Diálogos 114, 2024, pp. 81-115.

LIMITS OF WILDERNESS

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Abstract

Few debates in environmental philosophy have been more heated than the one over the nature of wilderness. And yet, when one surveys the present scene, one finds that a variety of different conceptions of wilderness are still quite popular – some more so in certain professions than others. In this paper, I look at three popular conceptions of wilderness with an eye toward sussing out the good and the bad them. I look at what I call (1) the folk view of wilderness, (2) Leopold's conception of wilderness, and (3) the legal conception of wilderness (as found in the Wilderness Act of 1964). In the final part of the paper, I sketch out a sort of spectrum account of wilderness, one that I argue allows us to capture more cases of wilderness and might serve as a useful tool in future conservation efforts.

Keywords

wilderness, Wilderness Act, spectrum, Leopold, pluralism

Resumen

Pocos debates en la filosofía medioambiental han sido más acalorados que el de la naturaleza de los espacios naturales. Y, sin embargo, cuando se analiza el panorama actual, se comprueba que siguen siendo muy populares diversas concepciones de los espacios naturales, algunas más que otras en determinadas profesiones. En este artículo, examino

tres concepciones populares de los espacios naturales con el fin de identificar las buenas y las malas. Analizo lo que yo llamo (1) la visión popular de los espacios naturales, (2) la concepción de Leopold de los espacios naturales y (3) la concepción legal de los espacios naturales (tal y como se recoge en la Ley de Espacios Naturales de 1964). En la última parte del artículo, esbozo una especie de espectro de los espacios naturales que, en mi opinión, nos permite abarcar más casos de espacios naturales y podría ser una herramienta útil para futuras iniciativas de conservación.

Palabras clave

espacios naturales, Ley de vida silvestre, espectro, Leopold, pluralismo

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Introduction[1]

On a cool September day, looking down at my map, I see that I am 16 miles into the boundary of the John Muir Wilderness of the Sierra Nevada mountains of California. It took me a 16-mile hike, starting from the dock at the far end of Lake Edison, to get to this point. To get to the dock, it took me roughly a 4-mile boat ride from the launching pad on the far side of the lake. To get to the lake, our crew had to drive 8 miles on a one-lane mountain road, starting at the High Sierra Ranger Station. And to get to the High Sierra Ranger Station, it was an 84-mile drive from the nearest large town – Fresno. Up here in the Sierras, I'm surrounded

[1] Thank you to members of the 2021 meeting of the Canadian Society for Environmental Ethics for comments on a previous draft. Thank you also to members of the Mississippi State University Philosophy & Religions Department Works-in-Progress Group and to two anonymous reviewers.

by red fir, white fir, lodgepole pine, and hemlock trees. The wild blueberries – a favorite of the California black bear – are bursting with their sweet reward. I can hear the pleasant "cheese-bur-ger" call of the mountain chickadee. And a gorgeous orange and black monarch butterfly flutters by, landing on a peculiarly shaped crimson columbine flower. As we approach "Beetle Bug Lake" the trees recede, and I see an osprey swoop down to catch a trout from the lake's waters. "Surely, out here", I think, "I must finally be in wilderness. Surely this is wilderness if anything is."

And yet, as I settle down on a big rock of granite and look around with a keen eye, I start to realize that even out here, perhaps in wilderness I am not. Across the lake, I see the aluminum shimmer of a deflated birthday balloon caught in some blueberry bushes. I'm told by my lead ranger that these aren't as uncommon around here as one might think. Apparently, the wind tends to bring them up from Fresno. As I look into the water, I see the remnant of a fishing wire, the hook captured on the underside of a submerged log. I'm told the trout in this lake aren't native to it either – they were dropped in by airplane months ago. On a nearby tree are what appear to be the marks of some uncaring backpacker simply having "fun" with an ax. And then, when I think about it more, well, there is after all a developed and maintained *trail* leading to this lake – it's not literally "off the beaten path". There's a tree nearby with a sign tacked to it reading "no camping" – probably placed there by a previous ranger. And then, what's more, this lake is named and marked on a map. As we walk to the other side of the lake, we find the remains of an old campfire ring with some tinfoil pieces and scraps of paper left inside. Rangers here dub these small pieces of foil, plastic, and other refuse "micro trash". Micro trash is a persistent problem, as these tiny pieces of litter break up and become smaller over time, eventually becoming too small to

be extricated practically from the environment, effectively becoming a part of that place forever.

"Perhaps I should have known better," I think to myself. The Sierra Nevada after all is only a short drive from the heavily populated San Francisco, with its many hiking enthusiasts and nature lovers. It has also been explored by European colonists at least since fur trapper Jedediah Smith crossed north of the Yosemite area in 1827. Theodore Roosevelt even rode through the Sierra Nevada in 1903. And the area I'm in isn't named the John Muir Wilderness for nothing – the famous naturalist John Muir explored this neck of the woods extensively. Of course, even before all that, indigenous peoples such as the Mono and Paiute lived in and explored the Sierra – hunting game, foraging, and making their lives there.[2]

"So, what is wilderness then?" I wonder, "*True* wilderness – if there is such a thing? And where can I find it?"

The first question to ask in any discussion of wilderness, of course, is "What is it?" Perhaps it's no surprise that there is no widely agreed upon answer to that question. Many authors have had different opinions about what counts as wilderness. Some have even argued that wilderness as traditionally conceived doesn't exist or that the concept should be abandoned (Cronon, 1983, 1996; Callicott, 2008). Others have pointed out that versions of the concept reek of imperialism or Euro-centrism (Plumwood, 1998; Guha, 1989). Add to it that there are legal definitions of wilderness, scientific definitions, and a variety of other definitions or conceptions of wilderness, and it becomes easy

[2] I was once told by a US Forest Service archeologist that he'd even found an ancient spearhead frozen in some ice near the crest of the Sierra. So, it appears the early peoples of the region explored the area quite extensively!

to see why the debate surrounding wilderness has been such a heated one.

What I'll do in this paper is look at a few popular conceptions of wilderness – ones that still hold sway in certain professions and circles – and try to tease out the good and the bad of them. I'll consider three views of wilderness in particular: what I'll call (1) the *folk* view of wilderness, (2) *Leopold's* conception of wilderness, and (3) the *legal* conception of wilderness, as presented in the Wilderness Act of 1964. I'll end the paper by sketching out a sort of *spectrum* model of wilderness, one couched within a larger deflationary and pluralist outlook. A spectrum account like the one I provide, I'll argue, captures more cases of nature that we'd intuitively like to call wilderness and might serve as a more useful tool in future conservation efforts.

The Folk View

The first view I'll discuss is what I'll call the *folk* view of wilderness. What I mean by the folk view is roughly what the typical person on the street might have in mind when they talk about wilderness. Now, of course, how the person on the street got that concept of wilderness is an important story, and the origin story of our everyday concept of wilderness is a long and complicated one. One of the most famous and often quoted works on the origins of the concept of wilderness is Roderick Frazier Nash's 1967 book *Wilderness and the American Mind.* According to Nash, the very notion of wilderness came into existence when humans started to separate themselves from other parts of the world in particular ways. Humans started to create permanent settlements and villages in effect creating a division between those places settled and those that were not and those places under our control and those that were not. Humans also started to domesticate animals, creating a division between

animals under our control (to some extent) and those that were not. Wilderness then became in effect the place where wild beasts lived and we did not. As Nash points out, however, not all peoples appear to have created this distinction, especially nomadic peoples. Chief Standing Bear of the Oglala Sioux, for example, once said that his people "did not think of the great open plains, the beautiful rolling hills and the winding streams with their tangled growth as 'wild'. Only to the white man was nature a 'wilderness' and... the land 'infested' with 'wild animals' and 'savage' people" (Standing Bear, 1933, p. xix). We seem to find another example of this lack of separation between humans and nature in some Buddhist philosophy. For example, the Japanese Buddhist monk Myōe born in 1173 seems to have held that all things were one, all a part of the Buddha. In a letter he wrote to an island, he writes, "It is certainly true that the physical substance of a country is but one of the ten bodies of the Buddha. There is nothing apart from the marvelous body of the radiant Buddha... your physical form as an island consists of the land of this nation, which is one part of the body of the Buddha." (Tanabe, 2015, p. 90).[3]

So much for the origin of the rough idea of wilderness. Now as far as the *word* 'wilderness' goes, according to Nash 'wilderness' has a fairly long history, though, perhaps not as long as the *concept* of wilderness or something very much like it. The English word wilderness has its beginnings in the Norse and Teutonic languages. Here 'will' is important in the sense of "self-willed". Wilderness was a place with a will of its own. Later 'willed' led to 'wild'. Later 'wild' was added to the Old English word 'dēor', which meant *animal*, giving us 'wildēor' or *wild animal*. We see the first use of this in

[3] Thank you to Audrey Yap for pointing out this work to me.

Beowolf. Later on, 'wildēor' was turned to 'wilder', and then we got 'wildern' and finally 'wilderness'. The result being that 'wilderness' (conceptually *wild-dēor-ness*) in effect means a place of self-willed animals. Professor of Native American culture Jay Hansford C. Vest, suggests a similar origin story for the word. According to Vest, in early Celtic tradition, wilderness was conceived as land governed by its own "will" (Vest, 1985). Henry David Thoreau is even noted to have repeated this general idea of wilderness as the self-willed in his personal journals.[4]

And yet, nowadays, Nash's account of the origins of the word 'wilderness' is disputed (Henderson, 2014). The root word of wilderness, 'wild' is found in Common Germanic. It is also found in Old English as 'wilde'. As early as c.725, 'wilde' was used as an adjective for plants and animals that were not tamed or domesticated and by c.893 'wilde' was applied to areas and not just the animals or plants within them. The Oxford English Dictionary suggests that the word's likely origin is the pre-Germanic *ghweltijos*. There are also potential parallels in the root of the Latin and Greek words for wild beast.

Nash, going off the idea that the word wilderness seems to have its origins in Northern Europe and that in these places wild animals tended to live in the woods, argues that the *concept* or *idea* of wilderness should be understood as originally encompassing primarily forested land. He sees as further evidence for this interpretation the lack of a single word serving the purpose of wilderness is the Romance languages. So, for example, in Spanish the closest thing to wilderness is *immensidad* (immenseness) or *falta de cultura* (lack of cultivation). In French, there is *lieu desert* (a

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[4] See Turner, 1996, p. 82. for an account regarding the following quote apparently scribbled by Thoreau in a
notebook in 1852: 'Wild—past participle of to will, self-willed.'

deserted place) and *solitutde inculte* (the lonely and uncultivated). Italian's closest expression seems to be *scene di disordine o confusion* (scene of disorder and confusion). And yet, despite not having a single word for wilderness, it does seem, contrary to Nash, that these languages *are* getting at something very similar, if not at basically the same thing. Perhaps this is merely a difference of intuition. However, if not, then to say that the idea of wilderness was early on at heart an idea purely about forested land, would seem to be a bit of hopeful interpretation. Indeed, as Nash points out, the first use of the *word* 'wilderness' appears in the 13th century English priest Layamon's poem *Brut* and it does appear in this work to be used to refer to wooded areas. This lends some credence to the claim that the *word* 'wilderness' early on connoted primarily wooded areas. But in the case of the *idea* of wilderness, this is not so obvious. Perhaps in Italy a *scene di disordine o confusion* and in France a *solitude inculte* or *lieu desert* could be a mountainous area like the Alps, where high up enough there are very few, if any, trees. In Spain, there is the Tabernas Desert, famous from so-called spaghetti westerns such as the 1966 film *The Good, the Bad, and the Ugly.* Also in Spain, there is the Timafaya volcanic lands and the lands surrounding Mount Teide on the Canary Islands. These places are excellent candidates for the word *immensidad.* Nash in his own work even mentions that later on in the 14th century John Wycliffe used 'wilderness' to refer to uninhabited and arid land in the Near East. William Tyndale used the word similarly in his 1526 translation of the Bible, as have many translations of the Bible since. Why would these early authors use the word this way if the idea of wilderness hadn't been broader than that of forested land? Of course, people apply old words to new contexts and the meanings of words change over time. But to go from using 'wilderness' to talk about forested areas to using it to talk

about *deserts* – places often without any trees and sometimes without any apparent animal life – is a rather bold move, especially if Nash's account of the word's origin and core meaning is the right one. What's more, consider that humans have engaged in settlement building, land cultivation, and the domestication of animals – the creation of a "separation" between themselves and the "wild" – in many different contexts throughout history, and many of those environments were *not* forested ones (e.g., the Middle East and the deserts of the American Southwest). With all this in mind, to say that the idea, the bare primitive *concept* of wilderness, of a place wild and separate from us in some significant sense, must have or probably did start out in and about forested regions seems rather optimistic.

The question of the true origin of the concept of wilderness is an empirical one and one not likely to be answered anytime soon for a number of reasons – ones I won't spend time on here. In any case, the *word* wilderness eventually did come to be used in time, in English, to refer simply to any place that was – roughly – wild and uninhabited by man. The standard definition for quite some time was Samuel Johnson's from his 1755 Dictionary of the English Language: "a desert; a tract of solitude and savageness". Note the emphasis in Johnson's definition on "desert" – there's no explicit mention of woods or wild animals. Today, the Merriam-Webster Dictionary defines wilderness as "a tract or region uncultivated and uninhabited by human beings" and "an area essentially undisturbed by human activity together with its naturally developed life community". This definition too seems to leave room for deserts and makes no mention of forests.[5]

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[5] Someone might ask "Isn't your discussion here about wilderness really just a discussion about *nature* more generally?" I think that the answer to that question is *no* and for the simple reason that people often do use

And nowadays, when one looks around, one finds that the word wilderness has taken flight and that its application has been expanded to new contexts. Now, not just forests and deserts count as wildernesses, but the seas and oceans appear to count too.[6] Rainforests and jungles are now often described as wildernesses.[7] And since the 20th century, outer space, the moon, and the surface of other celestial bodies have all been referred to as wildernesses (Johnson, 2020). And where wilderness once referred only to thoroughly wooded areas or areas nearly completely devoid of vegetation, now spaces somewhere between count too – for example, the Badlands of North Dakota or the Great Plains of the Midwest.[8]

How far does the modern version of the folk concept of wilderness go? How much can the concept be stretched and how many cases does it really cover? There are some cases outside the standard canon of examples that seem like plausible fits, others not so much.

Consider deep, expansive caves such as Mammoth Cave in Kentucky. Mammoth Cave has about 365 miles of explored labyrinth with many more miles still to go. There's also the Son Doong Cave in Vietnam, a cave that happens to be home to an untouched jungle growing more than 600 feet beneath the Earth's surface. As I said a moment ago, the

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those two words in different ways and with different meanings. Sometimes there is overlap, but they do have different connotations, uses, and appropriate contexts such that there are cases where one word can't simply be swapped out in conversation for the other. It seems fair to say, for example, "I love going out in nature but I'm really not into going into the wilderness." There seems to be a difference between nature and wilderness being captured in this sentence here.

[6] See Langston Hughes' poem "Long Trip" for an example of the seas as wilderness.

[7] See Joseph Conrad's novella *Heart of Darkness* (1899) for a case of jungle as wilderness.

[8] See the Theodore Roosevelt Wilderness.

rough and tumble seas have been described as wildernesses, but we might wonder if it isn't fair to describe the aquatic worlds *beneath* their surfaces as wildernesses too. The Great Barrier Reef in Australia, for example, covers an area of roughly 134,634 square miles and is host to a menagerie of wild creatures. If not perfect cases of wilderness, these do seem at least to be somewhere in the ballpark.

In the 21st century, we can also ask about *virtual* wildernesses – wildernesses in computer games and simulations.[9] Of course, this proposal is a bit of a stretch – do we really want to call a virtual wilderness "wilderness" in some strong sense? However, suppose that it turns out we really are in a simulation as some philosophers have suggested. Then the extension of the word wilderness to this new context presents us with a dilemma. Do we say that the places we called wildernesses are not really wildernesses after all – since it turns out they're now digital? Or do we simply accept that it turns out wildernesses can be digitally grounded? I suspect we might ultimately accept the latter.

Some stretch the concept of wilderness even further. It's not uncommon to hear talk about the "urban wilderness" or the "urban jungle".[10] And conceivably, if we could shrink people down to microscopic scale, as in the 1966 film *Fantastic Voyage*, we might hear some people describe the insides of bodies as wildernesses too. I'd wager, however, that most people on the street would not acknowledge these latter cases as rightly described as wilderness in any strict or deep sense of the word. Rather, some uses of the word simply are metaphorical.

Where does this get us? What we seem to get is that the *folk* concept of wilderness is a bit murky – in its origins

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[9] For examples of video games with digital "wildernesses" consider *No Man's Sky*, *The Long Dark*, *Astroneer*, and *Red Dead Redemption.*

[10] See Upton Sinclair's 1906 novel *The Jungle.*

and in its original meaning. The concept has been extended – in many cases, seemingly fairly, in other cases, probably not. What counts as a "fair" use of wilderness is likely to vary to some extent from person to person, but there does seem to be a vague amorphous core to the everyday concept that is fairly or unfairly applied in certain cases. What I'd like to do now is set that thought aside for a moment and shift instead to looking at a different point of view of wilderness, one provided by a former ranger.

Leopold's View

The second view of wilderness that I'll discuss is one provided by Aldo Leopold. Leopold is sometimes considered the father of environmental ethics. He was by profession a ranger in the United States Forest Service, and he started his career in the forests of Arizona and New Mexico. Leopold was one of the key voices in the push for the protection of large wilderness areas in the United States. Thanks in part to his efforts, the United States established the first federally designated wilderness area in 1924 – the Gila Wilderness in New Mexico.

A major turn in Leopold's thinking occurred when he was a young ranger. In the early 1900s, rangers were tasked with, among other duties, killing large predators such as wolves and grizzly bears. In his book *A Sand County Almanac* (1949), Leopold tells the story of the time he followed this policy and fired upon a mother gray wolf and her pups. As he recalls it, when he reached the wolf mother, he could see a "fierce green fire" dying in her eyes, and it was at that moment that he realized what he and the other rangers were doing was wrong – that they hadn't yet learned how to "think like a mountain".

Leopold's ideas are distilled in *Sand County*, which is now required reading for most environmental ethics courses.

And although some of the general themes from that work are relevant here, they're not the focus of this article. Instead, I'd like to home in on a definition of wilderness Leopold provided in an article published in the *Journal of Forestry* in 1921 titled "The Wilderness and Its Place in Forest Recreation Policy".

Leopold offered a few renderings of wilderness throughout the course of his life. At one point, he described wildernesses as "roadless, with roads built only to their edges" (1949, p. 289). But his 1921 definition has remained the most associated with his name and has retained the most popularity. In that paper, Leopold defines wilderness the following way:

> ...a continuous stretch of country preserved in its natural state, open to lawful hunting and fishing, big enough to absorb a two-week pack trip, and kept devoid of roads, artificial trails, cottages or other works of man. (p. 719)

In many ways, this is a decent definition of wilderness. It seems to capture a good number of the places we typically call wilderness – parts of the Sierra, Alaska, and South America for example. It seems to accord with many of our common intuitions about wilderness – that it is usually devoid of roads and works of man. The definition also provides a clear set of criteria for inclusion in the category of wilderness and a method of measurement – "big enough to absorb a two-week pack trip". And yet, the 1921 definition has a number of significant flaws.

First, the definition doesn't seem to capture any of the "extended" cases of wilderness that we discussed in the previous section. It doesn't seem to capture the oceans or space, for example, as it doesn't seem that pack animals will be conducting trips in space or underwater anytime soon. The definition also won't cover places such as the Son

Doong Cave or Mammoth Cave, as these places aren't suitable for pack trips either. This reveals one potential problem with Leopold's definition – the implicit reliance on horses and mules in its articulation – or on any stock animals (such as lamas, sled dogs, or camels) for that matter.

Another problem comes from the "two-week" condition of the definition. What sort of pack trip in the backcountry will take two weeks will vary greatly and depend on many factors. It will depend on things like the riders involved, their experience, the animals they're using, the cargo they're hauling, the weather, and, most importantly, the *terrain*. A pack trip conducted through the Badlands of the Dakotas is very different than a pack trip through the North Cascades, which in turn is very different than a pack trip through the sand dunes of the Middle East. Whether a pack trip in some area takes two weeks will also depend on whether the path taken is roughly a straight line or some other configuration and whether the trip is a there-and-back trip or a one-way journey. Leopold isn't clear on any of this – on whether straight lines are required or one-way trips – and that's a problem. Presumably he meant to include routes that are far from straight lines given how unusual straight-line paths are in most wilderness areas and given that many wildernesses physically rule out the construction of straight-line passages. He also probably meant to include some there-and-back trips. But he also presumably meant to rule out trips involving someone going round in circles or some other bizarre pattern of travel just to make a trip long enough for two weeks. His definition doesn't explicitly rule out such "bizarre" routes.

Now consider the size of land possibly required by Leopold's definition. In the backcountry, a rider with a horse or mule going on an extended trip can plausibly travel around 10-20 miles per day – maybe near 30 miles per day in extreme cases. If we go with 15 miles per day as a safe

estimate and multiply that by two weeks (14 days), we get a total of 210 miles. If we take 210 miles and combine that with a straight-line one-way journey, that's something like a 210-mile length requirement for wilderness areas – or 44,000 square miles. If we assume more generously that Leopold meant for the pack trip requirement to permit trips that cross the length of a wilderness and come back, then the requirement instead becomes an area of land roughly at least 105 miles wide – or 11,000 square feet. This is a rather large area of land in some respects, but the requirement would seem to rule out a number of places we already recognize as wilderness – Petrified Forest National Wilderness Area, for example, is only roughly 79 square miles and the El Toro Wilderness is only roughly 16 square miles.

Of course, all this assumes, that wildernesses have clear boundaries and that it's a simple matter to measure them. And yet, this too is debatable. It's not obvious that outside of lines on maps and artificially constructed borders there really are any deep metaphysical hard lines marking out where wilderness ends and "non-wilderness" begins. What's more, even if there were clear boundaries, Leopold isn't clear on which stock animals should be used for taking our measurements. Plausibly, he meant horses and mules. But camels, for example, have a quite different range than standard equine, especially in harsh desert environments. The same goes for sled dogs in snow. Without a more precise definition, we're left with a situation where a wilderness may take two weeks to traverse by one method of stock travel but less time by another.[11]

Perhaps Leopold could have been more precise. Maybe he could have said something roughly like that

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[11] Bactrian camels, for example, can travel about 25-35 miles per day while carrying loads up to 1,000lbs. See US Army Field Manual (FM) 3-05.213 (FM 31-27).

wilderness is “an area that will on average take a two-week pack trip by horse or mule, weather assumed to be good, animals assumed to be in good condition, riders competent and healthy, trails assumed to be standard grade and quality, and all else being equal”. It’s an attractive route, but I don’t think a patching-up like this will work. Qualified in this way, Leopold’s definition would still be too vague to be used without some doubt about its limits – each part of it still seems in significant need of more details. And even if we did somehow make the definition more precise, did fill in those little details, such a revision would still plausibly rule out many places we otherwise feel comfortable placing in the wilderness category. It would rule out, for example, those places where stock travel is physically impractical or impossible, and those cases don’t have to be controversial such as space or the oceans. Certain wildernesses just are not suitable for travel by stock – e.g. some swamps and dense jungles. Add to it that some wildernesses – for example, Mount Rainier National Park – *do* have suitable areas for stock use but are such that stock use is prohibited as a matter of Park policy, and this makes Leopold’s definition of wilderness even more problematic.

One might wonder “Why focus on pack trips and stock? Doesn’t that seem a bit arbitrary?” One might also wonder if perhaps there isn’t a more charitable interpretation of Leopold’s view – for example, roughly something like that a wilderness is any suitably large bit of land open to traditional recreation where humans and their structures do not remain. One reason I’ve focused on the part about stock is that so many rangers, especially packers and mounted rangers in the United States Forest Service and the National Park Service, take that part so seriously. This is something I’ve observed personally while working for these organizations. Packers and rangers will quote Leopold’s definition of wilderness in conversation by heart. Packers

especially will wax poetic about the two-week pack trip aspect of Leopold's view. Obviously, many of these packers and rangers are a bit biased in their preference for Leopold's definition – they think stock animals should be permitted in wilderness areas, and so some likely emphasize the stock use aspect in order to defend their favorite practice.[12] Nevertheless, certain relevant professional circles do lean on and emphasize Leopold's definition, especially the stock animal part, and so even just for that reason it seems worth revisiting. Another reason for preferring a more literal interpretation of Leopold's definition is that we just don't know how literally Leopold intended his definition to be taken. Leopold wasn't a trained philosopher, and from his other writings it's just not clear how literal the clauses in his various principles and definitions, especially this one, should be interpreted. But for the sake of argument, let's suppose we do go with a more charitable interpretation. Would this help? I don't think so. If we go that route, we'll still need to know what counts, for example, as a "suitable" size of land and how to measure it – a tricky issue, and precisely the issue the two-week pack trip clause seemed designed to handle. What's more, if we go the more charitable route, we also in some way seem to be simply considering a *new* definition of wilderness, one that ditches the unique contribution that was the two-week pack trip clause of Leopold's account.

The packing aspect of Leopold's definition isn't the only part that leads us into problems. Leopold is also not clear on what exactly counts as the "natural state". Is it the land before Europeans showed up? Or does he mean perhaps even before any people arrived? Leopold seems to

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[12] There is a heated policy debate that has been going on for some time now about whether the use of stock animals should be phased out of wilderness areas or even out of service in the National Park Service and US Forest Service completely.

think that hunting and fishing should be allowed in wildernesses, but then how do those activities not count as violating the natural state, especially in cases where hunting has been done for purposes of extermination – as in the case of the native gray wolves in Eastern Arizona? Leopold hedges by using the word 'lawful' when describing the hunting and fishing involved in wilderness, and yet even the eradication of the gray wolves in Arizona was lawfully ordered. Then consider that some federally administered wildernesses are set up such that hunting or fishing are *not* permitted within their boundaries. Places like these would seem to be ruled out by Leopold's definition.

The requirement that wilderness be in a "natural state" is also problematic on a broader interpretation of the expression. Consider that since the writing of Leopold's article, atomic radiation has been spread all over the world. In fact, engineers and scientists who need steel that isn't irradiated (so-called "low background steel") have had to source it from shipwrecks at the bottom of the ocean that occurred before the bombings of Hiroshima and Nagasaki (Lynch 2007). Radiation is everywhere, even in those wildernesses that today might in other ways count as in their natural state. Similar worries arise when we consider the effects that air and water pollution have had on most places and the effects of global warming. Reports of plastic being found at the highest and lowest reaches of Earth, in the stomachs of fish and mammals, and even in human placentas, doesn't bode well for the "natural state" either (Napper et al., 2020; Chiba et al., 2018; Azevedo-Santos, 2019; Collard & Ask, 2021; Ragusa et al., 2021). One might wonder if the eradication of a native species might matter for whether something still counts as a wilderness on Leopold's view. For example, do the White Mountains of Arizona still count as wilderness despite brown bears having been hunted to extinction in the area by the 1940s? For many places,

intuitively, the removal of one species doesn't seem to be enough to say that the area is no longer a wilderness. And yet, it's not clear how far that can go.

Leopold's definition also suggests that wildernesses are places "devoid of roads, artificial trails, cottages or other works of man". If what we care about is an "idealized" or "pristine" version of wilderness, then I can see why we might care about including such a clause. However, "pristine" or "virginal" conceptions of wilderness have been shown to be problematic for several reasons, and intuitively "pristineness" doesn't seem to be necessary for something to count as a wilderness. It seems fair to say that the Southwest and Pacific Northwest of America had plenty wilderness at the time of initial European contact, but at that time there were also already indigenous peoples living in and using many of those places, having built communities and structures, or having established hunting grounds, and, no, maybe not built roads, but, built trails.[13] In Europe, many places also still seem to count as wildernesses in the common understanding of the term – for example, many of the old growth forests – despite those wildernesses having been influence by humans for centuries.

Of course, one might revise the definition so that it's extremely restrictive. One could say, for example, that what really matters is that no humans have *ever* set foot in some place, not just that there are no "works of man" there. But notice that if we were to make the definition this restrictive, it seems we'd end up with the result that perhaps there are very few places left on Earth that count as wilderness, since so much of the Earth has experienced at least some form of human footprint. Although wilderness might be

[13] See Cronon (1983, 1996) and Plumwood (1998) for critical discussions of traditional concepts of wilderness and the status of indigenous peoples.

disappearing and in need of protecting, it doesn't seem to be that far gone. Going this route also seems problematic for a more fundamental reason. If it's human presence that turns a place from wilderness into non-wilderness, then it seems that once the first human evolved, wherever that happened, that place suddenly became non-wilderness. And that just seems like the wrong position to take on the matter.

Setting aside extreme revisions of Leopold's definition, Leopold's view still seems to make wilderness disappear rather quickly. Once a place no longer meets one of the criteria of his definition, it would appear it no longer counts as wilderness at all. The moment just one "work of man" is put in place – one trail, one sign, one cave painting – or the moment the "natural state" is disturbed in any way, the area is no longer wilderness full stop. Once one log cabin, for example, is placed way out in some part of the arctic, it is no longer wilderness – or maybe at least just the surrounding 10, 15, 100 square kilometers around it? And yet, intuitively it seems that some places can fairly be described as wilderness despite having *some* history of human presence in them, some permanent structures. Maybe those places no longer count as "untouched" or "pristine" wilderness, but they still seem to count as wilderness in some worthwhile sense of word.

The Legal View

The third view of wilderness that I'll look at is the one set out by the United States government's Wilderness Act of 1964. The definition of wilderness found in the Act is due to American environmental activist Howard Zahniser. It's a landmark piece of legislation in the protection of wild areas and has garnered perhaps more supporters and critics than any other definition of wilderness or piece of environmental law. The definition is fairly simply:

> A wilderness, in contrast with those areas where man and his own works dominate the landscape, 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. (16 U.S.C. Ch. 23 § 1131 et seq.)

This definition, like Leopold's, seems capable of capturing most of what we intuitively consider wilderness. Also, like Leopold's, however, it seems to rule out many places we'd want to include in the category. This definition would rule out places such as space and other celestial bodies, for example, given that it specifies it is about the "earth". This might not seem problematic at first, but if we want to extend wilderness protections to space, as some have started to suggest (Johnson 2020), then this is indeed a live issue.

Now consider the clause reading "where man himself is a visitor who does not remain". What is meant by this? It's not clear. The Forest Service and National Park Service – even the administrations of different Parks and Forests – have interpreted this part of the law very differently. Most Parks and Forests do not allow anyone to buy land or set up permanent structures within their wilderness boundaries. However, many do have permanent ranger cabins or fire lookouts positioned within them – Mount Rainier National Park, for example, even has Camp Sherman and Camp Muir at roughly 10,000 ft up the mountain. Some Parks and Forests have grandfathered in some private cabins and structures created before the Wilderness Act was passed and even allow the families that own them to continue to use those places. Other federally designated wildernesses permit ranchers to graze cattle within their boundaries – this is the case for some wildernesses in the Sierra National Forest for example. The Grand Canyon is another unique case of

wilderness. It has an autonomous Native American community living within its boundaries – the Havasupai.

There is another way we might interpret the clause about man being a visitor who "does not remain". Consider that many wildernesses seem to have an almost constant human presence – think of places along the popular Pacific Crest Trail, or the South rim of the Grand Canyon. Although one person in particular might not be in some exact spot at all times, there might be different people in that spot or going through that same spot at all times. That campsite might be booked every night, even if you are not using it every night. Someone who sits on the side of the Pacific Crest Trail at the height of the busy season might see a visitor walk by every few minutes or so, whereas a hiker walking the trail might not notice nearly as many people. There's something to consider here, as this sort of presence, this foot traffic, has a big impact on the land and wildlife.

Now let's consider the clause reading "an area where the earth and its community of life are untrammeled by man". 'Untrammeled' means roughly unhindered and free from the intentional control and intervention humans. This part of the Wilderness Act is also imprecise and has been interpreted in many ways. Most Parks and Forests have at minimum a fenced or patrolled boundary – this is in effect a form of "controlling" of the wilderness. All also have laws and consequences behind those laws. Other Parks and Forests are more controlled. Many have rangers regularly monitoring and intervening on animal and plant populations, maintaining water sources, performing patrolled burns, and more. In many ways, the wildernesses of the US are quite trammeled – though, arguably not nearly as trammeled as their non-federally designated counterparts.

So much for the first part of the definition provided by the Wilderness Act. Let's take look now at the second part:

> An area of wilderness is further defined to mean in this Act an area of undeveloped Federal 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 and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

Each of the conditions presented in the second part of the definition are rather vague and open for interpretation, and each has gained its fair share of controversy. The first part discussing "primeval character", "permanent improvements", and "human habitation", along with Condition (1), brings us back to the issue of "pristine" wilderness that we encountered earlier. Many wildernesses, and many places in the US that have been federally designated as wilderness, have not completely and without any blemishes maintained their "primeval character", or, to borrow an expression from the last section, their "natural state".[14] Many have had indigenous or other communities living in or using them. They've historically been "trammeled" or influenced to some extent. And yet, it seems that these places can still count as wilderness.

[14] See Turner (2012) and Woods (1998) for good overviews of the debate surrounding strict interpretations of the Wilderness Act. See Friskics (2008) for more on the "pristine" issue.

Condition (2) of the definition is also tricky. First, what counts as having "outstanding opportunities"? For example, it's not clear what it means for a wild place to have "outstanding" as opposed to merely "ordinary" opportunities, or how many opportunities a place should have. It's also not clear whether an opportunity must be available *in principle* or *in practice*. Presumably it is in principle. As I said in the last section, in principle, many Parks have opportunities for stock use but in practice have outlawed it. Then there is the notion of "solitude". Although, solitude is often associated with wilderness, even something people stereotypically go into wilderness to seek, it is not always something one can find there. As we saw, apparently the John Muir Wilderness still counts as wilderness even though the PCT runs through it, greatly diminishing solitude opportunities. In fact, nowadays many wildernesses are probably such that you have non-trivial odds of running into or finding evidence of another person there.

Condition (2) also mentions "primitive and unconfined recreation". Like other parts of the law, the limits of this clause too have been largely left under-specified. However, one major clarification of the condition found in Section 4, Part C is the prohibition on the use of "motorized" or "mechanical" equipment in wilderness areas, especially for the purpose of "transport". This part of the law has been interpreted and applied in different ways. Most Parks and Forests seem to agree on restrictions that should be in place regarding the use of motorized and mechanized equipment by the *public* – no drones, no mountain bikes, no motorbikes, etc. – however, there is significant disagreement regarding how the policy should be applied to Forest and Park *employees* engaged in agency operations. Mount Rainier National Park's administration, for example, interprets the law such that they allow the Park's helicopter to touch the ground within the Park on a regular basis. Other Parks and

Forests require that helicopters only ever get as close as hovering so many feet above the ground while never actually touching it. Agencies will often point to the so-called "minimum requirements" clause of Part C of the Act, which permits exceptions "as necessary to meet minimum requirements for the administration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area)". The problem is that different administrations interpret the "minimum requirements" clause differently, leading to another layer of uncertainty.[15]

Despite much agreement on the public side, there are cases of public use that push the law's limits. Consider mountaineering and traditional climbing. They're usually considered major forms of "primitive" outdoor recreation, and they're often permitted within federal wilderness areas. We could even assess a candidate wilderness area for its outstanding mountaineering or traditional climbing opportunities. And yet, during mountaineering and traditional climbing, it's extremely common for climbers to use not just rope but various sophisticated tools such as belaying devices, ascenders, and anchoring systems. Plenty of these tools nowadays have mechanical parts to them and these tools are being used, arguably, for the purpose of transport – albeit mostly up and down. The updated *Forest Service Manual* clarifies that mechanical transport includes "Any contrivance for moving people or material in or over land, water, or air, having moving parts, that provides a mechanical advantage to the user, and that is powered by a living or nonliving power source." (2021, FSM 2300, Ch

[15] The "minimum requirements" clause has also been used by various Parks and other agencies to justify the use of chainsaws. Chainsaws are plausibly otherwise banned by the Wilderness Act, given that they can be considered "motorized".

2320.5, p. 10). Given this clarification, why the mechanical devices used in climbing and mountaineering should be allowed isn't obvious.[16]

Condition (3) of the Wilderness Act suggests that 5,000 acres is the appropriate minimum size requirement for wilderness. And yet, it has an additional clause – "or is of sufficient size as to..." – that effectively loosens the minimal requirement. Because of the additional clause, this condition has naturally been more of a guide than a restriction. To some extent this makes sense. Plenty of wild places, such as the Garden of the Gods Wilderness in the Shawnee National Forest of Illinois, are less than 5,000 acres. If we stuck to the 5,000-acre minimum, many small island wildernesses wouldn't count either.

Condition (4) suggests that a wilderness area should have features of "scientific, educational, scenic, or historical value". This part of the law is peculiar because it appears that just about any part of Earth might be construed as having some scientific, educational, scenic, or historic value. It's not clear how the condition is really that limiting. The condition is also potentially problematic due to its apparent human-centric nature. That is, the laws seems to be written such that we are supposed to see whether a piece of land under consideration has features of scientific, educational, scenic, or historical value for *us.* We're not necessarily supposed to consider whether it might have any sort of value for someone else, some other species.[17]

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[16] Both climbing gear and mountain bikes, for example, can accidentally leave behind "unnatural" parts likes gears and bolts, both can make "unnatural" noises, and both can visually distract from the natural beauty. Recently, the NPS drafted a memo banning the use of "fixed anchors" in climbing conducted in wilderness areas, arguing that anchors left behind in the rock fit the definition of a prohibited "installation" per Section 4, Part C.

[17] See Foreman (1998) for more on this subject.

I'll finish this section by discussing one more general problem for the Wilderness Act. We can see the human-centric nature of the Wilderness Act from another angle. The language of the Wilderness Act focuses on *human* structures, *human* presence, and *human* intervention. Suppose scientists find intelligent life on another planet and they find that this species lives in cities and towns similar to our own. It seems odd to say that some part of that alien planet containing a medium-sized alien city comparable to, say, Pittsburgh, Pennsylvania would count as a wilderness simply because there are no permanent *human* settlements there, no *human* influence, and no *human* presence. And yet, if we were to find a settlement constructed by non-human intelligence here on Earth, the Wilderness Act would presumably categorize that area a wilderness too so long as no human influence was found. Intuitively, that just seems like the wrong move. Of course, it's doubtful that we'll ever find any such settlement here on Earth, especially on US soil. But the language of the Wilderness Act does seem to ignore the possibility that wilderness status might depend on more than just *human* presence, intervention, or settlement. If our goal is to develop a more all-encompassing concept of wilderness, one that covers all possible situations and can be extended even to the stars, then it seems that perhaps the definition found in the Wilderness Act might not be our best hope.

A Spectrum Model of Wilderness

So far, we've looked at three conceptions of wilderness. Each account highlighted some stereotypical features of wilderness and in a way provided some insight into how, for lack of better words, a *paradigm* or *ideal* case of wilderness might look. Ideal or paradigm cases of wilderness seem to be, among other things, devoid of any human presence or

influence, to be large in size, and to enjoy the preservation of their native plant and wildlife. Many places we've historically felt comfortable calling wilderness, however, have not lived up to such high standards. Many wildernesses have been, for lack of better terminology, "less ideal" or "borderline" cases of wilderness, and yet despite their imperfections we've still felt fine calling them wilderness to some degree.[18] We've also seen that despite the good of the various definitions of wilderness considered in this article, each has had their fair share of problems. And what's more, none of the definitions seems up to the task of handling new cases of wilderness such as space.

Naturally, this raises a question. What should we do with the concept of wilderness? Should we abandon it as nonsense and outdated? Should we become wilderness *skeptics* and doubt the existence of wilderness – maybe even go so far as become wilderness *eliminativists* and erase the word from our vocabulary? My way of handling this issue is not to become a wilderness skeptic or a wilderness eliminativist but rather to accept that there probably isn't a single correct meaning of the word 'wilderness' that we should all be trying to discover or get a hold on. There is no "transcendental", so to speak, sense of wilderness out there for anybody to get right. The word 'wilderness' is a hand-me-down, and its meaning has shifted and changed over time. It has varied in the details of its use from community to community and from person to person. Instead of wasting our time searching for some will-o'-the-wisp in the form of "true" wilderness, I suggest that we take a sort of deflationary and pluralist approach. Anyone – the ranger, the scientist, the policymaker, the person on the street – can use any concept of wilderness they like as long as they are clear about

[18] See Godfrey-Smith (2009) and (2013) respectively for a similar handling of the concepts of evolution and signaling.

which one they're using. Of course, some conceptions or definitions of wilderness will turn out to be more useful than others, especially for certain practical purposes such as conservation and wildlife management; some concepts will also turn out to be less harmful in various respects – to indigenous peoples and other groups; and some concepts will accord better with our intuitions. We should use more useful, less harmful, and more intuitive concepts where we can. But that some conception of wilderness has any of these properties – is more useful, less harmful, more intuitive – should not be taken as a sign that that conception is the "right" conception of wilderness in some strong sense – that is, that it accurately depicts the deep metaphysical reality of that aspect of nature. When it comes to wilderness, there just isn't anything like that be found.[19]

I'd like now to sketch out what I'll call a *spectrum* model of wilderness. In some ways this is not a new way of understanding wilderness. Nash (1968, 1981) has suggested that wilderness might be best thought of as coming in degrees.[20] Other authors have defended similar perspectives (Lesslie & Taylor, 1985). Here's my twist on the idea.

We can think of wilderness as coming on a series of *sliding scales* or as coming in various *degrees*. There are *paradigm* cases of wilderness like we mentioned earlier – which, given the history of mass human influence on Earth, arguably don't exist on our planet anymore. Then there are cases of wilderness that are a bit "away" from the paradigm yet still intuitively count as wilderness to some degree – places like Yosemite and Death Valley. Finally, there are cases that are so far from the paradigm of wilderness that

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[19] This sort of deflationary pragmatic approach is inspired by Carnap (1950). See Simpson (2021) and Cao (2022) for the application of a similar approach to the issues of communication and representation.

[20] See in particular Nash (1968), pages 6 and 384-386.

they seem to be clearly something else entirely – things like heavily populated cities. Here's one way we might try to illustrate the idea of a spectrum model of wilderness.

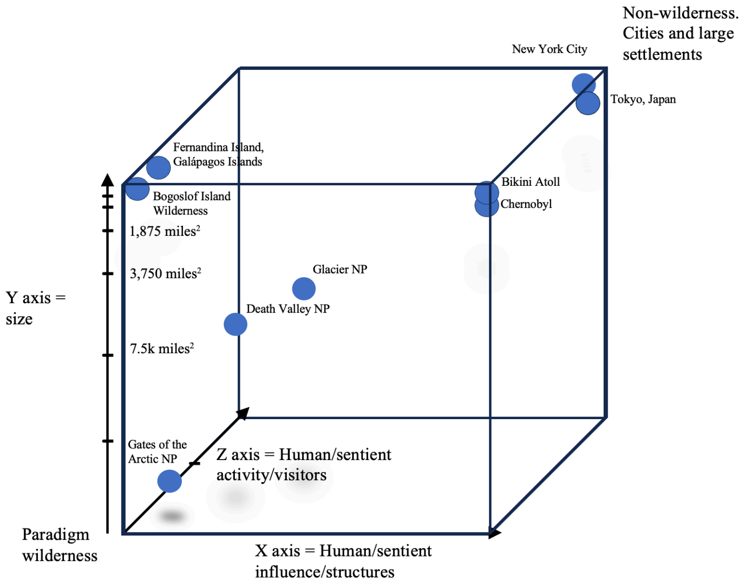

Figure 1. A 3-axis representation of wilderness character.[21]

On this rendering, the Y-axis serves as a rough measure of the *size* of the area under consideration – the smaller the area, the further away from paradigm wilderness and the farther from the intersection of the X, Y, and Z axes.[22] The X-axis is a sliding scale representing influence on the environment in a broad sense – permanent structures, exterminated native species, etc. In effect, the X-axis is a measure of the *pristineness* of a wilderness. The Z-axis is a

[21] This model is based on a model appearing in Godfrey-Smith (2009), page 64.
[22] The maximum size allowed could, of course, be extended – for example, if we want to include whole moons or planets in the model.

sliding scale measuring the amount of human or sentient activity (things like noise, satellites in the sky, foot traffic). In a way, we might consider this a measure of *solitude*. What we get is that the closer a case of wilderness is to the paradigm, the closer it appears on the diagram to the intersection of the X, Y, and Z axes.

Of course, there are other aspects of wilderness we might want to add to a spectrum model. People often say that wilderness has a certain *feel* to it – a feel of danger or fear. In paradigm cases of wilderness, you're also usually far from help and far from means of communication with the outside world. We can add characteristics such as these easily to a spectrum model. For example, we can add a W-axis representing ease of access to cell, radio, or other service. Here's one way we might represent wilderness with the W-axis added.

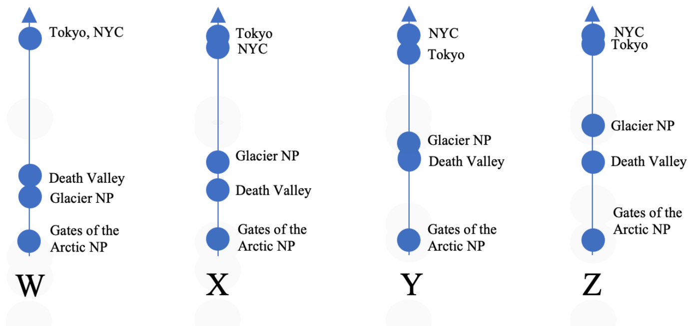

Figure 2. A set of spectrum bars representing a measurement of wilderness character.

A spectrum account of wilderness might be helpful in several respects. A model like this can be useful for tracking changes in the character of a wilderness over time or for comparing one wilderness to another. In fact, the US Forest Service already regularly tracks wilderness character like this to some extent. A spectrum model might also be preferable

for certain aspects of conservation policy. Policy based on a spectrum model of wilderness might allow for the classification of more wild areas as wilderness, and so in effect bring about the protection of more wild places. Grades of wilderness could be introduced rather than relying on one single wilderness category, making room for more nuanced management of various shades of nature.[23] A spectrum model is also attractive for big-picture reasons. It reminds us that wilderness isn't something that has a clear boundary. We can't just care about wilderness and not care about the "other stuff". The other stuff, and what happens there, is still connected to and still affects the more paradigm cases. And, what's more, that other stuff is really only "other stuff" to a degree.

Wilderness comes in many forms and many sizes. It exists on many spectrums and in many shades of grey. To think that there is one unique capture-all definition or account of wilderness, one fits-all measure, seems overly optimistic. Whether some place counts as wilderness is not a simple black-and-white matter. Sometimes the answer to the question of whether some place is a wilderness will seem obvious. Other times, the best we might be able to say is "Well, it is wilderness to some degree". Either way, our answer to the "Is it wilderness?" question will always ultimately rest on the concept or model of wilderness that we're using when we answer that question. And which concept or model of wilderness we use is ultimately a up to us.

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[23] Nash (1981) makes a similar proposal, suggests that we break wildernesses into various "levels" distinguished by features such as degree of wildness, difficulty level, and recreational opportunities.

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