Sheep Mountain Summit

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December 2019

Sheep mountain is the only lone-standing peak among the 14,000-foot mountains of the Mosquito range in central Colorado. The area was ancestral land of the Ute, Arapaho, Navajo, and Apache tribes for centuries until mineral and agricultural conquests brought anglo-saxon settlers in, initially establishing mining settlements. This is a common tale in the United States, and the South Park National Heritage Area where Sheep Mountain sits encourages no exception to the rule. Now primarily cattle range, South Park maintains the feel and perhaps the political paradigm of the typified Old West as much as anywhere, but it's important to acknowledge the lineage of such an aesthetic. Native elk, mule deer and pronghorn still traverse, although in far fewer numbers than they once did. Less than 25 years ago, one would lie awake in a tent at night, and the coyotes would be whooping and chattering in packs. Now, they seem to go around single, without even enough gusto to pick a fight with a dog like Sasha, who is similar in stature but not in hardiness.

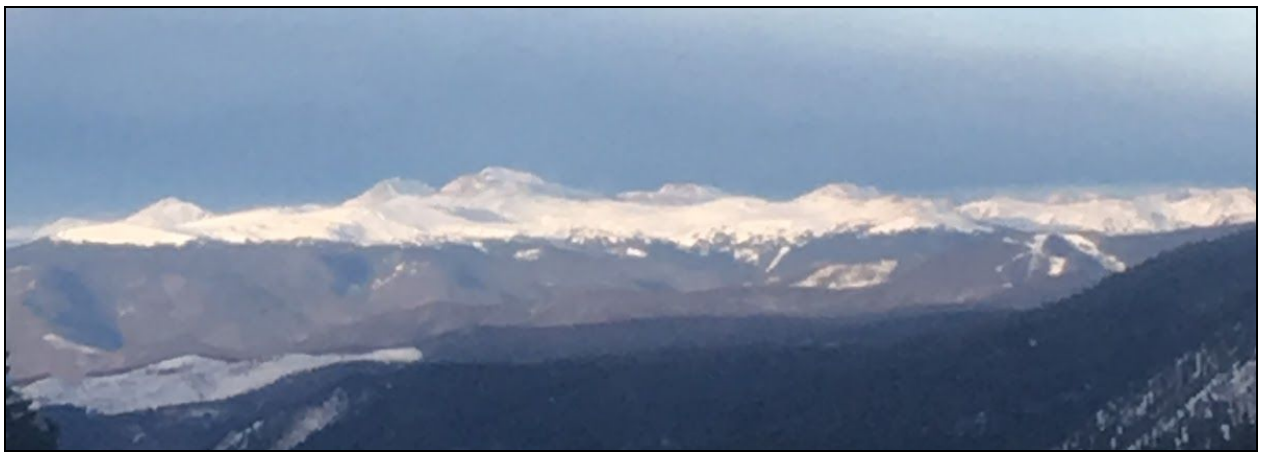
The steady infiltration of colonial settlers, of fences, changing ideas of ownership, and eventually the politics of ranch land, all but restricted the way life could be lived for the inhabitants that predated these events. The ability to live at this elevation is already a precarious feat, nearly a defiance of nature. Only the extremely well-adapted people and species could pursue a livelihood, or would wish to, when hallmarks include haranguing winds that last year-round and carry everything except mercy, picking up speed after leaving the continental divide in something like a katabatic wind phenomenon. With modernization, of course, humans can defy some of the more disabling aspects of extreme climates and create a stationary existence just about anywhere. But even in an area like this, you can see remnants of people's attempts to defy the conditions, that did not meet success.

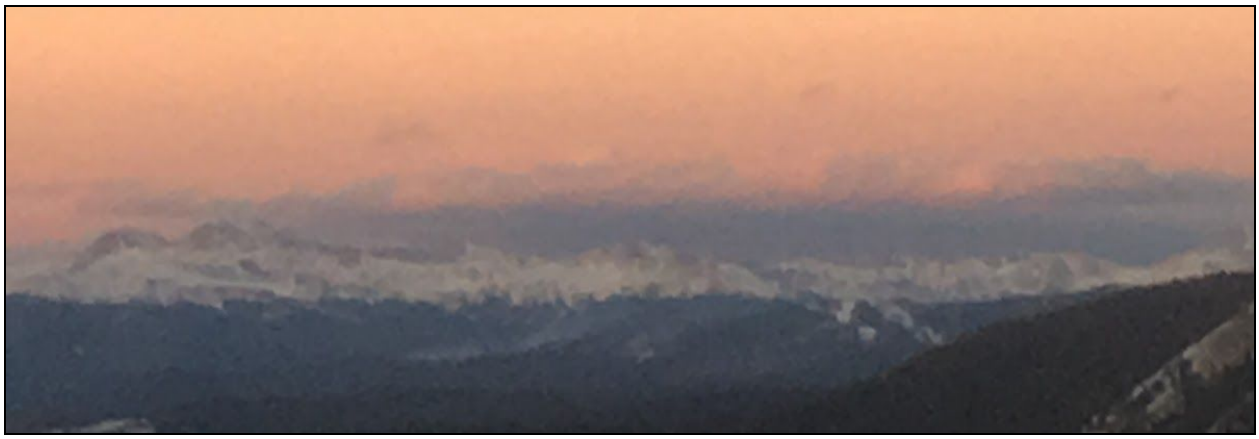
In this area, the most visible of these are seen above treeline. The wreckage of mines that were built too high up, unsustainable because of their exposure. It was a romantic notion, withstanding extremes for the prospect of an ore-rich plot, but severely naive — and the evidence remains.

Remnants of Colorado mining operations ca. 1880s. Photos: Author's own

To reach the summit of Sheep Mountain, or any of the mountains in much of the Rockies, a navigation of literal pitfalls left by an over-ambitious faction of humans who abandoned post is the rule, not the exception. It serves as evidence that there are some places, still, that don't support human existence without considerable strain to environment or resources. One of these places is above treeline. Few living things taller than a stack of coins makes residence there, unless extremely adapted to the tundra and its inimical harshness. An advantage is an ability to dig through the skree and build a den under the coarse rockiness. Small rodents such as Marmots and Pikas are some such mammals to do this, as well as alpine ptarmigan, simply because it's rare for a predator larger than themselves to venture and stay at the inhospitable elevation long, when more abundant prey can be found under the coverage of the forest. It isn't unheard of for an animal like a lynx, mountain lion or hawk, possibly coyote, to venture out of the way for one of these animals, but only when the situation below is dire, or else during the relatively short summer when conditions are more tolerable. The tradeoff for the life of few predators is the life of environmental extremes.

Treeline is the area of a habitat wherein trees “cease to exist” because of environmental stressors. Lack of available moisture is the primary deprivation, and the taller the life form, the more exposed to wind, snow, and sub-zero temperatures it will be. Life itself does not cease here — the life that does persist is abundant and savvy. It is very, very low to the ground. The duration of its lifespan is sure to be difficult. The scalding snow spares no one. The wind ought to rip you away from the earth. The sun hardly has any decency at any time of year and is sure to singe the last amount of moisture that sits about your surface. Trees are too large to live up here, but they crawl up to try anyway. Many seedlings attempt. They live short and turbulent lives. They succumb quickly if not for ideal conditions.





Treeline, or Krummholz, *draws a distinct line across the terrain. Photos: Author’s own*

We can call this area, known also as the Krummholz in German, a margin. A margin of altering states, a veritable turn of conditions. Somewhere that only resilient, persistent, resource-considerate and suffering-expectant extremophiles dare go. Where it may be said that they ‘thrive’ above treeline — this is their niche. They endure in this margin because this is where a convalescence of conditions optimizes their existence. They can be sure that their

predators are few here; they can be just as sure that even in the absence of a more typical food chain scenario, there will be lifelong struggle, and perhaps intermittent anguish. The elements themselves are predatory, and the already severe precarity these species face is becoming more adverse as the seasons trend towards unpredictability and greater extremes.

The aforementioned Pika, for example, is seen to be the canary of overall alpine health and are being monitored closely. Great concern has surfaced that, while previously thought to be extremely resilient, Pikas cannot adapt to the heat stress that is affecting alpine climates more rapidly than the world at large — at worst, against the provisions of the Paris Agreement, 12 degrees by 2100 vs. 6 degrees for the rest of the US. Pikas cannot withstand temperatures higher than about 77 degrees F. According to some sources, this represents a dreary outlook for animals at high elevations. Once abundant in places such as Yosemite and Zion national parks, Pikas have already gone extinct, and only within the span of a few years. More optimistically, other sources like Anna Chalfoun with the Cooperative Fish and Wildlife Research Unit at the University of Wyoming think there may be hope: normally diurnal, the small rodents are beginning to forage at night to keep heat equilibrium. Maybe, they can adapt behaviorally.

Pika have historically been one of the only mammals above treeline. Once found in great numbers, they are rapidly going extinct due to rising summer temperatures, according to a study published in PLOS One. Photo:Jen Joynt, San Francisco Chronicle

In years and decades and centuries coming, it seems reasonable to assume there will be more of these obvious marginalities in ecologies that are quite affectable by radicalizing patterns of global phenomenon, such as the spreading of the deserts and the peaking of rainfall

accumulation alongside coastlines, mimicked for example by the disparity of wealth in a no-holds-barred, infinite growth-oriented society, wherein wealth is funneled much like natural resources and inhabitants funnel disproportionately, and will move with the margins. There is little coincidence in this analogy. Exploitation leads to exasperation. It's all part of the same system and it's reaching a last rung. What will remain in the wake of this re-allocation from climate variability is a suffering to ill-prepared species and in turn, a double-down of resilience from the remaining species. What this means, ultimately, is that the species that will likely persist will have to be somewhat pre-adapted to what's coming, so that when it does, the adjustment period will be more minimal.

The Rocky Mountain Research Center for CU Boulder, located well above 12,000 feet at the saddle of Niwot Ridge in Boulder County, has served as a critical epicenter for understanding the alpine and arctic climates and ecologies since it was created in 1909. Much of the current research is focused on snowpack and snowmelt, carbon transfer into the air from the Arikaree glacier which sits nearby, behaviors and habits of species that dwell there.

Niwot Ridge Long-term Ecological Research Program alpine headquarters, built in 1980. Photo: Jeremy Papasso, Daily Camera

Extremophiles, as we call them, are adapted to and in many ways rely on inhospitability, but only inasmuch as they've had time to evolve into it. As things change, many mammals may not be able to keep pace from an evolutionary standpoint. Certain humans have adapted an artifice of extremophilia, using technological aid to reach climate regions that couldn't support them naturally. They are achieving feats of adaptation in relative terms — but it can't quite be

said that it's been earned through evolution. The process of retaining sustainable and stationary livelihood in resource-deprived areas of the desert, ocean, steppe and tundra requires outsourcing and therefore, the use of fuel. This represents a displacement of energy that surpasses an ideal give-take scenario and therefore more dramatic impact on stores of stable resources.

In the late 1970s, wildlife biologist Dwight Smith spent four months in a late-1800s mining cabin just below treeline in Colorado. The goal was to observe the extremes that accompany a high-alpine habitat, and experience the effects such an environment have on humans, in contrast to the species that have adapted to the environment naturally and over thousands of years. His abode was situated just above treeline at 11,740ft and didn't have running water, plumbing, electricity, or access to supplies.

In the introduction to Smith's journals, chronicled in *Above Treeline : A Wildlife Biologist's Rocky Mountain Journal,* Alan Anderson, Jr. writes:

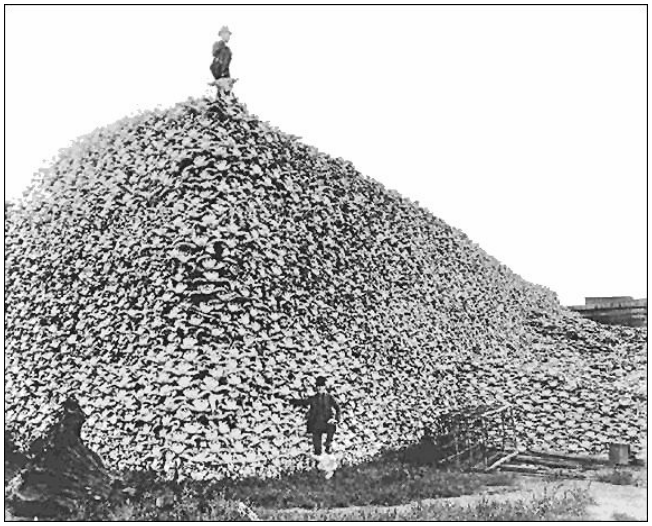
> *Winter, of course, is the worst of times above timberline, a time even the mammals try to avoid. The larger animals, like elk and mule deer, move to lower elevations. The smaller ones hibernate, like the marmot; store food, like the pika; or feed on those that store food, like the weasel.*
>
> *Perhaps the most stressful feature of alpine living is the wind, which causes the rapid loss of both heat and water from organisms. To survive here during even the nonwinter months, most animals wear thick coatings of fat and fur. In addition, they find shelter to avoid strong winds.*
>
> *But the plants themselves, which cannot move, must endure the wind's full fury. Heavy ground winds can cause plants to droop and shrivel as though struck by drought. Wind is especially destructive if the soil is dry or frozen, which prevents the roots from absorbing moisture.*

His chronicles describe watching and mimicking the animals around him, going to their water sources, scavenging, and even becoming familial with them in the absence of human

companions. In the span of four months he details “becoming adapted,” only to return to his urban lifestyle shortly thereafter. His journals demonstrate that humans, while intelligent and innovative, are still hardly equipped to withstand what the high alpine has to offer. It’s only thanks to advances in technology that people are able to insulate against perilous factors that would normally prevent such a lifestyle to be pursued.

This turn toward technological modernity has brought with it modes of information gathering which resign the natural land to fracturing and stripping, both physically and metaphysically, in favor of development and industrial production. It is no secret that the colonizers of the United States, along with its government, in a succession of waves have done much to re-define the interior landscape. One such phase is recounted and chronicled by Larry McMurtry in the western epic *Lonesome Dove,* emblemized in some way by the following:

> *Of course they had heard that the buffalo were being wiped out, but with the memory of the southern herd so vivid, they had hardly credited the news… thinned out maybe, but not wiped out. Thus the sight of the road of bones stretching over the prairie was a shock. Maybe roads of bones were all that was left. The thought gave the very emptiness of the plains a different feel. With those millions of animals gone, and the Indians [sic] mostly gone in their wake, the great plains were truly empty.*



Pyramid of bison skulls ca. 1890

Buffalo killed, Smoky Butte, Montana. Courtesy of the Glenbow Archives, Calgary, Alberta.

accomplished soldier marksmen and riders as escorts for the visitors, thereby making the hunts all the more destructive.[10]

Military commanders who permitted their troops to kill buffalo did so with the knowledge that they were doing their part to resolve the so-called "Indian Problem." Lieutenant General John M. Schofield, commander of the Department of the Missouri in 1869-1870, exhibited this outlook. His headquarters at Fort Leavenworth afforded Schofield a propitious site from which to launch strikes against the Plains Indians and their buffalo. In retirement, Schofield wrote in his memoirs: "With my cavalry and carbined artillery encamped in front, I wanted no other occupation in life than to ward off the savage and kill off his food until there should no longer be an Indian frontier in our beautiful country."[11]

[10] J. Lee Humfreville, *Twenty Years Among Our Hostile Indians* (New York, 1899), 440; G. O. Shields, *Hunting in the Great West* (1883; 5th ed., New York, 1888), 133, 140-50; Colonel George A. Armes, *Ups and Downs of An Army Officer* (Washington, DC, 1900), 263-64; "The Yale College Expedition of 1870," *Harpers's New Monthly Magazine* 43 (October 1871): 671; Manypenny, *Our Indian Wards*, 148-49.

[11] Lieutenant-General John M. Schofield, *Forty-Six Years in the Army* (New York, 1897), 428.

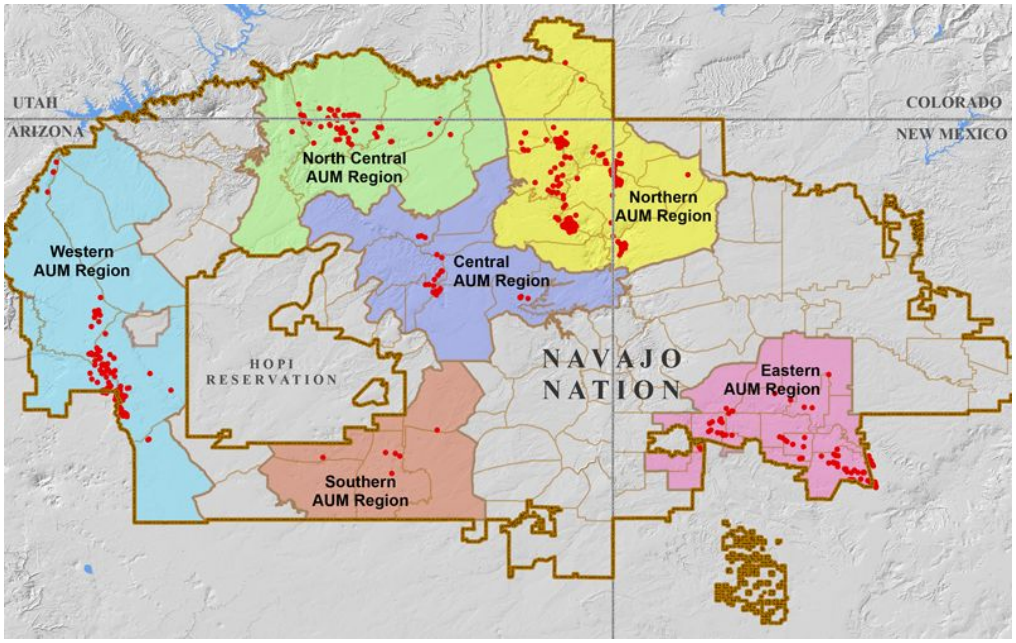
Revisions, tesselations, barbed wire fences running for hundreds of miles, loss of natural habitat, historical slaughter of animals and people, surveying of land and space for categorical data reference — these are all hallmarks of the new American West. Factions warring against each other is another; mineralogical exploits, for example, compete against ancestral traditions and threaten the silhouettes of the land and the livelihood of everything that inhabits it. As the exploits eclipse regard for survival, for humanity and humaneness, the hypothetical irony may prove to be that there is nobody left to purchase or profit from the resulting products.

Whether too little too late to recuperate remains to be seen. Meanwhile, still, certain areas are being repopulated with bison and bighorn in an attempt to return Western high country to pre-colonial populations. This does not come without backlash and logistical conundrum. It comes with questions regarding the swiftness of ecological adaptation, and anthropocentric ideas of our 'role' therein. It seems worthy to entertain the concern that since an era of drastic marginalizing of free-roaming, migratory populations, the subsequent ripple of changes cannot be redacted; the ecosystems which existed in pre-colonial times will never be restored to their original condition, because conditions have simply changed. Reintroduction of a species or several into environments they'd dwindled from may have its own consequences, which can't be fully predicted. Anarcho-primitivists would suggest something similar, but the distinct issue with "re-wilding" is a willful denial of nature's disregard for the past, its ability to override any type of resistance or refusal — the way things work in the displacement of energy takes no heed of greed or thriftiness; physics and biochemistry are shrewd accountants, resistance just another variable.

This said, repopulation of keystone species — ungulates such as bison, bighorn, pronghorn, elk, along with apex predators such as wolves — is already underway and does not preclude biodynamic stability and cohabitation. Since 2012, over 100 bison have been released onto the plains within the Fort Peck Reservation in Northern Montana and, in certain areas, exist alongside the certified organic cattle that are also raised there. This has been followed by a small herd reintroduction in the Wind River Reservation and collaborative efforts between the nations to rehabilitate the biodiversity that was systematically wiped clean by European descendants with the intention of forcing indigenous resignation.

Since the Trump administration's rollback of Obama and Clinton-era land protection measures, the discourse surrounding land rights has come to widespread public attention, but it's certainly not a new conversation. Migration and nomadism, as one example, have long been stunted features of the living condition for many species in the Western plains because of arbitrary bureaucratic decrees and division of parcels. Barbed wire fencing, for one, creates profound prevention for many animals' traverses from cold winter climates (such as those in high-elevation plains regions) to warmer (high deserts in lower elevations) and denotes so-called private property and domestic grazing for introduced species of mostly European cattle. What had become federally protected land in the last two decades is now vulnerable

again to large-entity privatization and resource exploits. Coal and uranium are the somewhat unpromising prize (there's not actually much of either to be yielded, and certainly not shale oil to the degree that Trump has projected) — but in the meantime, many uranium mines that have already been built and which have created major environmental hazards to areas of the Southwest, particularly those in the Navajo Nation, are not being properly managed and cleaned to specification of previously enacted environmental measures such as the Uranium Mill Tailings Radiation Control Act of 1978, and the Superfund program (CERLA) of 1980, nor have the Navajo miners and their families — distraught victims of radiation experiments and governmental negligence — been properly compensated for their injuries which include high rates of cancer and birth defects. It wasn't until 2017 that corrective action began to be taken.



Abandoned uranium mines opened between 1944 and 1986, shown here in red.

As a result of these and other political tangles, an ironic reality is that land which was privately owned by individuals before the national monument rollback may be least at risk for further intervention. As the colonial conquest for land ownership and exploitation continues, the only real rebuttal is possibly purchase of land as a means of prevention and conservation, much like the Patagonia wilderness preserves in Chile and Argentina, made private by Douglas and Kris Tompkins in the 1990s in the spirit of ecological defense. With this revelation comes a hefty potential of ugly warfare, since much of the American West is now stippled with natural gas fields and cattle ranches. Even so, as soon as protection measures are passed, it limits the economic activity that can occur, even on private land.

Similarly, a multi-generational private cattle plot within Bear's Ears now serves as a place of research for the impacts of introduced livestock range on the ecosystem, which has contributed largely to the depletion of sensitive habitat zones in Wyoming, Montana, Idaho, Colorado, Arizona, Utah, Nevada, Oregon, Washington, and New Mexico alike. Overgrazing in the last century, for example, has depleted natural sagebrush expanses and replaced it with non-native grasses, making the areas extremely prone to exacerbated droughts and fires, erosion and instability. With these sagebrush expanses fractured, the decline of all else has begun to follow. Sage grouse, which used to populate the Western plains in the tens of millions, have gone the way of the American Bison and are down to about 10% of their pre-colonial population. This is only one high-risk species, and represents an over-arching trend of dwindling diversity.

Meanwhile, it is commonly agreed that pasture-raised, grass-fed beef is better for consumers, cattle, and the environment as a whole. This may be true, as long as sustainable agricultural techniques such as pasture rotation are being used, but even so, this requires much more land. Nor does it entirely prevent the issue of overgrazing and non-indigenous plant species replacing stabilized natives that the ecosystem has developed alongside. It's a good example of ecological aesthetics and their great sway.

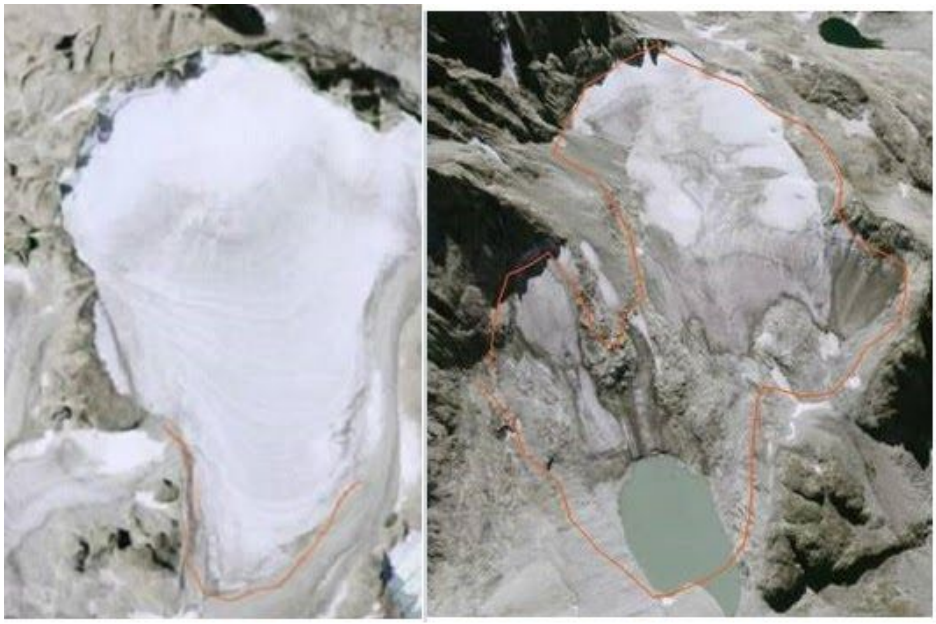
When we examine ecological aesthetics as a whole, a total admittance of current events must be a requisite. To begin, there's a burgeoning trend towards inclusivity and a non-binary paradigm, which along with the immediacy that the internet provides, holds potential for heightened accountability among peers, which in time will ideally be reflected in the decisions of bureucracy. As comprehensive inclusion of identities in spectral equanimity becomes increasingly normalized in future generations, it may help blaze a path of nuanced consideration that will lend itself to diplomatic discourse more generally. This is partly speculation, but partly grounded by circumstantial evidence — a decision was reached between natural gas interest groups, the EPA and the public in Wyoming to determine a solution for the disappearing grouse habitable zones wherein no party was given exactly what they wanted, but rather a logistical compromise was reached and all were marginally satisfied. Obama modeled an unprecedented preservation act on this very event, which began on the localized level. It was encouraging of a truly democratic process. To understand how to reach these types of agreements, it helps if

there's a standard of awareness so that all parties are educated to a degree of relevance by which concessions are not viewed as losses, but necessities. As another example, potential reintroduction of grey wolves into Colorado has come under siege because of obvious differences between itself and some of its state predecessors which initiated such reintroductions prior. Colorado, as compared to Wyoming and Montana, for example, has a much higher human population density and wolves need hundreds of miles of unobstructed territory to roam and hunt. In a state like Colorado, the likelihood of wolves crossing into human terrain becomes very high, and this poses issues in regards to management. Colorado, also more so than some of these other states, relies on a massive snow sports tourism industry for revenue. Ski resorts are strewn about the state and while many corporations and organizations surrounding the industry are raising awareness around climate change, and cohabitation, there still exists the reality that the resorts themselves are responsible for creating some of the problems. Habitat fracturing is a monumental issue — non-human animals that may wander in-bounds are confronted with bizarre traffic across hundreds of acres and little refuge. Not to mention that while on vacation, people occupying the towns below the ski resorts are often unfamiliar with the habits of wildlife and will feed them, approach them, and sometimes antagonize them unknowingly which often leads to the animal's removal or euthanization.

When it comes to reintroduction, apex predators are the most difficult, in a lot of ways because they are the most important. Historically, wolves were hunted to near extinction in the Rocky Mountain region when they competed with cattle ranchers. Understandably, the ranchers weren't thrilled about packs of predators thinning their herds, and the easiest solution to this was to shoot them. Packs dwindled quickly, as wolf pelts also found their way into the fur market and head prizes were offered. Since the elimination of wolves, the ecosystem they once thrived in has been subject to notable changes, and species up and down the food chain have suffered — for example, riverside willows, one of the few food sources for elk and moose during winter, are overgrazed as a result of overpopulation and lack of movement; wolves move the herds along more quickly, therefore giving them less time to scour the willow branches. Since the reintroduction of wolves into Yellowstone, willows have once again reached a more homeostatic growth rate. And instead of shooting wolves which move beyond park boundaries and threaten livestock, ranchers are working alongside scientists to anticipate the arrival of wolf packs and scare them away, rather than eliminate them. Again, indicative of movement in a direction of nuance, and sensitivity to a larger picture than has been the paradigm in the last two centuries.

Returning to treeline, one of the greatest underscores I've heretofore waited to mention because of its gravitas, its importance to both economic and environmental infrastructure : snowpack and glaciers. All of the aforementioned takes its dependency from water held in these frozen reserves, and without them, consistent access to water will become unlikely, if not impossible. The West's most famous rivers, which irrigate the surrounding plains and provide food for the entire nation, would be non-existent if it weren't for the snow and ice that trickle slowly and consistently throughout the year. The asterisk here is the threat these fixtures will see as global temperatures continue to rise and their permanence isn't guaranteed.

Many glaciers in the Wind River Range of Northern Wyoming, for example, have been receding drastically in recent decades and with that, a new outlook on water storage comes to the fore. Reservoirs, while very efficient at storing water, are prone to maladies of pollution, infestation, and evaporation, as well as disrupting the natural life cycles of aquatic species that move seasonally upstream and downstream for breeding. Water diversions are being considered as an option, wherein a reservoir will be built away from the main flow of the river and used sparingly. But for now, the focus is on the snowpack that stays intact above treeline, and monitoring its disappearance, determining how to mitigate human impacts on the vital resource, and forecast which may remain dependable against the effects of climate change.



Comparison of retreat by two glaciers in the Wind River Range, WY. Fremont Glacier (left) has retreated little since 1966 when the original orange perimeter was marked and will likely remain stable. By contrast, Minor Glacier (right) has retreated considerably and will not survive much longer.

Curating this exhibition, it was important to me that the work reflect an introspection on standards and which of them may be outdated and due for revision as people are forced to adapt to changing climates. Climates of political, environmental, social, etc. were all considered. Many artists had never been to the location, nor were they making work hinging on the West, but all have an idea of working in extremity. Their representation in this exhibition has its bearings in a general urgency to survive against comfortability and complete optimality. They have, in some way, seen first-hand the margins of commonly habitable zones, human-constructed or naturally-derived, and work against constraints both self-imposed and external. These artists have acute cognizance of the impermanence that comes with the territory of extremity, and the work they make speaks to the resilience born of certain precarity.

With the help of Sasha, a 5 year-old GSD/Border Collie, I walked the flatworks by 13 artists in a backpack above treeline from the base of the peak. It was an ascent of ~1800 vertical feet and the weather conditions were variable, switching from dense fog to sunshine to hard wind to snow squall on a dime. The formal constraints I imposed (maximum 8.5”x11” and flat) were practical formalities for ease of transport and efficiency of installation, which itself was a hark to surveying, researching, data indexing; clipboards kept the work in place on the mostly Permian rocks of the terrain. In many of the aforementioned zones, a backpack and footwear are the only means of access, and so for projections to be made regarding habitat and resource stability, depletion, etc., streamlined analog equipment is often the mode.

Archaeologists in Norway examine artifacts in cardboard basins from retreating glaciers. Photo: Johan Wildhagen, Palookaville

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A year has passed since the installation of works. It’s a negligible amount of time relative to the geological formation they were installed upon, and this longevity has an undertone of cold reassurance to it -- whatever we try, however we are moved and required to adapt in an era of rapid change, life above treeline will be as beautiful and cruel and inhospitable as it ever was. It is only that which the mountains hold -- caches of resources and precariously balanced biodiversity, remains of history and scorched earth -- currently threatened by time.

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