contended that there are scenic values and recreational areas of unusual beauty serving a great public need, which were never intended for private holdings. This has been recognized in some of the more congested areas of the country, and immense sums of money have been paid by municipalities, counties, and states, to secure shore lines on lakes or rivers, which had passed from under the control of the general public, and were held by individuals. There is a limit to the

Figure 2 - Memo written by Arthur Carhart (USFS) to Aldo Leopold about the idea of preserving public land for reasons unrelated to economic potential (1919).

The men and women involved in the early wilderness movement appeared to focus on protecting land in its natural state for the benefit of all, serving as a counter to the elitist trends described by Cronon and the environmental degradation caused by the Industrial Revolution. American naturalist and forester Aldo Leopold, though influenced by elite figures such as Theodore Roosevelt, seemed to have markedly different notions of society and social class. Arthur Carhart, a US Forest Service (USFS) recreation planner, feared that public access to Trappers Lake in Colorado's White River National Forest would be strangled by Term Permit developments lining the lakeshore. Carhart considered this an inappropriate exclusion of simple public access in favor of the privileged few. In 1919, Carhart and Leopold met, and afterward, Carhart drafted a memo summarizing their conversation about the preservation of public lands for scenic and intrinsic values instead of developments and extraction. Both men believed that these scenic areas should be accessible to everyone, and not just the privileged few.

Regarding the wilderness recreation trips that were becoming increasing popular, Leopold wrote, "But the expense of such trips puts them out of the question for the citizen of moderate means, and he is the man I am talking about. I am trying to make it clear that a wilderness hunting trip is by way of becoming a rich man's privilege, whereas it has always been a poor man's right" (Leopold, cited in Meine and Knight 1999, p. 230). Leopold was concerned that the increase in "wilderness tourism" and guided sport hunting trips would make access more expensive and shift the hunting experience from that of sustenance to trophy hunts associated with wealth and privilege. Leopold's concern sprang from the belief that subsistence hunting was inherently valuable, serving to deepen awareness of humanity's interdependence with nature (Leopold 1949).

Robert Marshall, wilderness advocate and a white American male from a wealthy background, echoed this sentiment of increased use in 1930 when he wrote,

The day is almost upon us when canoe travel will consist in paddling up the noisy wake of a motor launch and portaging through the back yard of a summer cottage. When that day comes canoe travel will be dead, and dead too will be a part of our Americanism. . . . The day is almost upon us when a pack train must wind its way up a graveled highway and turn out its bell mare in the pasture of a summer hotel. When that day comes the pack train will be dead, the diamond hitch will be merely a rope and Kit Carson and Jim Bridger will be names in a history lesson.

The idea of preserving lands for everyone in a natural state was a reaction to social pressures that began in the mid-1800s and continued mounting in the early and mid-twentieth century. The historical records suggest that wilderness in the US, as a new designation for already public lands, was meant to combat an increase in technological advancement and encroachment of urbanization, roads, and elites' possession of natural areas.

Federally Designated Wilderness Versus the Concept of Wilderness

Critiques of designated wilderness (in the NWPS) may include quotes from the 1800s that state the frontier was "uninhabited wilderness." The notion of wilderness in the 1800s is not the same as federally designated wilderness in the US today. The creation and development of Yellowstone, Yosemite, Glacier, and other national parks had (and continue to have) severe impacts on the Indigenous people who called these areas home. The tendency to lump together the establishment of national parks and the designation of wilderness (under the Wilderness Act of 1964) makes it all too easy to overlook important historical differences between the two.

This concept of uninhabited wilderness during the national parks movement of the 1800s is the "wilderness" defined by the Merriam-Webster Dictionary as "a tract or region uncultivated and uninhabited by human beings." This is different from "designated wilderness" in the US NWPS that is a federal designation defined by Congress and managed under the Wilderness Act of 1964 (U. 88-577). Federal wilderness is a land designation that can only be applied to land already under federal control and must meet five criteria to be considered wilderness under this law (untrammeled, natural, undeveloped, opportunities for solitude or a primitive and unconfined type of recreation, and other features of value). These two wilderness concepts are not the same thing. Incorrectly treating them as interchangeable adds to the confusion surrounding the wilderness debate by conflating the history of dispossession—predating the creation of the United States—and the idea of wilderness during the national parks movement with the history of wilderness designation under the Wilderness Act of 1964.

The 1840s and 1850s marked the first large wave of immigration into the United States. This period saw roughly 4.2 million people come to the US, increasing the country's population to more than 20 million and expanding

"I invite you to sit with someone with opposing views (someone in your out-group), to earnestly listen to their point of view and to ask them to listen to yours. Deep down you may find you have some similar values. You may discover that the shared aspects of your individual human experiences are what truly matter."

settlement further into the West. Between 1840 and 1860, Florida, Texas, Iowa, Wisconsin, and California earned statehood. The year 1848 marked the start of the California Gold Rush, which saw nearly 300,000 people move from the rest of the country to California. There are many examples of how Tribes were removed from their traditional homelands due to this influx of immigration and movement across the country.

The land that became Yellowstone was used or occupied by several Indigenous groups, including the Tukudika, Blackfeet, Kiowa, and Flatheads. In the treaties of 1851 and 1868 the US government agreed that the region belonged to the Indigenous Tribes, but, unfortunately, these treaties weren't honored in 1872 when Yellowstone was created. These groups fought for the right to their land before being chased, hunted, and forced onto reservations. This became the Yellowstone Model of the national parks movement. Later, the national parks movement included the use of eminent domain, which is a legal institution that enables governments to acquire property against the will of its owner for a public purpose (MacLegal PA, 2024). In Dispossessing the Wilderness: Indian Removal and the Making of the National Parks (1999), Mark David Spence writes about the link between the creation of the first national parks and the federal policy of Indian removal. Spence correctly states that the concept of uninhabited wilderness had to be created when the first national parks were established in the late 1800s because these areas were Indigenous-occupied lands. By creating the myth that North America was pristine wilderness prior to European settlement, the original inhabitants of the continent were made invisible, whitewashing the tragic history of their persecution at the hands of European-American settlers. The fact that the continent was already inhabited by millions of Native Americans presented a serious problem for both the myth of manifest destiny and the myth of pristine wilderness. The results have been the same for Native people: massacres, dispossession, dislocation, and suffering. The national parks movement followed on the heels of the Indian wars," but the Wilderness Act did not. By 1886 (after the creation of Yellowstone but before designation of our second national park), the

Department of the Interior's stated purpose for the creation of national parks was the "preservation of the wilderness." This purpose would be enforced by the military, which was already aggressively pursuing resistant Native peoples (and non-Native poachers) throughout the Plains. In United States v. Gettysburg Electric Railroad Company in 1896, the government condemned land to preserve the Gettysburg Battlefield. The use of eminent domain expanded during the 1930s in the New Deal era, which aimed to resettle impoverished farmers, build large-scale irrigation projects, and establish new national parks. Great Smoky Mountains National Park could only be created in 1926 after removing nearly two dozen timber companies and 700 families in nine mountain communities through the use of eminent domain ([DOI] National Park Service 2024). The expansion of American national parks reflected contemporary intellectual, social, and economic shifts, including a growing appreciation for wilderness and wildlife, a desire to escape the increasingly urban landscapes created by industrialization, and the rising popularity of the automobile. "With increased awareness of and sensitivity toward nature came the desire to preserve some of the most spectacular landscapes and significant historical and cultural sites for the enjoyment of future generations. Americans wanted to visit these places to experience their beauty firsthand, whether they traveled by train, steamship, or, increasingly, by automobile" ([DOI]. National Park Service 2024).

The concept of uninhabited wilderness that coincided with the establishment of the first national parks in the late nineteenth and early twentieth centuries is not the same one that guided the creation of the National Wilderness Preservation System during the middle of the twentieth century. The two are separate. One author states, "The Wilderness Act negatively impacts Native Americans in many ways, the most prominent being wide dispossession" (Miranda 2022). This statement about dispossession is categorically false. Federal wilderness designation under the Wilderness Act cannot take land from property owners against their will—wilderness can only be designated on land that is already under federal management. Dispossession by the federal government occurred when national parks, national forests, and many other public works were created, but not because of wilderness designation for the NWPS. Section 2 of the Wilderness Act of 1964, Wilderness System Established Statement of Purpose, states that "there is hereby established a National Wilderness Preservation System to be composed of federally owned areas designated by Congress as 'wilderness areas,'. . . the areas shall continue to be managed by the Department and agency having jurisdiction thereover immediately before inclusion in the National Wilderness Preservation System (emphasis added)." Section 5(c) of the Wilderness Act states that privately owned land within the perimeter of any area designated by the Wilderness Act can be acquired and designated as wilderness, "if the owner concurs in such acquisition." The establishment of new federal public lands managed by the Department of Interior, the Department of Agriculture, and the Department of Defense involved dispossession of Tribes' lands, but designation of

these lands as wilderness as part of the NWPS did not—these lands could not become wilderness if they weren't already under federal management.

An area of western Montana, northern Idaho, and north into Canada was home to the Salish, Kootenai, and Pend d'Oreille Tribes who occupied or used the Bitterroot Valley for hunting, gathering, fishing, and collecting the abundant bitterroot plant. The Lewis and Clark expedition members first encountered the Salish people in 1805. In 1824, the Hudson Bay Company of London, at one time the largest private landowner in the world, moved into the valley to take advantage of the fur trade. In 1855, the Tribes signed the Hellgate Treaty, which aimed to remove them so that the land could be made available to white farmers and ranchers. In 1872 Congress passed an act, with the forged signature of Chief Charlo, stating the Salish were to move out of the valley. The land then became the Bitterroot Forest Reserve in 1897, and then between 1906 and 1908 with the creation of the Forest Service, this area became known as the Bitterroot, Nez Perce-Clearwater, and Lolo National Forests. In 1964 with the passage of the Wilderness Act, Congress established the Selway-Bitterroot Wilderness, a designation of lands that were already under public land status.

The (Tukudika) Shoshones-Bannock and Nez Perce roamed throughout and among the Middle Fork Salmon River drainage since time immemorial. In 1877 and 1878, military troops continued to pursue the Nez Perce and other Tribes through the Pacific Northwest. Many Natives Americans took refuge with the Northern Shoshone Tukudika in the mountains of central Idaho. This holdout was taken advantage of by white settlers who blamed every incident, murder, or livestock raid on the Tukudika (or Sheepeater) Tribe. In the spring of 1879, five Chinese miners were found murdered and the Sheepeaters were blamed, initiating the "Sheepeater Campaign" (Reddy 1996). Three separate military troops were dispatched to pursue the holdouts. Eventually, the Tribe surrendered and were taken prisoner and removed to Washington State. Settlers and gold miners moved into the river drainage, and not finding large deposits of gold left the area, and then the river remained mostly unoccupied for decades. In 1906, the Salmon River Forest Reserve was established, and then in 1908, it was renamed the Salmon National Forest. The Frank Church-River of No Return Wilderness was designated on the lands that were part of the Salmon National Forest in 1980. Both federal wilderness designations came about 100 years after the Tribes were forcibly removed for reasons unrelated to the NWPS or the Wilderness Act. Even if the wilderness designation had never occurred, the lands would still be public lands managed by the USFS. This isn't meant to downplay what happened at the hands of the federal government—land, livelihoods, and cultures were taken from the Indigenous people. But every part of the history should be included. Does the current federal wilderness designation matter given the tragic history of dispossession of these lands prior to their wilderness designation? Bernadette Dimientieff, Gwich'in Tribal Leader offers her perspective on designated wilderness:

More than any other modern land category or management system, Wilderness recognizes our way of relating to the land and the Earth. The wilderness idea that humans are part of a larger "community of life" (and should act like it) has been known to my people for millennia. . . . The wilderness concept helps provide English words for what my ancestors have always intuitively known of this community (Kaye, Andrews, and Dimientieff 2021).

Why Does Wilderness Designation Matter? Diverse Perspectives Matter

In September of 2021, the Navajo Nation Council unanimously voted to support the proposed America's Red Rock Wilderness Act, which would designate more than 8 million acres of land managed by the Bureau of Land Management in Utah as wilderness. The Navajo Reservation borders the proposed area, and the historic remnants of Navajo hogans, sweat lodges, sheep herding camps, and farming homesteads can be found throughout the lands included in the act. In a statement of their support, the Navajo Nation Council wrote that "management of Wilderness is one of the strongest and most protective designations available to public lands (Wuerthner 2021)." The Tribe also stated that wilderness designation will preserve the cultural art, cliff dwellings, and other prehistoric and culturally significant sites. Wilderness designation prohibits mechanical transport (ATVs, UTVs, etc.) inside the wilderness boundary. In 1995, Utah Professional Archaeological Council research found that ancient cultural sites are more likely to be vandalized if an off-road vehicle route is nearby. The council found that "maintaining roadless areas is the largest and least costly deterrent to pothunting, inadvertent driving over sites, and vandalism" (Wuerthner 2021). Not only does congressional wilderness designation prohibit off-highway vehicles and other forms of mechanical transport, but it also prohibits roads, thereby potentially helping protect these culturally important sites.

The Confederated Salish and Kootenai Tribes in Montana are made up of descendants of Salish (Flathead), Pend d'Oreille, and Kootenai Indians—Tribes that traditionally occupied a 20-million-acre area stretching from central Montana to eastern Washington and north into Canada (Confederated Salish and Kootenai Tribes 2005). The Hellgate Treaty of 1855 ceded most of the Indigenous homelands to the federal government while the Tribes retained 1.2 million acres, creating the Flathead Reservation. The Mission Mountains are made up of striking peaks and have been used by the Tribes for hunting, gathering, and religious ceremonies for millennia. The first attempt by the Tribes to officially protect the Mission Range occurred in 1936, during a period of extensive trail construction in the area. In the early 1970s, the Tribal Council informally established the Tribal wilderness to combat a proposal to log portions of the area. In 1982, the council passed Ordinance 79A, officially establishing the Mission Mountains Tribal Wilderness, the only Tribal wilderness in the US, and adopted their own management plan. The introduction states,

Wilderness has played a paramount role in shaping the character of the Salish and Kootenai Tribes; it is the essence of traditional Indian religion and has served the Indian people of these Tribes as a place to hunt, as a place to gather medicinal herbs and roots, as a vision seeking ground, as a sanctuary, and in countless other ways for thousands of years. Because maintaining an enduring resource of wilderness is vitally important to the people of the Confederated Salish and Kootenai Tribes and the perpetuation of their culture, there is hereby established a Mission Mountains Tribal Wilderness Area, described herein, shall be administered to protect and preserve wilderness values.

This occasion marked the first time a Tribe decided to protect some of their land as wilderness and to provide a policy and personnel to fulfill its written purpose. The definition of wilderness used in Tribal Ordinance 79A states, "A wilderness is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined as an area of undeveloped Tribal land, retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions (Confederated Salish and Kootenai Tribes 2005 [emphasis added])."

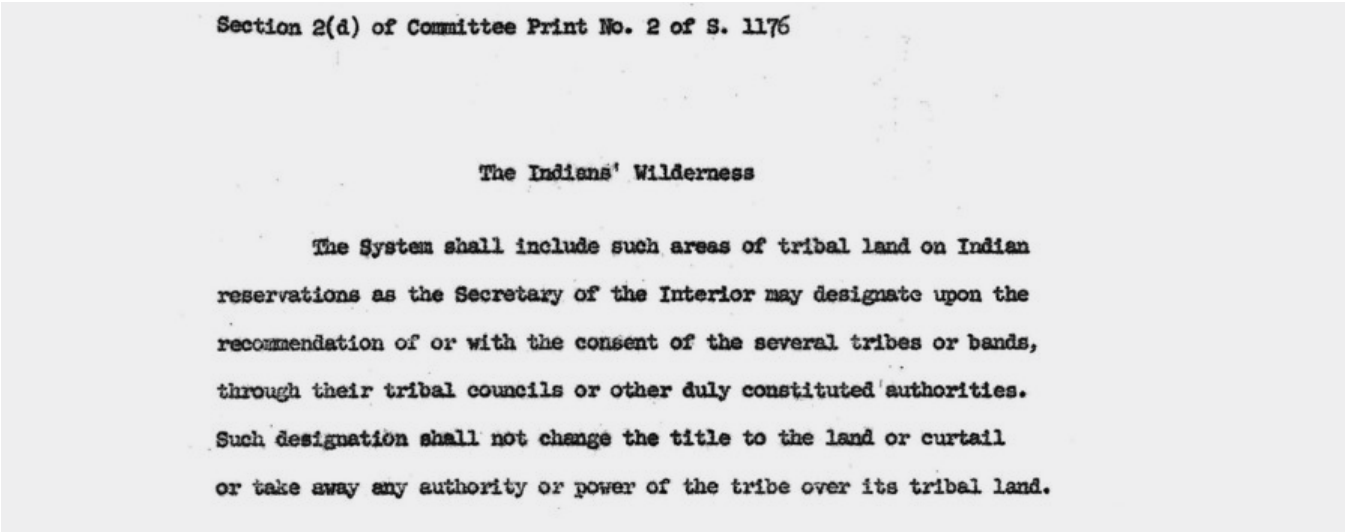
In writing the Tribal ordinance, the authors borrowed language from the Wilderness Act but also consulted the Tribal community and cultural and spiritual leaders for the final language. They came to the consensus that the value of the Mission Mountains for future Tribal cultural and religious purposes would be substantially diminished if human use was allowed to degrade the area's natural qualities. The Tribal Wilderness Ordinance provides for various human uses if they are consistent with the area's primary purpose: the protection and preservation of natural conditions in perpetuity (Confederated Salish and Kootenai Tribes 2005).

It can be difficult to quantify the value of wilderness to Tribes in the US because a lot of conversations among Tribes, advocacy groups, and land managers contain details that must be withheld for cultural sensitivity of the specific area, resources, or practices. One such example was strictly conversational between the author and an advocacy group. An area was being considered for wilderness designation and other resource planning prescriptions. During discussions with the Tribe, the topic of transferring land to the Tribe was considered. A mountain in the area under consideration is known to the Tribe as its center of creation and thus is a sacred area. In discussions with the Tribes, the advocacy group offered to help get the land containing the sacred site returned to the Tribe. Although appreciative of the offer, the Tribe was satisfied with the mountain's federal wilderness protection. Instead, they asked for advocacy for the transfer of other lands where they could provide housing for Tribal members and establish businesses that would employ Tribal Members.

Another example is a case study the author reviewed that had some documentation but was not widely publicized because of its

sensitive nature. The details of this situation have been modified to protect the sensitive topic from disclosure. Researchers collected 20 Native individuals' remains from their pre-European settlement burial site(s) and placed them in institutional collections where they resided for decades. These ancestors suffered disrespect and unrest due to the removal from their original burial sites and placement in these institutions. The Tribe sought to restore the relationship, emotionally and physically, to the land through the repatriation of their ancestors. This act would not only serve the reburied individuals but also provide for the present-day Tribal Members' needs. The burial sites from which the ancestors were removed had been disturbed initially by their removal and then by modern land uses, making the original site unavailable for a repatriation that would provide future protection. The Tribe has ancestral ties to a neighboring landscape that is federally designated wilderness, and they viewed this as being able to serve its important Tribal purposes. Because the designated wilderness provides a peaceful, undisturbed, and remote location (as compared to other nonwilderness sites), the Tribal members worked with the federal government to have their ancestors repatriated here. In doing so, the ancestors would be protected from further unrest. Further, this wilderness was a place Tribal Members would be able to return to for future spiritual or cultural reasons. These two examples demonstrate seldom discussed reasons why designated wilderness is supported by some Tribes or Tribal Members.

Despite these examples, critiques of wilderness state that the idea of wilderness can eclipse Indigenous presence (Fletcher et al. 2021) and wilderness culture can be conceptualized as "white, privileged, colonial, and utilitarian" (Ronald et al. 2023). Other critiques say that the words "wilderness" and "untrammeled" define land as separate from people and have no equivalent concepts or translations in many non-English languages, including Indigenous languages. This argument asserts that wilderness conveys an inherently Western view of land–human relationships that erases Indigenous relationships to lands (Gilio-Whitaker 2020). This criticism is an overgeneralization and does not represent all Indigenous perspectives. Diversity of people, mindsets, beliefs, and traditions adds value to our human environment ecosystem. Generalizing reduces valuable diversity to unhelpful and inaccurate clichés and perpetuates zero-sum beliefs that mean one party can gain only when the other parties lose. As with any topic, there are diverse perspectives. Polly Napiryuk Andrews, a Cup'ik Tribal member, offers her perspective, "It is true that my Cup'ik ancestors had no word for Wilderness. Nor did we have words for airplanes, computers, or the internet, or for climate change, endangered species, or biodiversity either. But we've adopted these words and concepts for the modern, altered, and changing world we now live in. Yes, there are differences between our traditional worldview and the Wilderness concept. But too often we focus too much on differences (Kaye, Andrews, and Dimientieff 2021).



Section 2(d) of Committee Print No. 2 of S. 1176

The Indians' Wilderness

The System shall include such areas of tribal land on Indian reservations as the Secretary of the Interior may designate upon the recommendation of or with the consent of the several tribes or bands, through their tribal councils or other duly constituted authorities. Such designation shall not change the title to the land or curtail or take away any authority or power of the tribe over its tribal land.

Figure 3 - Early draft of wilderness bill that included a section on the inclusion of "Indian Lands" in the NWPS

Robert Marshall wrote frequently about the idea of wilderness. In his idea of wilderness written in 1930, he stated that wilderness "preserves as nearly as possible the primitive environment. 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" (Marshall 1930). It appears that Marshall was acknowledging Indigenous presence and accepted it as part of the wilderness landscape. His intentions seem to be to limit modern human alterations to the environment. It should be noted that, although his motives appear well-intentioned, Marshall played a key role in the USFS roadless designation, which the federal government imposed on Tribal lands in the early 1930s—without the support of all the affected Tribes.

As a final note on this topic, in the 1950s drafts of the wilderness bill, there was originally a section that stated lands on Indian reservations could be included in the NWPS with the consent of the Tribes. This section was taken out of the Wilderness Act because Tribes didn't want their lands included in the NWPS. Those involved did not want to repeat the mistake made with the USFS roadless designations by forcing a land designation onto Tribal lands. And the Tribes' input was the deciding factor in removing this section.

Where "Man Himself Is a Member of the Natural Community"

The Wilderness Act defines wilderness as a place that "generally appears to be affected primarily by the forces of nature, with the impact of man's work substantially unnoticeable (emphasis added)." Wilderness offers people a place to go to be a part of the community of life, a way to connect to nature and to explore one's own and others' concept of interconnectedness. Conversely, critiques of wilderness suggest that the words "wilderness" and "untrammeled" are used to define land as separate from people (Khan 2021;

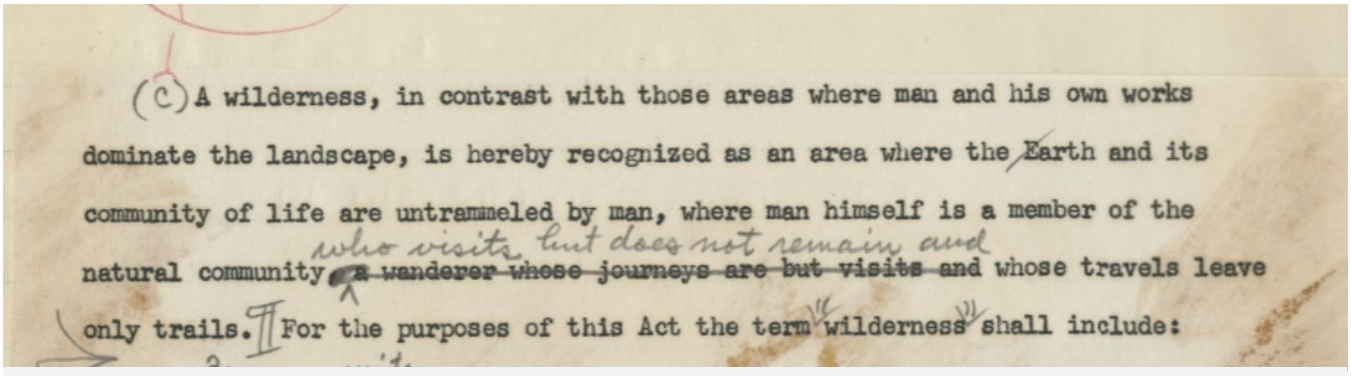


Figure 4 - Earlier draft of the wilderness bill with handwritten notes from Howard Zahniser.

Gilio-Whitaker 2020) and as an unaltered landscape that perpetuates the idea of humans as others (Ronald et al. 2023). Misunderstanding of the word "untrammeled" is, unfortunately, common and adds to the confusion surrounding the concept of wilderness. "Untrammeled" means wild, uncontrolled, unrestrained, or free. An untrammeled area is an area that is self-willed and not under the control or manipulation of humans.

The Wilderness Act states that wilderness "is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain" (U.S. Public Law 88-577, section 2c). But through the years of drafting (66 drafts over 8 years), many compromises were made in the language and some sections required shortening of text. In a draft of the wilderness bill from 1957 this excerpt originally defined federally designated Wilderness as "an area where the earth and its community of life are untrammeled by man, where man himself is a member of the natural community, a wanderer who visits but does not remain and whose travels leave only trails" (emphasis added). This earlier draft of the bill emphasizes that humans are very much a part of the natural environment and not separate from nature (Figure 4) . This excerpt is contrary to critiques of the definition, specifically the word "untrammeled," that claim wilderness sets humans apart as "others." Although this language did not make it into the final drafts of the bill, it does provide insight into how those involved in the wilderness movement viewed humans' relationship to the natural world.

In an article written for the Living Wilderness in the late 1950s, Howard Zahniser, executive secretary of the Wilderness Society and often noted as the primary author of the Wilderness Act, wrote: "In the wilderness it is possible to sense most keenly our membership in the whole community of life on the Earth. . . . We deeply need the humility to know ourselves as the dependent member of a great community of life . . . to know wilderness is to know a profound humility, to recognize one's littleness, to sense dependence and interdependence, indebtedness, and responsibility."

Zahniser's sentiment is not so dissimilar to concepts expressed in oral traditions of other cultures that describe humans as part of nature. As Polly Napiryuk Andrews eloquently

stated, "This sentiment underlying the wilderness concept was part of my Cup'ik people's oral tradition." In recounting the story of the boy who went to live with the seals she invites us to "imagine . . . as stories enable us to do, seeing the human-nature relationship from the point of view of the creatures with whom we share this Earth. There's a message in this and other stories that complements and gives multicultural meaning to that message of the Wilderness concept" (Kaye, Andrews, and Dimientieff 2021).

Sigurd F. Olson, president of the National Parks Association, helped draft early versions of the Wilderness Act. In a statement describing wilderness at the International Union for the Protection of Nature in 1956 Olson quotes British author and historian G. M. Travelyn who said, "We are literally children of the Earth and removed from her, our spirit withers and runs to various forms of insanity." Olson goes on to state, "Because wilderness means different things to people, when the final summary of values is made, the answer will no doubt be a combination of them all," suggesting that wilderness and people are connected and a combination of their values is what would make it culturally important.

When the Committee on Interior and Insular Affairs asked Zahniser his opinion on the characteristics of a wilderness area that made its preservation desirable, he responded, "It is also characteristic of wilderness to impress its visitors with their relationship to other forms of life, and to afford those who linger an intimation of the interdependence of all life . . . one might define a wilderness in the qualitative sense as an area with a quality of wildness so little modified by human action as to impress its visitors with their relationship to other forms of life." In the longer version of his description, he explains that human gadgets, inventions, and "contrivances" are distractions establishing an independence from nature, but that wilderness offers a place to leave the "contrivances" and experience our interconnectedness with the natural world.

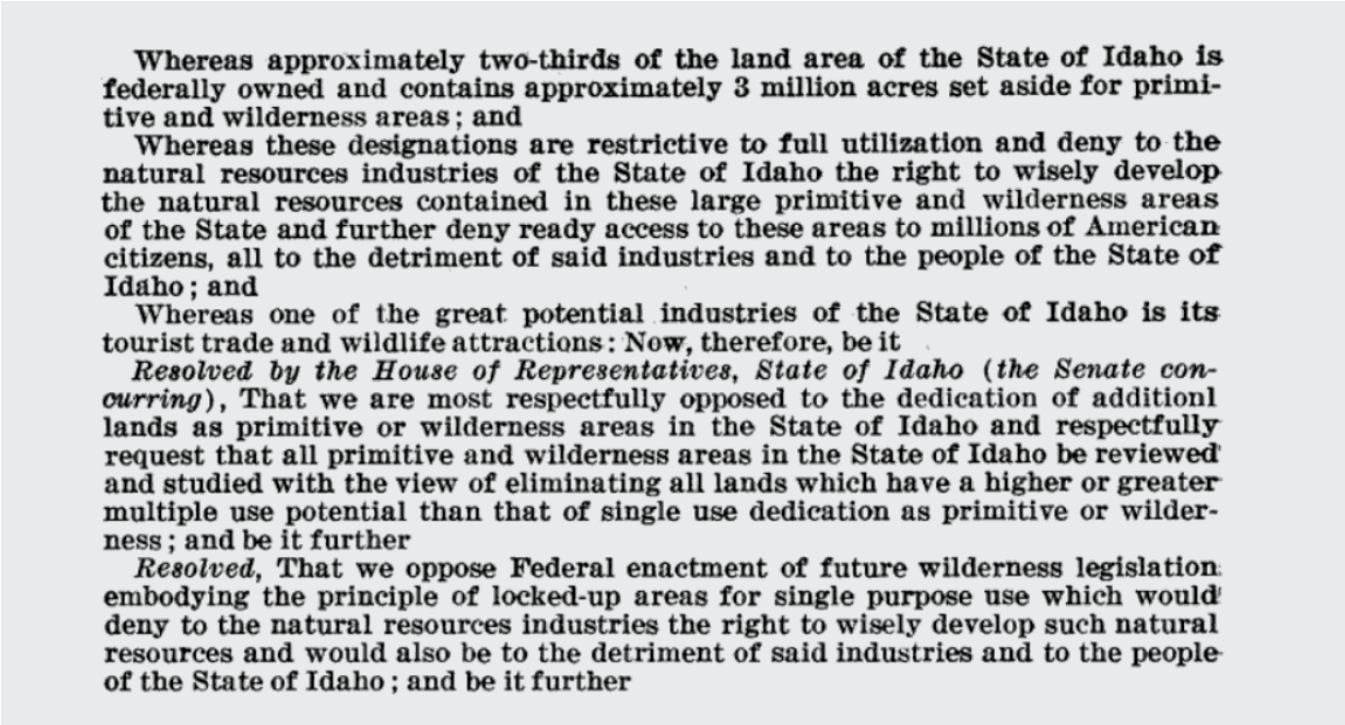
In a 2016 interview with Faith Gemmill (C. Barnes 2004, a Pit River/Wintu and Neets'aii Gwich'in Athabascan from Arctic Village, Alaska, she was asked if she thought the government needed to put a boundary around a place, call it wilderness, and manage it differently than the rest of the land. She responded,

I would say that there are some certain areas that man is a visitor and should not remain, the birthplace and nursery of the caribou. . . . There are areas that man does not have the right to intrude on. That belongs just to the animals and it was put there by the Creator for that purpose. We do not have the right to intrude on that. And that's always been the belief of our native peoples. . . . We leave these areas alone. And untouched. Our native people did not state "this area is set aside for this" or "this area is set aside for this." We knew it. We just knew it and we just practiced it. It was something that . . . it's just something that we know. And we always practiced it, we didn't have to set laws for it . . . because everybody understood. But nowadays, with so much expansion and so much development and progress, the Europeans [descendants] do have to set laws for these areas. We have to.

Pure and Pristine: Divisive Words Used by Critics

There has been criticism that untrammeled wilderness refers only to pristine nature. Critiques have conflated the word "untrammeled" with "pristine" and "pure" (two words never used in the act). Yet this interpretation comes up repeatedly in the wilderness debate. It is important to note that it was parties opposed to the wilderness system—not wilderness advocates—who embraced the dualism inherent in the purity definition, as wilderness designation would limit agency administrative discretion and reduce extractive economic profits.

In 1924, Leopold, then a young forester with the USFS, convinced the agency to administratively protect 500,000 acres of the Gila National Forest as a wilderness area. Under this agency-specific administrative designation, which predated the Wilderness Act, the USFS generally allowed some forms of development—logging, grazing, and its own road building—within the boundaries of its wilderness areas. The proposed definition of wilderness in the wilderness bills was much stricter and not well received initially by industries or the US Department of Agriculture. Statutory wilderness (as was being proposed in the wilderness bills) would curtail this type of administrative discretion. Testimony to the wilderness bill from a mine inspector representing the Idaho Mining industry shows this early opposition to the stricter restrictions proposed: "Idaho is vitally interested in any change in land status which may affect any of its industries. This proposed bill . . . is deemed undesirable in that it will tend to prohibit the natural development and harvest of the State's resources" (statement from O. T. Hansen in opposition to S. 0428).



Whereas approximately two-thirds of the land area of the State of Idaho is federally owned and contains approximately 3 million acres set aside for primitive and wilderness areas; and

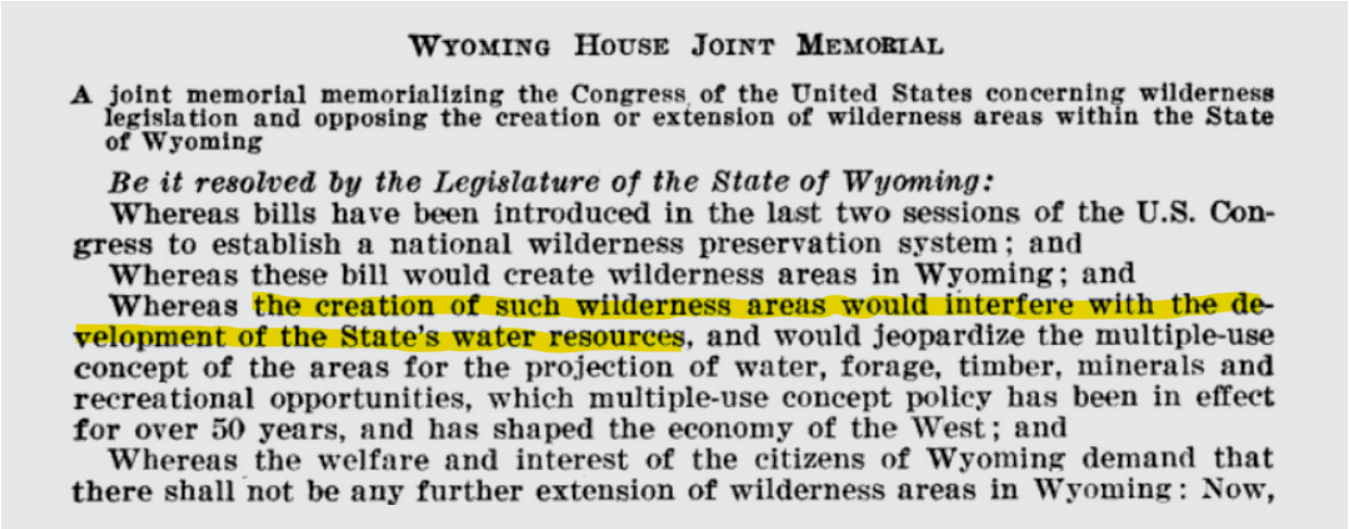
Whereas these designations are restrictive to full utilization and deny to the natural resources industries of the State of Idaho the right to wisely develop the natural resources contained in these large primitive and wilderness areas of the State and further deny ready access to these areas to millions of American citizens, all to the detriment of said industries and to the people of the State of Idaho; and

Whereas one of the great potential industries of the State of Idaho is its tourist trade and wildlife attractions: Now, therefore, be it

Resolved by the House of Representatives, State of Idaho (the Senate concurring), That we are most respectfully opposed to the dedication of additionl lands as primitive or wilderness areas in the State of Idaho and respectfully request that all primitive and wilderness areas in the State of Idaho be reviewed and studied with the view of eliminating all lands which have a higher or greater multiple use potential than that of single use dedication as primitive or wilderness; and be it further

***Resolved,* That we oppose Federal enactment of future wilderness legislation embodying the principle of locked-up areas for single purpose use which would deny to the natural resources industries the right to wisely develop such natural resources and would also be to the detriment of said industries and to the people of the State of Idaho; and be it further**

Figure 5 - Testimony from Idaho Mining Industry against the wilderness bill.



WYOMING HOUSE JOINT MEMORIAL

A joint memorial memorializing the Congress of the United States concerning wilderness legislation and opposing the creation or extension of wilderness areas within the State of Wyoming

Be it resolved by the Legislature of the State of Wyoming:

Whereas bills have been introduced in the last two sessions of the U.S. Congress to establish a national wilderness preservation system; and

Whereas these bill would create wilderness areas in Wyoming; and

Whereas the creation of such wilderness areas would interfere with the development of the State's water resources, and would jeopardize the multiple-use concept of the areas for the projection of water, forage, timber, minerals and recreational opportunities, which multiple-use concept policy has been in effect for over 50 years, and has shaped the economy of the West; and

Whereas the welfare and interest of the citizens of Wyoming demand that there shall not be any further extension of wilderness areas in Wyoming: Now,

Figure 6- Opposition to the wilderness bill from the state of Wyoming.

The USFS argued that, according to the Wilderness Act, lands previously impacted by humans in any way could no longer be considered candidates for wilderness designation. Defining wilderness in this way came to be known as the "purity definition of wilderness." The timber industry and others invoked the notion of so-called pristine wilderness to prevent commercially valuable lands from being included in the NWPS. The American Mining Congress testified against the bill at congressional hearings, arguing that it hurt both the mining industry and the nation as a whole. The Northwest Mining Association's testimony stated that "this bill would play into the hands of our foreign enemies by discouraging discovery and production of metals necessary to national defense" (1961 Testimony before the Committee on Interior and Insular Affairs). Again, it was parties opposed to expanding the wilderness system—not wilderness advocates—who embraced the dualism inherent in the purity/pristine definition as a way to secure profit from extractive activities on public lands. The genesis of this purity notion of wilderness is further elucidated through investigation of the USFS's Roadless Area Review and Evaluation (RARE) process. Beginning in 1967, after passage of the Wilderness Act, the USFS began their first review of roadless areas under their management—the RARE process. In their review, they used their strict purity/pristine interpretation of wilderness for inventorying their potential wilderness areas. The findings were published in 1973 with a selection of 271 areas containing about 12.3 million acres of potential wilderness. When the USFS wrapped up the RARE process, it began offering contracts for timber harvest in many areas that it had deemed unsuitable for wilderness protection (Christianson 2021). These findings were rejected by the public, Congress, and the Carter administration. The USFS was ordered to redo the entire process using the nonpurity interpretation of the definition of wilderness as stated in section 2c of the Wilderness Act. The results, published in 1979, included many more areas as potential wilderness. Using the nonpurity definition

of wilderness as directed by Congress, the agency identified 2,919 areas of potential wilderness containing just over 62 million acres (more than a 10-fold increase in the number of areas and 5 times more acres!).

The designation of lands in the eastern US provides another example of Congress and the public rejecting the purity definition of wilderness. In 1970, the Forest Service opposed new designation of wilderness in West Virginia stating that the eastern areas did not meet the strict criteria of the Wilderness Act. Senator Henry Jackson of Washington warned the USFS that their interpretation of the definition of Wilderness was fundamentally flawed. Senator Frank Church of Idaho stated that "the effect of such an interpretation would be to automatically disqualify almost everything, for few if any lands on this continent—or any other—have escaped man's imprint to some degree." In 1974, the Senate endorsed the Eastern Wilderness Areas Act (EWAA) acknowledging that eastern areas were smaller and showed signs of significant human impact. Regardless, they still qualified as wilderness and the bill was signed into law in 1975. The EWAA designated 16 new Wilderness areas in 13 states "to further the purposes of the Wilderness Act by designating certain acquired lands for inclusion in the National Wilderness Preservation System." In passing this act, Congress demonstrated again that wilderness did not mean unused, untouched, or unaltered by human hands, thus rejecting the purity definition of wilderness.

Polly Napiryuk Andrews offers a Cup'ik perspective:

An unfortunate misunderstanding has been that the wilderness idea somehow erases Indigenous people from the landscape. It is true that pre-contact Indigenous populations and their activities were, until recent years, little understood. But the Wilderness Act's description of Wilderness as a place ". . . where man is [currently] a visitor and does not remain" does not imply that wilderness lands were "pristine" or devoid of any Indigenous history or effect (Kaye, Andrews, Dimientieff 2021).

"Pure" and "pristine" are not words used in the Wilderness Act. Neither the authors of the Wilderness Act nor Congress and federal land management agencies intended wilderness to be unused. The Wilderness Act states that "each agency administering any . . . wilderness shall be responsible for preserving the wilderness character" (U.S. Public Law 88-577, section 4[b]). Federal land managers are tasked with the difficult job of preserving an area's wilderness character while also managing increasing human use of those areas. This is not an easy job and involves a delicate balance. Wilderness managers are not trying to keep people out of designated wilderness. All four federal agencies that manage designated wilderness acknowledge in their policies the importance of the public use of wilderness lands.

Conclusion

The idea of preserving lands for everyone in a natural state was a reaction to social pressures that began in the mid-1800s and continued into the early and mid-twentieth century. Howard Zahniser testified in 1957 at a hearing for the Committee on Interior and Insular Affairs about the wilderness bill in which he stated:

It is not for the sake of any privileged few that we are thus working so strenuously for wilderness preservation, but rather for all Americans. We are indeed trying to keep out buildings, roads, and mechanical vehicles . . . that often makes it look as though we are trying to keep out people because these things would all bring people. We believe that the United States can have its wilderness areas and at the same time its outdoor recreation with conveniences.

This article attempted to investigate two criticisms of wilderness: (1) that wilderness perpetuates a dichotomy between humans and nature, and (2) that wilderness intimates a purity of the natural world. I presented historical documents to detail the intent of those involved in the wilderness movement. Drafts of the wilderness bill and testimonials suggest that many believed that humans were part of the natural environment, and that wilderness was meant to impress its visitors with their relationship to other forms of life. The evidence found in the historical documents shows that wilderness was meant to connect humans to nature, contrary to the criticisms that state the opposite. This article also investigated the criticism that designated wilderness, as part of the NWPS, suggests purity, a cleansing of the land, and eclipses Indigenous history. I presented documents showing how the purity interpretation infiltrated the wilderness debate, despite "pure" not appearing in the Wilderness Act. The historical record indicates that these influences originated from anti-wilderness advocates and industries, not from wilderness advocates. I also presented case studies from US Tribes and Tribal Members who offered their perspectives on the importance of wilderness.

The intentions of the act's authors are not known. We can only research and interpret the paper trail, the interviews, and the recordings that were left behind. How we fix a problem depends on what the problem is. A broad-stroke approach to the wilderness debate will throw the baby out with the bathwater. Coming together and finding common ground is the way to save the good parts of wilderness without condemning the whole system.

Societies are growing increasingly polarized, partly due to the misconceptions about the beliefs of those we disagree with. We need to open the door to diverse perspectives. Instead of building up walls that divide us, let's work together to create a mindset that unites people across gender, politics, ability, age, orientation, and user type. Historian William Cronon (1995) wrote,

Our challenge is to stop thinking of such things according to a set of bipolar moral scales in which the human and the nonhuman, the unnatural and the natural, the fallen and the unfallen, serve as our conceptual map for understanding and valuing the world. Instead, we need to embrace the full continuum of a natural landscape that is also cultural, in which the city, the suburb, the pastoral, and the wild each has its proper place, which we permit ourselves to celebrate without needlessly denigrating the others.

The time has come to rethink our interpretation of federally designated wilderness. Is it really what we think it is? Research shows that humans are not very good at knowing what other people think, even when we think we do (Payne, Bird, and Catmur 2024). We make numerous, varied assumptions about others' behavior, motivations, and beliefs that are often seriously flawed. Our predictions about the beliefs and attitudes of out-groups are frequently inaccurate, and this inaccuracy negatively impacts relations between members of different groups. (Payne, Bird, and Catmur 2024). I invite you to sit with someone with opposing views (someone in your "outgroup"), to earnestly listen to their point of view and to ask them to listen to yours. Deep down you may find you have some similar values. You may discover that the shared aspects of your individual human experiences are what truly matter. We do no justice to anyone or any group by generalizing experiences and viewpoints. We do no justice by oversimplifying or idealizing certain cultures. And we do

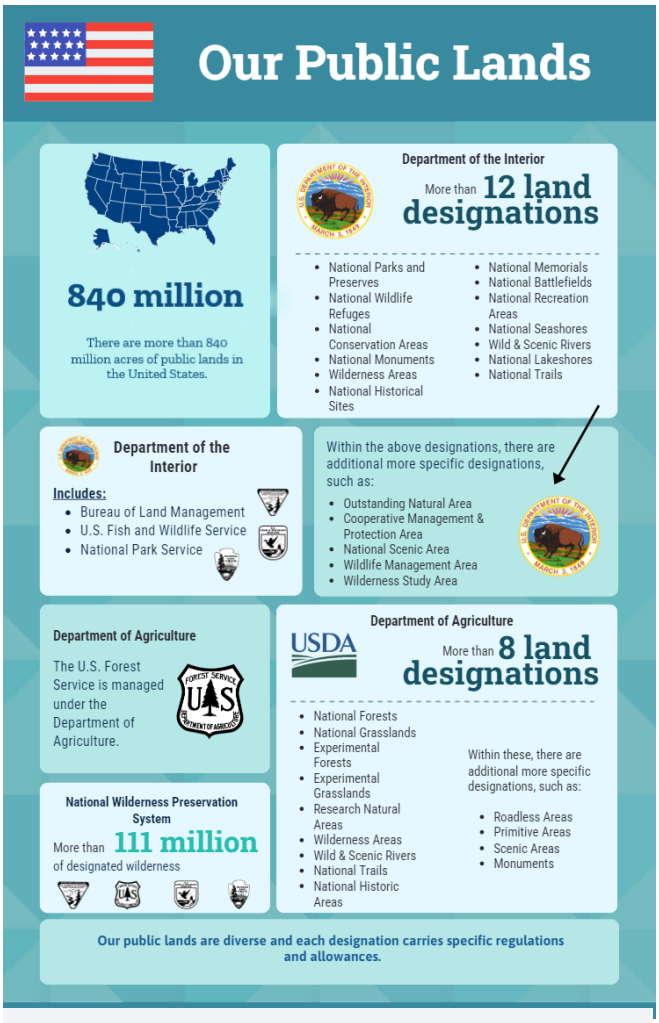


Figure 7 - Public lands in the US include more than 840 million acres (author created image).

no justice by ignoring or idealizing history. One author writes, "When we romanticize parts of history, we perpetuate misconceptions about the past and struggle to analyze the nuances of each time period. . . . When we seek a more holistic view of history, we practice the same skills of critical analysis and spectrum thinking that we can use to evaluate today's issues" (Zhang 2024). We have to keep learning and listening.

People often hold beliefs that one party's gains are inevitably accrued at the other party's expense (zero-sum beliefs) (Davidai and Tepper 2023). Wilderness in the US is gar-

nering a fair amount of criticism; two of these were discussed in this article. Can some of the tension we see in the wilderness debate be attributed to zero-sum beliefs? Is it possible that those attacking wilderness are doing so because of fear of imagined resource scarcity? More research is needed to explore this topic.

The public lands system managed by the US federal government contains a variety of land management types, each with its own set of mandates, regulations, and management policies. There are more than 840 million acres of public lands (Figure 7), each allowing or disallowing certain types of activities and uses. The wide variety of land designations in the US, each with its own restrictions and allowances, can support diverse outdoor preferences.

Our public lands should be a non-zero-sum arena with opportunities for cooperation and collaboration. In 2021, the Department of the Interior and the USDA Forest Service started working more seriously toward Tribal co-stewardship of public lands by signing Joint Secretarial Order 3403. This is an important effort for the stewardship of federal lands and waters significant to Tribal communities. We should continue to find ways to work together to steward lands. We should also raise awareness of the diverse public land designations, helping users find one that suits their outdoor preferences. We can embrace the diversity in society and also embrace the diversity of our public lands. By accepting all land classifications, we make space for the diversity of users. And diversity makes America beautiful.

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Wilderness Frontiers:
Advancing Wilderness Medicine Training Programs

BY LAUREN REDMORE, KELLIE CARIM, and ROBERT SCHUMACKER

Intersectional Issues in Emergency Medicine

Lauren Redmore

Kellie Carim

Robert Schumacker

Across the United States, emergency medical services (EMS) respond to millions of calls annually in front-country settings and provide life-or-death care in urgent situations (Wang et al. 2013). Yet there are many documented issues with the accuracy of medical diagnoses and quality of emergency care, influenced by intersectional factors such as gender, age, race, and class, and other sociodemographic characteristics. For example, pulse oximeters are known to provide inaccurate blood oxygen readings for people with darker skin (Bickler et al. 2005). Women are less likely to receive bystander cardiopulmonary resuscitation (CPR) than men due to concerns about the potential for sexual assault accusations or causing physical harm, resulting in worse outcomes during cardiac arrest (Perman et al. 2020; Blewer et al. 2018). Language barriers are also well-documented challenges for emergency health care providers when interpreters are unavailable, resulting in suboptimal care for patients who do not speak the dominant language (Müller et al. 2023). People living in low-income communities are likely to wait longer for emergency medical services to arrive, resulting in increased rates of morbidity and mortality in emergencies (Seim et al. 2017). The research presented here highlights a growing awareness of issues with EMS in urban and developed settings. Recognizing how bias

infiltrates these systems is a crucial first step in addressing these issues and improving the quality of care, such as outlining concrete actions to take (e.g., Owusu-Ansah et al. 2023). In contrast, less is known in backcountry medical settings, specifically within the wilderness first aid context.

Wilderness first aid is defined as "any training course that focuses on prevention, assessment, and treatment for an ill or injured person in a remote environment where definitive care by a physician and/or rapid transport is not readily available" (Boy Scouts of America 2024). Wilderness first aid differs from EMS for several reasons. Many people who are trained in wilderness first aid are likely to be bystanders and are typically not medical professionals. They are often private citizens who seek out certification for personal knowledge and safety concerns or people who work in backcountry and remote areas. Individuals trained in wilderness first aid play critical roles in emergency medical situations where immediate access by trained medical professionals is limited. A better understanding of the disparities that exist in wilderness medicine, and how those play out on the ground, is essential for making backcountry experiences safer and more accessible to people of all backgrounds.

In this article, we aim to explore knowledge gaps concerning underserved individuals in wilderness first aid training and practice. We will illustrate gaps in knowledge regarding current wilderness first aid training and practices, while also exploring opportunities to improve representation. We identify these gaps on three foundational premises: (1) recreation users are increasingly diverse,

Figure 1 - Students learning to assess the condition of an ill patient. Courtesy of WMA.

(2) the outdoor workforce is increasingly diverse, and (3) wilderness first aid is more and more applicable in nonwilderness contexts. We also identify additional noncourse-specific opportunities to benefit wilderness first aid delivery, and we conclude with reflections on wilderness first aid as a crucial tool for serving underserved individuals in the outdoors.

Changes in Backcountry Recreation Users

Wilderness first aid is often premised on recreation as the main source of emergencies, and examples within wilderness medicine programs for backcountry users are plentiful. The National Outdoor Leadership School offers a wilderness first aid course for "people of all experience levels, and is best suited for those who recreate outdoors where EMS response can be expected in a timely manner (fewer than eight hours)" (NOLS 2025). Wild Safe recommends wilderness first aid courses for "anyone who spends any amount of time in the great outdoors, including 'weekend warriors', scouting and youth program leaders,

teachers leading school trips, backcountry guides, canoe and rafting trip guides, private expedition groups, college/university outdoor education programs, hiking club trip leaders, wilderness therapeutic programs, and adventure race safety personnel" (Center for Wilderness Safety 2025). These programs tailor information to backcountry users looking to prepare for contexts they are likely to encounter—an invaluable aspect of these kinds of training programs. However, these programs may be subject to the same bias that permeates perceptions of who is seen as likely backcountry users—often young, lean, white, and white-collar men (e.g., Evans and Anderson 2018; Morton Turner 2002).

Underrepresentation in backcountry and outdoor recreation is well-documented, with people of color and the elderly disproportionately underrepresented in participation rates (e.g., Winter et al. 2020; Flores et al. 2018; Jay et al. 2012). Not only did Jim Crow–era laws promulgate anti-Black bias in public outdoor spaces, but the very creation of public lands in the United States required the free labor of enslaved Black people and the forced removal of Native Americans from their homelands (Erickson et al. 2009). Legacies of these policies continue to shape participation in backcountry recreation, although efforts are growing across the United States and beyond to redress anti-Black bias and other issues in outdoor recreation (Dietsch et al. 2021). Participation in outdoor recreation is increasingly diverse, and the growth of outdoor affinity groups based on racial, ethnic, gender, or other underrepresented facets is helping accelerate that diversification (e.g., Outdoor Industry Association 2023; Girgrah 2023). It is therefore important that wilderness first aid training keep pace with the changing demographics of backcountry recreational users.

Yet across medical systems, white male patients are still treated as the "norm," with many major medical studies excluding women and people of color altogether (Plaisime et al. 2023; Jackson 2021). For example, CPR training manikins are themselves often made in the mold of a white, lean, male body, which may reduce the likelihood of bystander interventions, such as CPR, for those with bodies that diverge from the mold (Wood 2022). Fake blood used in emergency role-play practice scenarios may not be as visible on darker skin, making it more difficult for wilderness first aid trainees to detect it during practice and in real-world situations.

Figure 2 - Students learning how to "daisy chain" or secure a patient to an improvised litter. Courtesy of WMA.

Wilderness Medical Associates International Efforts to Improve Their Commitment to Inclusive Training

Wilderness Medical Associates International (WMA) was founded in the early 1980s during the emergence of wilderness and remote medicine. In 1984, a team of professionals, including WMA's founder and present-day owner, taught their first course in wilderness emergency medical training for wilderness educators, leading to the establishment of Wilderness Medical Associates as a training company. Their founder saw a need to improve the first aid training that was being offered to Outward Bound instructors and wilderness guides and believed that prehospital practitioners could be trained to make a diagnosis and develop an appropriate plan for the conditions on the ground. WMA courses added new elements to the training curricula, including spine assessment criteria, the treatment of anaphylaxis, advanced wound care, among others. WMA currently serves approximately 10,000 students per year worldwide.

Beginning in 2016, WMA began to critically examine their instructional material to ensure that course participants would be confident to work with a diversity of people in wilderness medical situations. WMA created modules for a special instructor training that would enable instructors to provide a welcoming space for course participants. This allows participants to identify the appropriate individuals for providing feedback on course content or sharing their experiences regarding the impact of the course instruction in a safe environment.

In addition, WMA has overhauled their coursebooks to ensure photos of injuries in the field are representative of the wider population. This allows course participants to see what differences in various medical conditions might look like across race and ethnicity with the goal of more accurate diagnoses and better patient care. Additionally, gender-neutral photos have been added to course content where possible, and language within the textbooks has been modified to reduce bias concerning gender. For example, when discussing ectopic pregnancy, content was updated from "this condition may affect any woman" to "this condition may affect anyone with a uterus." Instructors have also begun to look for phrases that might be jargony or difficult to understand for laypeople or nonnative English speakers. This change could mean the difference between life and death for people who speak English as a second language, including Border Patrol agents who may engage with migrants along the US border in a wilderness first aid context.

From a more hands-on training perspective, WMA has invested in CPR manikin skins that can change the body shape, gender, or color of the skin, enabling wilderness medicine providers hands-on experience identifying and treating signs of distress in people with diverse skin colors and body shapes or genders (see Treisman 2019 for more information on WMA's adoption of the Womanikin breasted vest for CPR manikins).

As a part of their commitment to underserved populations, WMA undergoes regular auditing with the Commission on Accreditation for Prehospital Continuing Education (CAPCE). By regularly reevaluating its direction, WMA can track progress toward a more inclusive wilderness medical profession, influencing by common practices across the broader wilderness first aid training community. CAPCE reviewers stated that WMA's "efforts were above and beyond any other program they had reviewed and should be used as an example to other course providers." Additional goals of WMA include identifying ways to increase representation within their courses of more diverse students, especially students of color, and to continue to provide a welcoming space for course instructors from underrepresented backgrounds.

Box 1 - An example of an organization's commitment to creating inclusive training content and approaches.

"Wilderness first aid training provides critical knowledge for people who recreate or work in the backcountry, and it is likely to be increasingly applicable in front-country contexts as climate change increases the likelihood and intensity of natural disasters."

To better serve the groups and patients that wilderness first aid trainees are most likely to encounter, training programs should consider developing more inclusive content that reflects the diverse communities involved. For example, a training program delivered to a group of women backcountry users might focus on the ways that signs and symptoms are likely to impact women (e.g., common heart attack symptoms of women). Wilderness first aid training courses that include the experiences of people from underserved or underrepresented backgrounds may also create a positive cycle of supporting increased diversification of backcountry recreation users by creating a more welcoming space for learners. For example, SoulTrak Outdoors (2025) and SheJumps (2025) both offer affinity learning spaces geared toward people of color and women who may feel marginalized in courses dominated by white and/or male participants. However, training materials and example photos or illustrations may still be centered on white, male, and lean bodies. This lack of diversity represents numerous opportunities for programs to adapt and innovate both training content and delivery, as different populations may not only face unique risks but have distinct indicators that could inform a medical diagnosis (e.g., indicators of someone facing impacts from sickle cell anemia-related issues while in the backcountry) (Joy et al. 2015).

Furthermore, many barriers to the participation of underserved communities in backcountry recreation may extend to the ability of these community members to participate in wilderness first aid trainings (Winter et al. 2020). For instance, costs for attendance may be prohibitive, and potential trainees may lack transportation to the training site. The availability of scholarships could support backcountry recreational users from low-income communities to participate in trainings. More research is needed to understand how barriers may affect diverse backcountry recreation users' participation in wilderness first aid training programs and to identify effective opportunities to reduce barriers.

Diversification of the Outdoor Workforce

Within the front-country EMS context, workforce diversity has been shown to lead to more positive health outcomes for patients (Marrast et al. 2014). Staffing hospitals with diverse healthcare providers may reduce implicit and explicit bias toward patients, resulting in more positive patient experiences with the emergency medical profession and better health outcomes (Chapman et al. 2013; Vela et al. 2022). Likewise, over the past several decades, the conservation and natural resource management field has made concerted efforts to recruit and retain workers representing more diverse, often underrepresented and underserved backgrounds. For instance, at least as far back as 1991, the USDA Forest Service has attempted to increase the recruitment and retention of a diverse workforce (Westphal et al. 2020). As work opportunities in the outdoors and conservation continue to grow, and as efforts to recruit workers from underserved backgrounds continue, there is a growing need to ensure wilderness first aid training can support the safety of a diverse workforce.

Some federal agencies are explicitly responding to this need. For example, in 2011, the Bureau of Indian Affairs (BIA) hosted its first training for Tribal hotshot crews, titled Leadership Fundamentals for Medical Incidents. By 2018, the program had successfully trained more than 60% of all BIA wildland firefighter crews. Another example is the Native American Fish and Wildlife Society, which offers wilderness first aid training courses that are open to members of the society or Tribal members at no cost, as well as non-members for a fee (2025).

Figure 3 - Rescuers focused on keeping patients warm and dry. Courtesy of WMA.

The benefits of preparing the workforce to handle wilderness emergencies for people from diverse backgrounds extend to all backcountry recreation users as well. Workers trained to manage work emergencies are also likely to respond effectively to other emergencies while in the backcountry.

Increasing Scope of Nonwilderness Emergency Situations

Wilderness first aid is increasingly applicable beyond wilderness settings. Many wilderness medicine advancements have historically been made within the military context, highlighting that wilderness settings are not limited to wild spaces but can also include locations an hour or more away from advanced care in a delayed context (Boy Scouts of America 2024). These situations may be "just as relevant in urban areas during hurricanes, floods, fires,

or mass casualty events when emergency services might be strained" (Boy Scouts of America 2024). Similarly, Sierra Rescue offers courses on wilderness and urban disaster first aid (2025), emphasizing the value of wilderness principles to front-country emergencies as extreme climate events become more frequent and impactful (Seneviratne et al. 2022).

Communities that are more likely to experience urban disasters may be home to a wide array of diverse populations in terms of (dis)ability, primary languages spoken, gender, race, and ethnic diversity. Urban diversity influences how emergency care is delivered within EMS situations. For instance, one study found that language barriers significantly impact the time to dispatch EMS (Meischke et al. 2013), while another study showed that most EMS practitioners reported difficulty in communicating with deaf patients—an issue that was improved through the implementation of educational training (Rotoli et al. 2022. Similar to front-country EMS contexts, training handbooks and courses that simplify language and eliminate jargon could enhance how wilderness first aid training supports both trainees and those who may receive care in the field. Some additional innovations to improve the reach of training include offering courses in nonremote, urban areas where potential participants from diverse backgrounds may be more likely to participate. Another possibility would be to adopt a hybrid remote option to enable people to access classroom content from anywhere while still requiring the in-person participation for necessary events, especially practice scenarios and the certification test.

Figure 4 - Side stabilization for unresponsive patients being utilized in a training scenario. Courtesy of WMA.

Beyond Course Content and Participation

Many of the knowledge gaps and actions identified earlier highlight the potential value of diversifying course content and participation, although we recognize that medical bias is systemic and may require a more concerted effort to make meaningful progress. Some potential steps toward systemic progress might include identifying opportunities for wilderness first aid training organizations to share content and outcomes (Donelan 2010). This is a step taken by the Boy Scouts of America and could be taken potentially by other training organizations (Boy Scouts of America 2019). Although the lack of standardized training materials allows for tailored and targeted courses, learning from each other's initiatives, successes, and failures could help identify gaps in training, in addressing and reducing bias. One effort in Maryland showed

the value of implementing a community-of-practice model to advocate for the adoption of newer pediatric EMS techniques, empowering local representatives and increasing technical adoption (Fratta et al. 2019). A similar approach adopted by the wilderness first aid training community could improve a commitment to reducing bias and improving outcomes beyond the backcountry.

To our knowledge, there is a lack of available data or information on the characteristics of both people trained in and treated with wilderness first aid. It is unclear not only who is being trained in wilderness first aid, but if and how patient outcomes are being tracked and how outcomes may vary by identity. Some of this information could be gathered by collaborating with hospitals to track individuals arriving from wilderness settings. However, standardizing the patient information shared and tracked could improve understanding of how backcountry care is delivered. Furthermore, the identification of key metrics could aid in tracking and reporting on outcomes to better understand the impact of wilderness first aid training and practice.

Figure 5 - Students discussing positive pressure ventilations and good mask seal, or the "PROP" technique. Courtesy of WMA.

Certification programs that incorporate a trauma-informed approach could standardize training by implementing informed consent practices both before and during courses. This may be especially important for trainings that involve touching other participants during scenario role plays—an aspect of training that may be uncomfortable, taboo, or retraumatizing for people. Standards could include informing participants of what clothes might be most appropriate to wear for certain scenarios or allowing course participants to self-identify as someone who would prefer to only be touched by people of their own gender during training. Recognizing the value of hands-on components, training courses that provide a more welcoming space to enable respectful and informed options may maximize consenting participation and the hands-on skills gained by trainees.

Conclusion

Wilderness first aid training provides critical knowledge for people who recreate or work in the backcountry, and it is likely to be increasingly applicable in front-country contexts as climate change increases the likelihood and intensity of natural disasters. Wilderness medicine can mean the difference between life and death for people who find themselves in emergent medical circumstances. As in other emergency medical settings, social biases in this context likely influence who receives which type of care, with high-stakes consequences for people's lives (Farcas et al. 2023). As researchers continue to learn more about the extent of biases that are present within our

medical systems and the ways in which those biases shape real-world outcomes for people when they are most vulnerable, it may be just as critical to examine if and how those biases extend into backcountry and wilderness scenarios.

Most importantly, we highlight the value of identifying and promoting organizations and programs that prioritize underserved populations in their trainings—through content, materials, language, instructors, participants, and more. These programs may set new standards for best practices and practicable steps for improving representation within trainings. Ultimately, we all benefit from informed backcountry users who are equipped to navigate a wide array of emergencies with knowledge to treat patients from all backgrounds. This article aims to inspire critical reflection on knowledge gaps and identify opportunities to reduce bias, improve access, and enhance health outcomes for the growing diversity of people engaging with wilderness and wilderness first aid. Wilderness first aid represents a critical, though underexamined, aspect of the wilderness experience, and there is much to be learned about how opportunities for more diverse trainings may transform how underserved and underrepresented people see themselves in wilderness settings. IJW

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Photo credit: Photo by Trevor Vannoy on Unsplash.

Tohono O'odham Conservation Collaborative:

Creating Sustainable Conservation Career Paths Within Indigenous Communities

BY ADRIAN QUIJADA, RICHARD SAUNDERS, LEE GAULT, KIM FRANKLIN, and GREGORY HANSEN

Background

Historically, the O'odham inhabited an enormous area of land in the southwest United States, extending south to Sonora, Mexico, north to central Arizona (just north of Phoenix), west to the Gulf of California, and east to the San Pedro River. This land base was known as the "Papagueria," from the old name "Pápago" given to Spanish colonizers by rival Tribes, and it was home to the O'odham for thousands of years (Erickson 1994; Tohono O'odham homepage 2024).

The Tohono O'odham Nation (TON) is a federally recognized Tribe located in southwestern Arizona along the United States–Mexico border. The TON, with its 2.8 million acres, is the second-largest reservation in Arizona and sits at an average elevation of 2,674 feet. The Tohono O'odham who reside on reservation land live on one of four separate parcels that make up the Tohono O'odham Nation. The landscape of the TON

Adrian Quijada

Richard Saunders

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Gregory Hansen

is topographically complex, with mountain ranges such as the Baboquivari Mountains, desert scrub, desert grasslands, and an entangled watershed system sustained by monsoons and winter rains.

Soon after the Tohono O'odham were pressed into reservation life in 1917, the people began to run cattle. Grazing livestock in southern Arizona is not an easy task, but the O'odham excelled at ranching even in the most sterile environments and extreme weather conditions. The People had traditionally managed their homelands successfully for thousands of years, and the same horse and livestock culture that began more than 100 years ago for TON is still very much alive today—it is an essential economic as well as social element of contemporary Tohono O'odham life. However, with the rise of the livestock culture came the need for more intensely managed TON rangelands. The People had traditionally managed their homelands successfully for thousands of years , but stewardship challenges changed and intensified as the People were tasked with managing livestock on more than 2 million acres of extremely dry and heavily used range.

Today, the TON supports a robust environmental management program recognized for its Indigenous-style range and natural resource management accomplishments. This longstanding quality work in environmental stewardship sets the stage for expanding the Nation's environmental footprint and thus establishes a framework for the development of a conservation collaborative. However, questions remain about why "Indigenous-oriented" conservation programming is needed and how specialized programming can be effectively implemented in partnership with our wilderness managing agencies and NGOs. Most importantly, how can this approach offer career opportunities for Indigenous community members seeking employment in natural resources and in service to their Nation?

This article illustrates how understanding cultural differences and working together is vital for a sustainable collaboration to effectively protect and preserve our enduring wildlands using one of the most powerful tools available: Indigenous-based collaboration.

Need for Indigenous Conservation Collaboration

Employment opportunities for Indigenous people in the US are often limited to working in towns located adjacent to Native Communities or attaining jobs with Tribal governments, such as working in Tribal administration or Indian Health Service departments. Jobs in environmental and natural resource management are common among most larger Tribes; however, many smaller Tribal groups have fewer natural resources and considerably less capacity to manage these resources.

Wildland stewardship and public land conservation serve as common ground and a shared language for Tribal communities and land managing agencies. The effects of environmental change are equally felt across both Tribal and non-Tribal communities, a common experience that fosters collaboration when Tribes and agencies come together. Shared

"One of the most critical outcomes sought by this collaboration is the development and implementation of work programs to train environmental professionals, which ensures an environmental workforce attuned to the most urgent environmental management needs of tribal communities."

environmental challenges bring Tribal institutions, nongovernmental organizations (NGOs), and government agencies closer, rather than driving them apart. In southern Arizona, the threat of wildfires resulting from invasive species such as stink net and buffelgrass disrupts the environmental balance and directly or indirectly affects both Native and non-Native communities. Thus both Indigenous and non-Indigenous land managers and advocates benefit from collaboratively identifying issues, assessing needs, and exploring potential solutions.

Indigenous youth and young adults may face many challenges when leaving family and home to go to college or join the conservation workforce. It's well known that many Indigenous groups around the world have traditionally had and still hold a deep connection to family and their homelands. Asking a young person who has never been far from their community to leave their family, friends, and homeland for an extended period—to live and study in an unfamiliar and often unwelcoming environment with different cultural norms—can be in contradiction to Indigenous values. These are the challenges and barriers that Native youth may face in pursuing work and careers in conservation. Therefore, the primary objective for a Conservation Collaborative is to blast through those barriers by providing solid, science-based, and practical environmental learning designed to engage and encourage Indigenous students to pursue careers in Tribal and public land management.

Every Tribal group, no matter its size, location, or number of members, is different to work with. The diversity that exists among Indigenous Peoples in the US and throughout the world is as vast as the stars above. Therefore, it's imperative to make every attempt to avoid placing Native Peoples into boxes when they can and always have been so distinctly diverse, self-determining, and sovereign! Collaboration such as that between the TON Department of Natural Resources, the Arizona Conservation Corps, the Arizona-Sonora Desert Museum, and the Tohono O'odham Community College (TOCC) have fostered a synergetic planning process to address environmental challenges affecting the TON. This process is based on science, technology, traditional and contemporary environmental management experience, and community

needs. One of the most critical outcomes of this collaboration is the development of programs to train environmental professionals dedicated to resolving challenges on Tribal lands. This ensures an environmental workforce that is attuned to the most urgent environmental needs of Tribal communities and underscores the importance of understanding and addressing these needs.

The Vision of Micro-Certificate Programs

The Tohono O'odham Nation has recently identified a strong need to train and mentor young people to go into Tribal and federal agency positions in conservation and natural resources management. To help meet this need, through TOCC, the Nation has fully committed to offering community members accredited natural resource management classes, training, and hands-on field experience to prepare Tribal members for conservation jobs with Tribes, federal land management agencies, and local conservation corps.

The Micro-Certificate Program (MCP) is a relatively new educational concept gaining momentum with Tribes nationally. MCPs are explicitly designed to provide student participants with the necessary skills and knowledge, including traditional ecological knowledge, needed to become gainfully employed or start a business without leaving home for two to four years. A few Tribal colleges currently offer MCPs, one being the Tohono O'odham Community College (2024) in southern Arizona.

The objectives of the micro-certificate program are:

1. To increase experiential learning opportunities with the development of culturally relevant curricula and educational experiences that build a dynamic and engaging learning environment to instill entrepreneurship and leadership skills in agricultural fields.

2. To offer professional career pathways that provide opportunities for direct employment of TON community members, while keeping open the road toward full degrees in higher education.

3. To invest in the necessary equipment and infrastructure to create career pathways that stimulate entrepreneurship and business success for students.

4. To recruit and retain students by eliminating barriers to participation, such as lack of time or flexibility.

MCP goals significantly depend on developing collaborative partnerships with TON departments, universities, NGOs, and TON districts to design courses and resources based on the community's needs for training and employment. TOCC has successfully piloted its first MCP in horseshoeing and is currently developing micro-certifications in traditional farming/healthy living, invasive species management, and natural resources management. TOCC MCPs are free of charge for all Indigenous students.

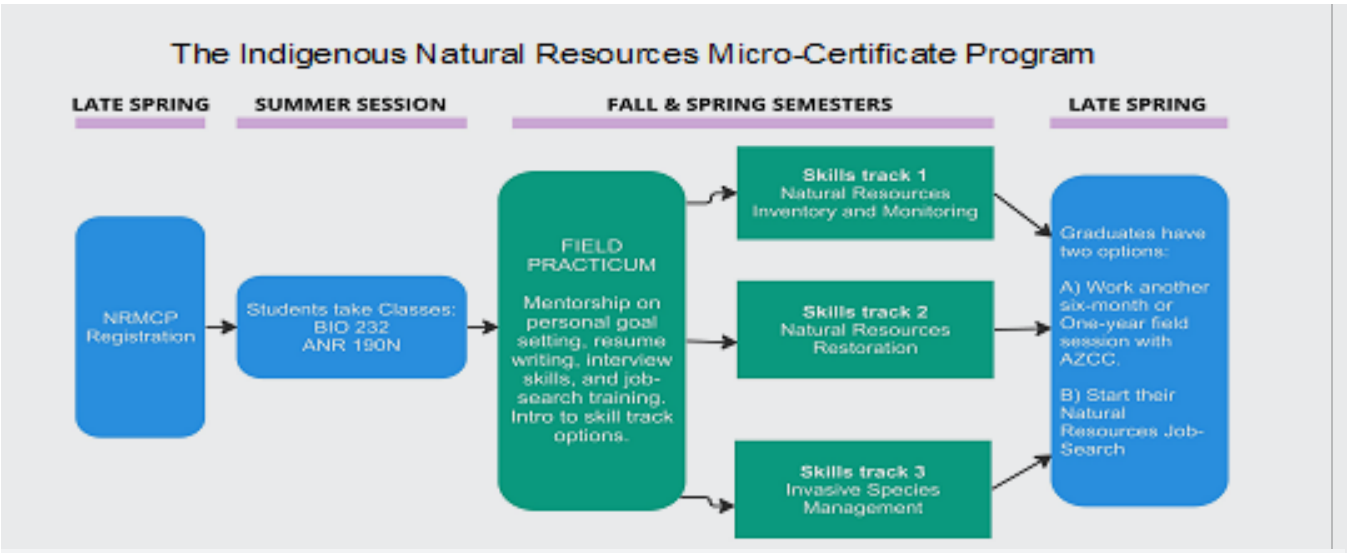

Figure 1 - The Tohono O'odham Natural Resources Micro-Certificate Program.

Case Example: The Natural Resources Micro-Certificate Program

Timeline

Students in the Natural Resources Micro-Certificate Program (NRMCP) enroll in the late spring-summer semester and take 3 formal courses for a total of 9 credit hours. Students transition to the fall semester and complete a six-month field practicum with the Arizona Conservation Corps (AZCC) (2024) for 3 credit hours. Following this experience, students graduate with a 12-credit NRMCP and leverage connections made through their classes with the Tribe, and through the field practicum with the agencies and conservation corps, to begin their conservation job searches.

NRMCP Classroom Component

The NRMCP is made up of three formal classes and a field practicum (Figure 1). The first course, Introduction to Indigenous Natural Resources, is exclusively designed to give students an introduction to how the TON and other Tribes practiced natural resource management traditionally. It also covers how TON and other Indigenous lands are managed today and how federal land management agency policies mesh with or differ from Tribal environmental management objectives and operations. Indigenous students may not fully embrace the concept of a "career" in theory, but the first NRMCP course carries a strong work development component. This component features a comprehensive Indigenous-style career development workshop, where students set short- and long-term goals that ultimately connect them with their agency land manager mentors or to the Tribes they aspire to work for.

The second and third NRMCP courses focus on the applied sciences directly pertaining to the concepts and theories presented in the field via the practicum. The science content of the second two classes also qualifies students for entry-level conservation positions with Tribes, agencies, and conservation

corps around the country. Traditional themes and traditional ecological knowledge are integrated into all aspects of the curricula and specifically taught by local traditional Tohono O'odham elders. Traditional as well as contemporary Indigenous perspectives on natural resources management, conservation, wilderness, and wildland management are also included.

Curricula are closely coordinated with the Tribe to adequately prepare NRMCP students for jobs with TON and other Tribes. The NRMCP curricula are also vetted by federal agency education and human resource professionals to ensure they meet agency standards and equip graduates to compete for entry-level positions in federal agencies.

Figure 2a,b - TOCC Students gaining Traditional Ecological Knowledge in the classroom and field.

NRMCP Field Practicum

Students finish the three TOCC courses, then participate in a six-month field practicum with the AZCC. The field practicum is designed to give students hands-on field experience in natural resource restoration, resource inventory and monitoring, and invasive species management. Federal agencies provide projects that meet their priority work needs and directly coincide with one of the three NRMCP emphasis areas. Agency managers get to know NRMCP students via the extended six-month practicum and seek out opportunities to mentor and eventually hire NRMCP students for entry-level agency jobs.

The MCP is a relatively new concept throughout Native country, yet other Tribes have already shown keen interest in using this unique "Native-style" conservation education model to guide the development of their own natural resource management initiatives. A critical piece of the success of the micro-certification concept is flexibility. It can offer a range of academic programs in "Indigenous" natural resources management, from an AAS degree at one level to a bachelor's degree at the higher end of the spectrum. Specifically, TOCC is considering adding associate of applied science and bachelor of science degrees in natural resources management to their catalog. First, however, it is focused on perfecting the MCP concept before dadding additional academic levels to its already impressive environmental curricula portfolio.

Offering Indigenous students educational options that fit within their personal academic and employment needs is critical

Figure 3-4 - Top: TOCC Students earning classroom credits; Bottom: TOCC students earning "hands-on" field credits.

to ensuring they can enter the conservation workforce as effortlessly as possible. Providing Indigenous-friendly curricula and hands-on training to Indigenous students interested in working in conservation and natural resource stewardship is a primary mission for TOCC, as is being a full partner in the greater Tohono O'odham Conservation Collaborative.

Tohono O'odham Conservation Collaborative

Effective Indigenous conservation collaboration starts with the development of Indigenous human resources and strategic plans to support workforce development and environmental employment opportunities. The TON Conservation Collaborative model begins with AZCC's Tribal Relations Coordinator (TRC) and AZCC staff establishing trusting relations with key Tribal leaders and department heads. The TRC then works closely with Tribal leaders to build, manage, and maintain a functioning Tribal Conservation Working Group (WG). WGs engage as many Tribal departments as possible, but more realistically coordinate with departments that fit within their mission and capacity.

The TON WG is made up of one or two Tribal Council representatives, multiple Youth Council representatives and adult advisors, and department directors and deputy directors from Natural Resources, Education, One-Stop Employment, and Cultural departments. Extra community support is provided by the staff at TOCC. Conservation WG alumni who now hold leadership positions with several TON districts or who moved to other TON departments also stay involved with the WG by lending their expanded networks and outreach capacity to the awesome work of building out the Tohono O'odham Conservation Collaborative. Once trusting relationships are in place and a functioning conservation WG has been established with as many Tribal departments as deemed appropriate, it is possible to begin talking about the details of partnership goals, fieldwork projects, a partnership work plan, and eventually program funding.

Figure 5 - Tohono O'odham Nation Conservation Working Group celebrating its sixth anniversary.

Conservation Collaborative Partners

Tohono O'odham Department of Natural Resources

The mission of the TON Department of Natural Resources (NRD) is to manage and protect the Nation's cultural and natural resources through the inventory, conservation, and development of these resources—to support, communicate, and collaborate with all TON programs to continue to provide effective services to the Nation's membership and public. The TON NRD administrates 18 different programs, including Natural Resources Administration, Range Conservation, Soil and Water Conservation, Solid Waste Management, and Wildlife and Vegetation, all especially relevant to the Conservation Collaborative.

Under the leadership of the TON NRD director, the department is strategically positioned to advise on environmental priorities and human resources needs while serving as the primary vehicle for community outreach and communication with TON districts and leadership. The TON NRD itself has also been key to the overall success of the collaborative, as all things TON conservation are started, run through, and sanctioned by the natural resources director and their department.

Tohono O'odham Community College

TOCC is a 1994 land-grant Tribal college located within the TON. The Tohono O'odham Legislative Council chartered the college in 1998 to educate the Nation and as a means to uphold Himdag—the Tohono O'odham way of life. TOCC has a student body of approximately 1,200 students of which 95% are Native Americans, and nearly 350 are from the TON.

The vision of TOCC is to "become the Tohono O'odham Nation's center for higher education and to enhance participation in the local, state, national, and global communities." TOCC's mission is to "enhance our unique Tohono O'odham Himdag by strengthening individuals, families, and communities through holistic, quality higher education services" (Quijada et al. 2015).

Arizona Conservation Corps

The Tohono O'odham Conservation Collaborative was initiated when the Tribe began conservation partnering with the AZCC in 2018. TON-AZCC crews have worked on traditional O'odham lands in partnership with the National Park Service and US Forest Service, completing river restoration, traditional site restoration, resource inventory, fence construction, trail restoration, public education, and visitor interpretation work (Arizona Conservation Corps homepage 2024).

The AZCC serves as the chief administrative support base for the TON Conservation Collaborative. AZCC is a program of Conservation Legacy (2024) (conservationlegacy.org), a not-for-profit organization. Conservation Legacy is a national organization that fosters conservation services in support of communities and ecosystems. Programs include more than a dozen conservation corps across the United States. In 2023, Conservation Legacy engaged

Figure 6-7 - Top: AZCC Indigenous crew/cultural site restoration. Bottom: AZCC ICP interns/resource inventory monitoring.

more than 2,300 young people and veterans in paid conservation work, completing over 1,300,000 hours of service enhancing recreation facilities, protecting communities from wildfire, stewarding protected area resources, and enhancing "all" communities.

Arizona Conservation Corps Indigenous Community's Program (ICP) is rooted in the culture and heritage of local Tribal communities. The power and impact of AZCC's Indigenous programming is due to the community investment and support for each program, tribally and locally, combined with a network of operational support from AZCC. ICP programs consist of conservation crews and individual placements (interns).

Since its inception in 2014, and with essential guidance from the Ancestral Lands Conservation Corps (ALCC) (2025), the originators of the "Indigenous Youth Conservation Movement," AZCC's Indigenous program has successfully built lasting relationships with and run conservation crews and interns with San Carlos Apache, White Mountain Apache, Ft. McDowell Apache/Aravaipa, Red Paint Apache, Tohono O'odham, Akimel O'odham, Gila River O'odham, Colorado River Tribes, Cocopah, Quechan, and Hualapai Nations. Northern Arizona AZCC Native crews are recruited from western sections of Navajo, from Hopi and the Hualapai and Havasupai Communities in close coordination with their ALCC cousins to the east in Albuquerque, New Mexico (https://ancestrallands.org/).

Arizona Sonoran Desert Museum

The Arizona Sonoran Desert Museum (ASDM) is world-renowned for its pioneering work in natural history, conservation education, and visitor interpretation. Its mission is to inspire people to live in harmony with the natural world by fostering appreciation and understanding of the Sonoran. The 98-acre museum, located in Tucson, Arizona, is a zoo, botanical garden, art institute, natural history museum, and aquarium, with two miles of walking paths through diverse desert biomes

Figure 8 - Arizona Conservation Corps "Indigenous Community's" crew/team building during orientation.

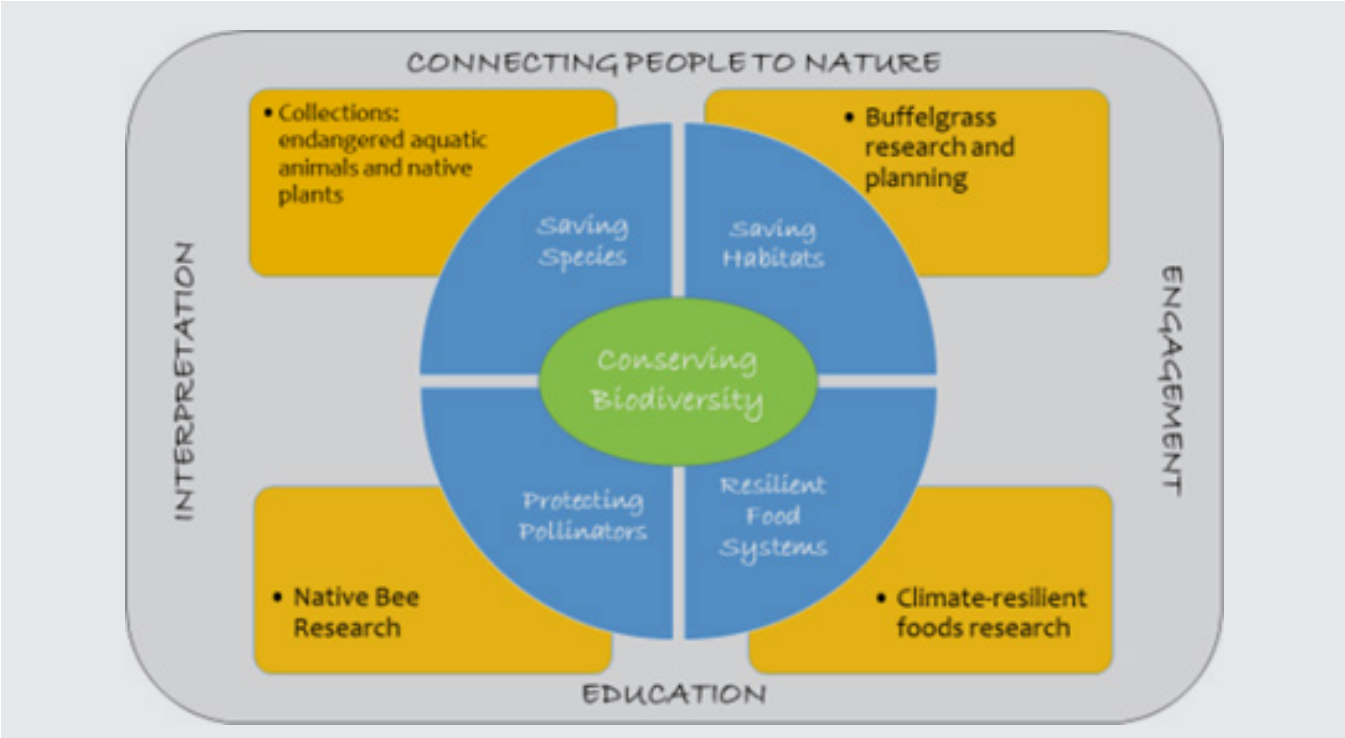

Figure 9 - Arizona Sonoran Desert Museum "connecting people" to environments.

that harbor 1,200 plant taxa, more than 200 animal species, and 56,000 individual mineral specimens. The museum's long-standing, place-based conservation and research programs provide the Collaborative with vital research and scientific expertise and support.

One key role ASDM staff and scientists play in the Collaborative is serving on curriculum design committees tasked with researching, assessing, and offering recommendations on the science content required to adequately prepare TOCC NRMCP students for conservation positions with Tribes and federal agencies. ASDM is encouraged by what the Collaborative has achieved to date and staff is excited to continue working with the Natural Resources Department, AZCC, and TOCC to move this innovative "tribally led" conservation partnership forward.

All Collaborative work accomplished within the TON is driven and sanctioned completely by the Tribe—with AZCC and ASDM playing strong support roles (specifically determined by the Tribe through the WG), assisting with activities such as program development and operations, academic development, assessment and evaluation, and helping raise funds for TON/TOCC in-community conservation projects, programs, and Tribal-benefiting initiatives.

Conclusion

The lasting partnership between the TON Department of Natural Resources, the Arizona Conservation Corps, the Arizona-Sonora Desert Museum, and the Tohono O'odham Community College has fostered a synergetic

programmatic process to address environmental challenges affecting the Tohono O'odham Nation. One of the most critical outcomes sought by this collaboration is the development and implementation of work programs to train environmental professionals, which ensures an environmental workforce attuned to the most urgent environmental management needs of Tribal communities. The Tohono O'odham Conservation Collaborative applies the micro-certificate model to build sustainable career tracks in natural resource management by introducing Tohono O'odham youth to the conservation field via the Natural Resources Micro-Certificate Program.

It is long overdue for agency managers to begin building stronger working relationships with neighboring Tribal groups. With priority Indigenous issues, such as the appropriate management of and access to cultural and sacred sites within wilderness, strong relationships will ultimately move us closer to the common goal of managing protected areas for the use and enjoyment of "all" peoples (Hansen 2016). Understanding cultural differences and working together to identify and practice ways to avoid misunderstandings, as accomplished via the TON Conservation Collaborative, can potentially heal much more than our remaining wildland environs. IJW

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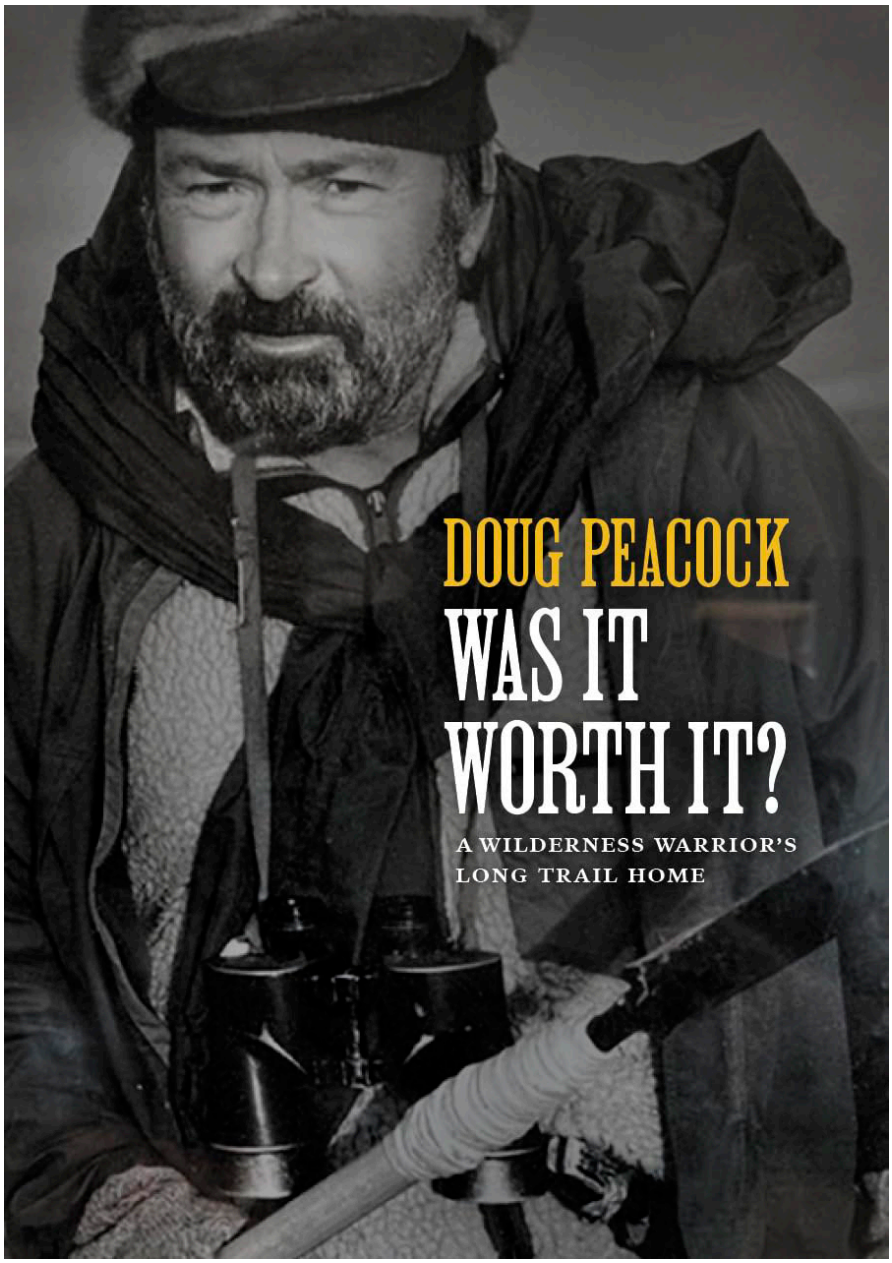
Digital Reviews:

Patrick Kelly, Media And Book Review Editor

Was It Worth It?: A Wilderness Warrior's Long Trail Home, by Doug Peacock. 2022. Patagonia.



We are in the age of the conservation influencer. Celebrity hunters, anglers, and outdoors-people post algorithm-driven content to their Instagrams, TikToks, podcasts, and YouTube channels. They've amassed hundreds of thousands of followers to spread the good word of conservation. Only, their content seems to be curiously lacking any coherent conservation message. Doug Peacock's 2022 book Was It Worth It? brought this to mind as I read of his adventures over a lifetime of activism and wilderness defense. Peacock recently stated this may be his last book, and I found myself reflecting on the legacy of his generation of writers and activists.

We're in an era of fragile masculinity. Academics, CEOs, politicians, and podcasters are stumbling over themselves to validate their manhood through carnivore diets, unregulated supplements, and all types of manosphere grifting. Recent political shifts reveal a generation of detached and disillusioned young men drowning in loneliness, seeking belonging, while looking for someone to emulate and someone to blame. In swoops the "conservation" influencer, selling pricey outdoor gear through media empires and podcast appearances, all while advocating predator control, deregulated trapping, and an ethos of recreation-as-conservation.

So, what does this have to do with Peacock's book?

I was struck by his ability to so deeply center the natural world in his writing. These pages don't fixate on the hunt, the catch, the float, or the hike. Rather, they're filled with rich details of a beautiful and dangerous world.

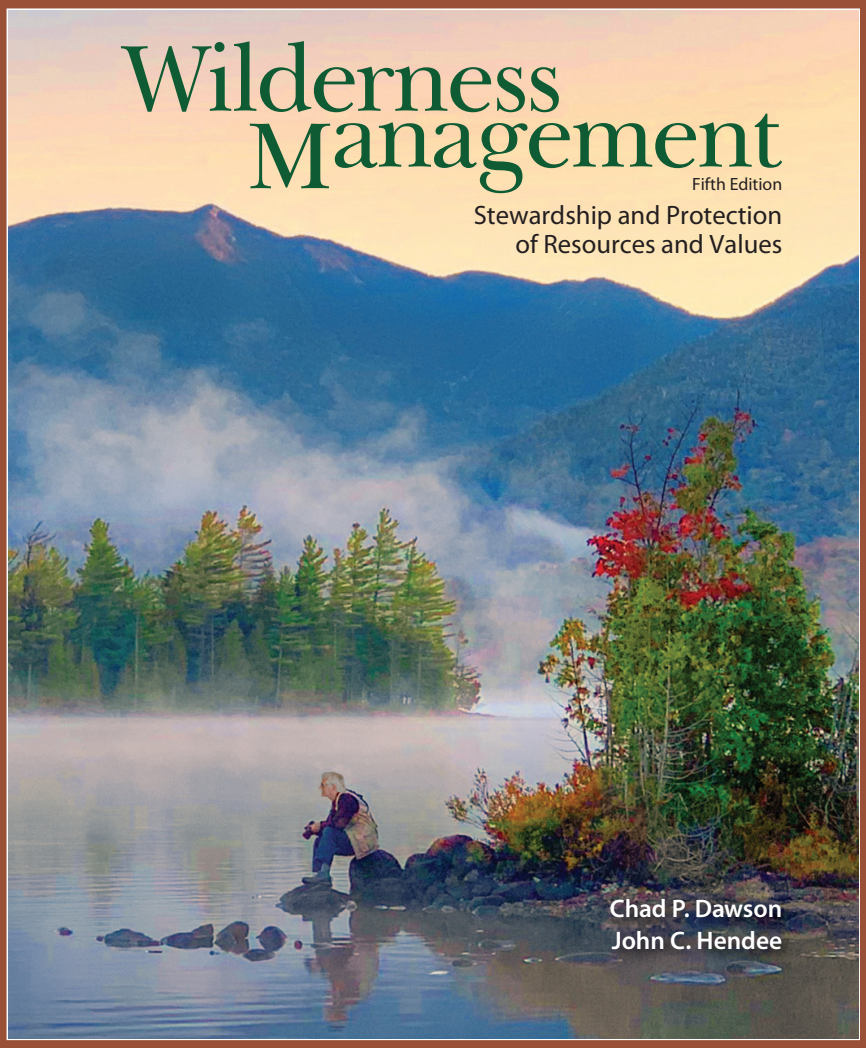
"Headwaters" recounts Peacock's solo float down Montana's Big Hole and Jefferson Rivers—a multiweek sojourn spent hunting and gathering using primitive means, and largely failing. He survived, albeit 15 pounds lighter. Many of his stories are about the humbling experience of enduring the trials of wilderness without the support of modern technology.

Predators are a recurring theme. As Ed Abbey wrote, "Peacock goes so far as to define wilderness as a place and only a place where one enjoys the opportunity of being attacked by a dangerous wild animal." It's an ethic in which there's more grit in living among grizzlies and wolves than there is in eradicating them and creating a world that requires no bravery. In the chapter "Why I Don't Trophy Hunt," there's a photo of the big man himself, Teddy Roosevelt, standing over a dead rhino, rifle in hand. Peacock writes, "We are many decades down the road from faded photos of Teddy Roosevelt's rhino in 1909 . . . archetypal images of man's dominion over the animals. Our view of seeing ourselves as separate from nature is the path that has delivered us to today's peril."

In an era in which masculinity has become increasingly performative, this biocentric view of wilderness and conservation seems to be overshadowed by the manic free-for-all of internet stardom. Where are all the hell-raising treehuggers who center the natural world in their wilderness ethic without fear of losing some proverbial man card? For now, Was It Worth It? shines light on a life defined by both courage and radical empathy with the natural world. IJW

REVIEWED BY Mason Parker, wilderness defense director for Wilderness Watch.

For 45 years, this classic textbook on wilderness management has served as the most comprehensive information available on the stewardship and protection of wilderness resources and values. The seventeen chapters outline the history, legislation, policies, planning, and stewardship carried out by the four federal land managing agencies–Forest Service, National Park Service, Bureau of Land Management, and Fish and Wildlife Service–entrusted with stewardship and protection of the more than 110-million-acre National Wilderness Preservation System. Written for wilderness and wildlands planners, managers, stewards, advocates, and educators, this revised fifth edition builds on the material of the first four editions and extensively updates chapters on: International wilderness; managing for appropriate wilderness conditions; wilderness ecosystems; fire in wilderness ecosystems; ecological impacts of wilderness recreation and their management; and wilderness visitor management. This textbook is an invaluable guide for resource managers, students, scientists, policy makers, and for wilderness advocates and visitors around the world.



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SUNY College of Environmental Science and Forestry
The WILD® Foundation
USDA Forest Service
U.S. Department of the Interior
USDI Bureau of Land Management
USDI Fish and Wildlife Service
USDI National Park Service
Wilderness Foundation (South Africa)
Wilderness Foundation Global
Wilderness Leadership School (South Africa)
University of Montana, School of Forestry and Conservation; and, the Wilderness Institute