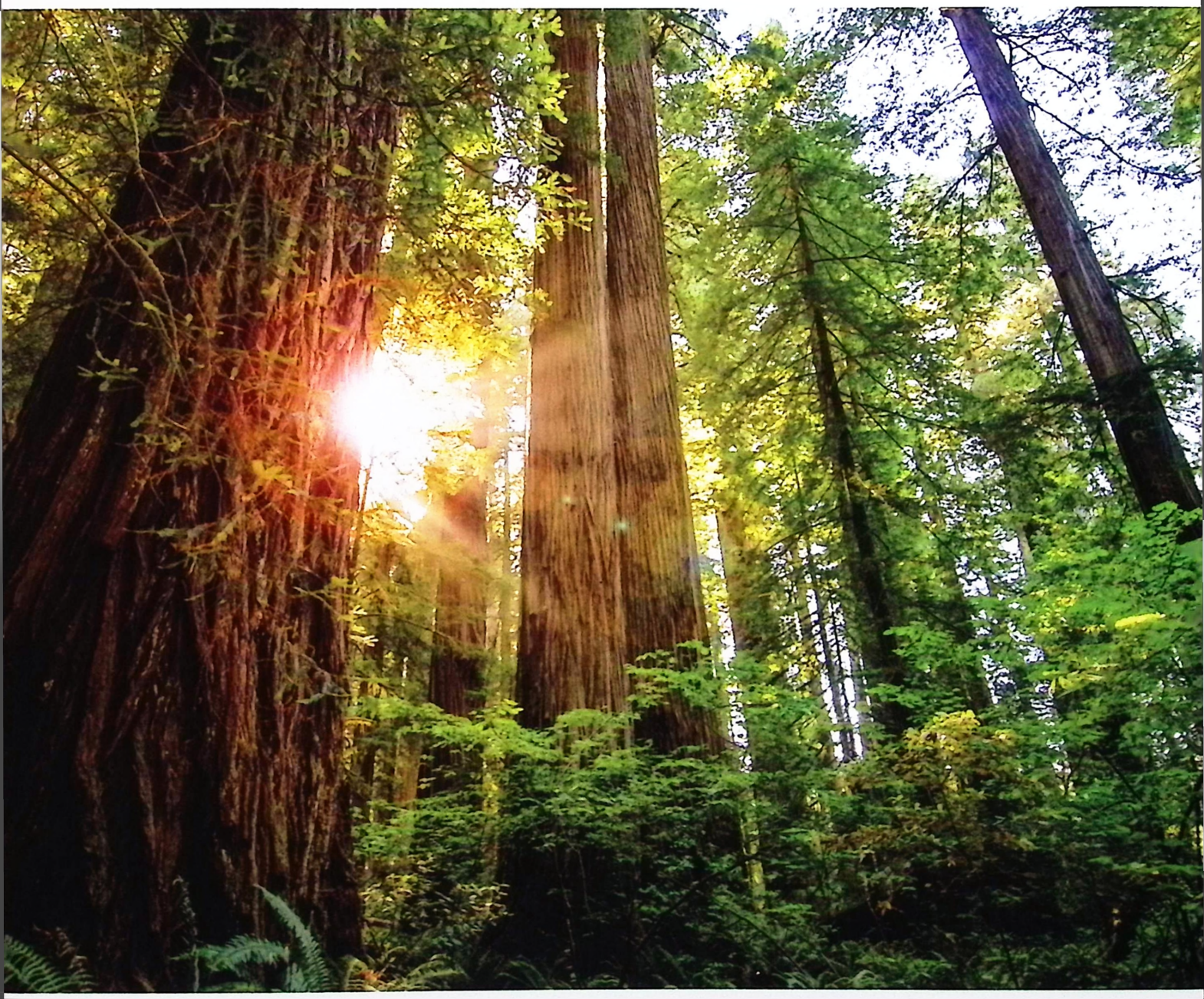
THE MUCKLESHOOT JOURNAL



CLIMATE JUSTICE EDITION

WELCOME

I recently read Edison Cassadore's "Each of us Is a Story: A Conversation with Joy Harjo." In this story, he shares part of his motivation to connect with Harjo was continuing to talk with her as he once did years ago -- when he was Harjo's student. Their talks were regarding Native American literature in the 21st century. Cassadore shares thoughts on "Identity and how Indigenous languages, lands, histories, and ceremonies shape identity" (Cassadore, 2025).

President Justinna Wilhelm (MSW) of Ilisagvik College, communicates in the recent Tribal College Journal: "Storytelling [is] an essential component of many Indigenous cultures [and] serves as both an art form and a means of conveying history, values, and teaching" (Wilhelm, 2025).

Our intentions for creating the Muckleshoot Journal fifteen years ago, and now collaborating on Volume 7, was to provide a forum for Muckleshoot Tribal Members and Native and Indigenous Community members to share their stories, voices, and expressions of art. Another goal was to provide these stories in a way for students of all ages to read, and hear from Native people. This 7th Volume focuses on issues important to Native people, and all people, as a whole. The topic is Climate Justice, the Environment, Sustainability, and Connections to the Land.

A sincere thank you to the team at Muckleshoot Tribal College who helped to guide and shape this 7th Volume of the Muckleshoot Journal. Thank you to Patrick Eagle, Michelle Williams, and Wayne Buchanan for the hours you dedicated to make this project happen. Thank you to Dr. Michelle Montgomery, Professor at the University of Washington Tacoma, for your collaboration on this project as well! Thank you to the Muckleshoot Tribal College Academic and Operations Manager, Madrienne White, for championing this Native writing project.

We invite you to enjoy the stories on Climate Justice, the Environment, Sustainability, and Connections to the Land.

Denise Bill, Ed.D
Muckleshoot Tribal Member
Executive Director of Adult & Higher Education

Cover Photo: *Sunbreak Through Cedars in Tomanamus Forest, by Elise Bill-Gerrish*

Introduction

The journal submissions are rooted in the theme of Sustainability and Climate Justice, and its various manifestations (i.e., Indigenous sustainability, Indigenous curricula, Indigenous resource management, Indigenous arts, language, Traditional Ecological Knowledge, and Indigenous sciences). There is a growing recognition of the importance of Indigenous Knowledges, to Indigenize and decolonize sustainability, natural resources, policy, and education. Significantly, there are no IK without Indigenous peoples. The journal will bring together multi-generational interdisciplinary and transboundary Indigenous Knowledges as a respectful acknowledgement to place-based ancestral, and more-than-human relationships- as well as the identities of the past, present, and future. There are no one size fits all approaches to sustainability nor justice. Contributors have been encouraged to discuss their work using a storytelling approach (i.e., written word, art – examples of art forms, research, etc.), which is critical to decolonizing both the sustainability and climate justice narratives.

At the core, this volume will uplift the voices of Indigenous Knowledges as well as recognize the challenges, opportunities, and forward-thinking solutions for healing, the reciprocity of relations, sustainability, and climate justice.

Thank you,

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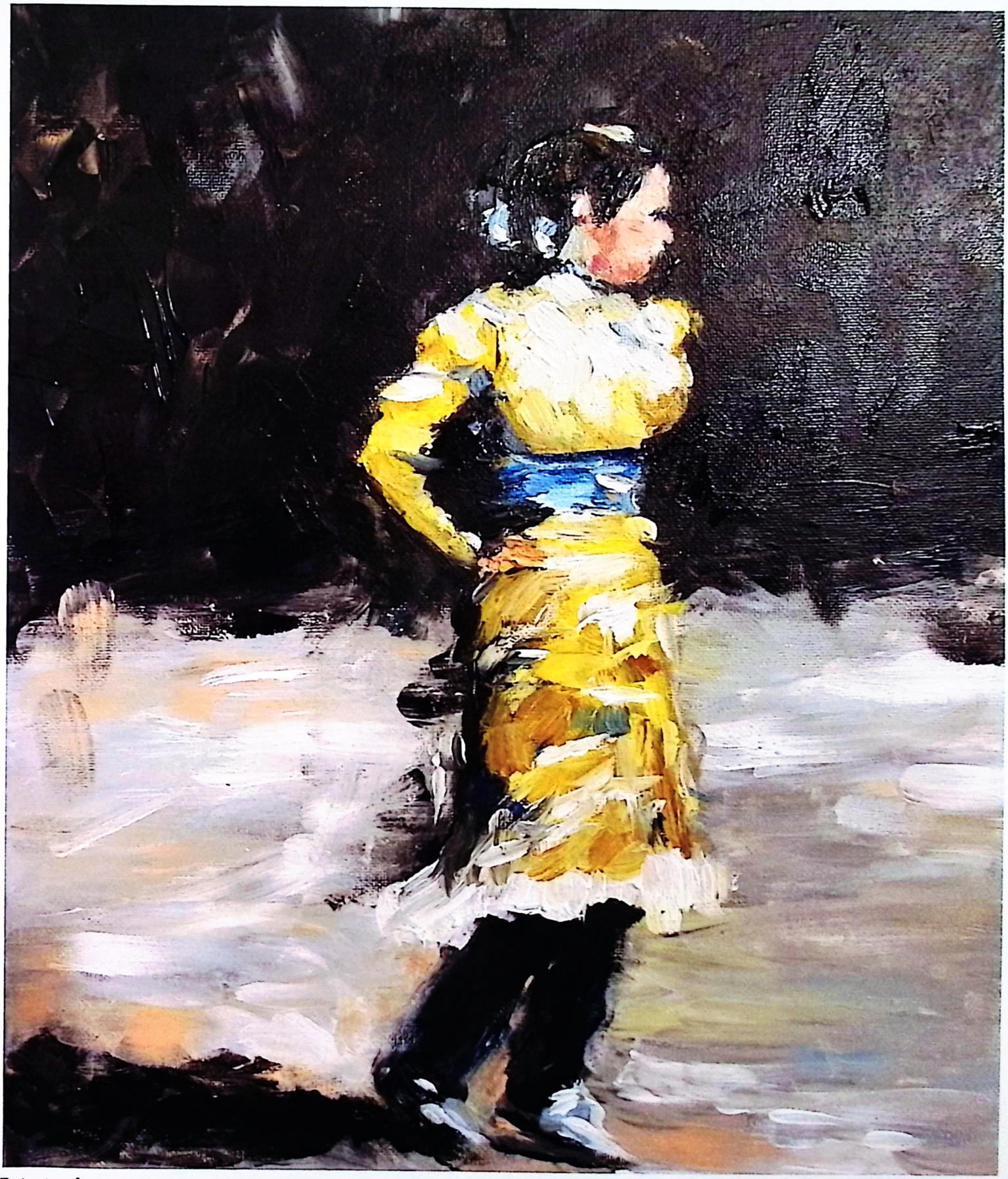
Grand Entry

By: Sonia Barry

We dance in rhythm, step by step,
to the heartbeat of the drum—a calling,
ancient as rivers, deep as earth,
leading us to a place we know yet search to find.
Our feathers sway, voices lift,
each bead, each stitch a story sewn—
we are colors woven into one song,
a kaleidoscope of all we've been, all we are becoming.
The circle wide, the dance begun,
elders first, holding wisdom like torches,
children close behind, their steps finding roots
in soil we've danced across for generations.
With each turn, we honor
the language whispered by the fires,
the dreams held close, like feathers tied
to weave and braid—symbols of survival.
In this sacred entry, our past is present,
our ancestors guiding our way forward.
Each step a promise, each hand raised high,
calling to the spirits to hold us in balance, to bring us home.
And as we dance, our journey unfolds,
not just of one people, but of many paths—
a pow wow of souls, stepping into a circle unbroken,
finding ourselves in each other's eyes.



Painting by Sonia Barry

Man, and Man Alone, Was Responsible: American Indians, American Bison, and the Ideology of American Overkill

By: Kyle Pittman

Traditional Introduction

ta'c léehyn 'óykaloo núunim himyúume (good day to all my relations). My name is Kyle Pittman and I am a nimíipuu (Nez Perce) descendant. My family comes from Lapwai, Idaho, though I was born in Tacoma and raised on the Puyallup Indian Reservation. I now reside on the traditional lands of the Nisqually people.

Abstract

Since its inception in 1966, American Indians have been routinely charged with a Pleistocene-era crime known as "overkill," referring to the mass extinction of America megafauna such as the mastodon and woolly mammoth, signifying an attempt to defame Indigenous Peoples through their portrayal as ecological threats to the natural world. Though this depiction is typically described as a function of human nature, proponents of this hypothesis have extrapolated it to the more recent past by classifying the depopulation of other species, such as the American bison in the 19th Century, as examples of overkill caused by the ignorance and insatiable demand of American Indians, promoting assertions of environmentally unsound practices employed by Indigenous Peoples. This paper will explore certain flaws with Paul Martin's "overkill hypothesis" and its general applicability to the near extinction of the North American bison, narrowing in on the cultural implications of the overkill hypothesis for American Indians and identifying how cultural biases have resulted in the popular acceptance of the hypothesis among scholars and the public to the detriment of Indigenous ecological knowledge while ignoring the role of colonialism in the attempted destruction of the bison herds.

Introduction

The "overkill" hypothesis was first proposed by Paul Martin in 1966 by Paul Martin who connected megafaunal extinction events around the globe to human migration patterns (Martin, 1966). Looking specifically at the Quaternary Extinction Event in the Late Pleistocene, he theorized that humans were the primary cause behind the disappearance of various megafauna through overhunting for subsistence means and then subsequent ecosystem collapses that occurred after the disappearance of herbivorous mammals, unabashedly proclaiming that "man, and man alone, was responsible" (Krech, 1999, p. 29). While Martin applied his notions to several geographic regions, he called considerable attention to the Americas, noting the "sudden sweeping contact that took place when humans entered North America" compared to the longer cohabitation periods between humans and wildlife in Africa, Asia, and Eurasia (Martin, 2005, p. 52).

Since its inception, American Indians —both modern day descendants and our Paleo-Indian ancestors of the distant past—have been routinely charged with this Pleistocene-era crime known as "overkill," signifying an attempt to defame Indigenous Peoples through our portrayal as ecological threats to the natural world. Though this depiction is typically described as a function of human nature, proponents of this hypothesis have extrapolated it to the more recent past by classifying the depopulation of other species, such as the American bison in the 19th Century, as examples of overkill caused by the ignorance and insatiable demand of American Indians, promoting assertions of environmentally unsound practices employed by Indigenous Peoples. It is this particular aspect this paper seeks to address by exploring certain flaws with Paul Martin's overkill hypothesis and its general applicability to the near extinction of the North American bison, narrowing in on the cultural implications of the overkill hypothesis for American Indians and identifying how cultural biases have resulted in the popular acceptance of the hypothesis among scholars and the public to the detriment of Indigenous ecological knowledge while ignoring the role of colonialism in the attempted destruction of the bison herds.[1]

Indigenous Peoples and Ideological Narratives

Key to understanding the relevance of this issue for Indigenous Peoples is that the overkill hypothesis has been frequently cited over the last 50+ years to suggest that Native Americans, either our distance ancestors or our more recent relatives, are opportunistic primitive hunters that are anti-environment and abusive toward the natural world (SOURCE). This accusation is usually levied as an observation about human nature, purporting that we are solely biologically-driven beings focused on self-preservation, naturally defaulting to a scarcity mindset for resource exploitation. The accusation then becomes more socially palatable as it is perceived as a comment about innate human activity rather than any single group while notions about overkill become normalized through regular citation as a clear example of the effect humans have on ecosystems and why we need to be mindful about our actions. [2]

Man, and Man Alone, Continued

The relationship between Native Americans and the environment has been subject to debate and stereotyping for hundreds of years. As Moniz (2016) describes:

> The story of the Native American as it is known to the masses today took place on the frontier within the context of colonization pushing its way across America. The frontier is a land of opposites, which personifies the "otherness" of the native—wilderness versus civilization, savagery versus humanity, and individual versus community. (p. 41)

As a result, perceptions of American Indians as "noble savages" or having "an endless love for animals, are essentially tree huggers, and practice sun-worship" that reduce us down to primitive beings who could not possibly manipulate the environment are prevalent (pp. 42-43). Conversely, assertions of overkill seem to propose the opposite—Paleo-Indians, and thus their later descendants who are still cast as primitive beings, are rapacious creatures that fail to stop themselves from creating environmental degradation. This latter view aligns with observations made by Gilio-Whitaker (2019) who likens it to "the religiously based conqueror model" that describes how Euro-American colonizers leveraged a Catholic-originated legal doctrine to extinguish Indigenous land claims through the infamous Doctrine of Discovery. In making this comparison, she notes that this model is "extended to an ideology of human superiority over the natural world; it is anthropocentric worldview in which the world is there for human taking, manipulation, and exploitation without regard for the consequences to either human or nonhuman life" (pp. 56-57).

Because Indigenous Peoples maintain an identity that is necessarily linked to the original inhabitants of our respective lands, we are defined in opposition to the non-Indigenous populations surrounding us. The labeling of our presence as "native" Americans or the "first" Americans, as stated even by Martin (1973), further reinforces this linkage in popular commentary. Interpretations of the deep past regarding human activity therefore have a direct insinuation for the descendants of said inhabitants and impugns our traditional customs that we choose to maintain as part of our distinct cultural identities. The implications assert that our knowledge and practices regarding the environment, what is now typically referred to a traditional ecological knowledge (TEK), are actually anachronistic components of a falsified assessment of the behaviors of Indigenous Peoples, essentially devaluing the knowledge Indigenous Peoples accrued over thousands of years of societal development, land stewardship, and value-system manifestation.[3] In other words, notions like the overkill hypothesis have significant sociopolitical ramifications for Indigenous Peoples today, especially as we work to assert Indigenous-based values as a way to address our current climate and environmental crises. Most notably, these stereotypes about Native Americans are not only dubious in the scope of their claims, but the broader conclusions about human behavior being selfish creatures are highly suspect when examining the philosophical origins of these analyses. Indeed, Graeber and Wengrow (2021) clarify that the very depiction of humans as such is rooted in the ideological battle between Hobbesian and

Rousseauian worldviews, betraying the innate Eurocentrism that characterizes Martin's overkill hypothesis that many have accepted as fact.

Aspects of the overkill hypothesis can be challenged by bringing in a more recent historical analysis of Indigenous hunting practices to dispel distorted narratives that are used to dismiss contemporary arguments about modern land stewardship advocacy, exposing the ideological component that is at the core of such accusations present in ideas such as the overkill hypothesis. By doing this, we not only validate the utility of TEK but create a stronger argument for the adoption of Indigenous environmental principles that suggest it is possible to intervene in the current climate crisis by actively changing the very values at the heart of human behavior.

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1. This paper uses the terms "Indigenous Peoples," "Native Americans," and "American Indians" interchangeably. Generally, the first term refers more broadly to Indigenous Peoples across the globe while the latter terms refer to the Indigenous communities of what is now North America. Unless otherwise stated, commentary in this paper is referencing peoples in the Western Hemisphere. In cases where the term "Tribes" is used, this is referencing the Indigenous communities typically considered to be nations residing in what is now the United States and Canada.

2. It is obvious that Paleo-Indians, Native Americans, and humans overall majorly impact our natural environments, both intentionally and unintentionally. Human activity, like all other animal activity, does have a preference for self-preservation; humans did and do engage in extractive behavior. Numerous Indigenous oral traditions recognize this and convey the value of conservation, resulting in the development of Indigenous environmental stewardship customs based on the lessons learned from unethical or costly behavior, indicating that earlier Indigenous Peoples clearly understood cause-and-effect and actively worked to develop practices to avoid such outcomes. These practices are founded on principles of "the honorable harvest" (Kimmerer, 2013) which call for a sustainable approach to resource harvesting rather than methods founded on overconsumption.

3. The "ecological Indian" image is often invoked by critics of Indigenous Peoples who culturally assert more environmentally sound resource management practices and push for better policies around climate change and environmental advocacy. Krech (1999) is among the most well-known opponents to this stereotype. While he takes his time deconstructing Paul Martin's overkill hypothesis, he leans into several notable examples of how Indigenous Peoples have not only altered natural landscapes for their benefit, such as by the intentional use of fire to increase grasslands the increase the buffalo population, but also negatively impacted the environment through smaller scale examples of overhunting and other ecologically unsound practices. When discussing things such as TEK, it is vital to note that it is knowledge derived from hundreds and thousands of years of observational data collection and empirical trial-and-error testing. Indigenous Peoples are not anti-science and have committed acts that we now consider harmful to habitats, but this alone does not invalidate the very real knowledge and underlying values of said knowledge that can be used for the benefit of the environment.[1]

Man, and Man Alone, Continued

Megafauna Extinction: Humans, Climate, or...?

While current evidence does indicate that extinctions of megafauna in North America roughly coincides with human migration patterns, some of the data is incongruous with other patterns of human habitation. For example, Surovell et al. (2015) indicate that Martin's hypothesis rests on the notion of human migration into the Americas coinciding with the beginning of mass extinction periods, providing several ranges of dates and regions to confer this. Although this radiocarbon dating study ultimately agrees with Martin's assertions, it is complicated by the numerous findings that human habitation in the Americas extends further back than the estimations that both Martin and Surovell et al. were using. These sources settle on a range from 12,595 to 14,000 years BP for human settlement and megafaunal extinction (p. 889), but more recent scholarship has pushed human habitation in the Americas further back, closer to or in excess of 30,000 years BP (Becerra-Valdivia & Higham, 2020; Steeves, 2021). Interestingly, Surovell et al. (2015) do acknowledge that human and megafaunal cohabitation lasted as long as 6,000 years in two of the three sample regions before the onset of rapid megafaunal decline. In the region connecting Asia to North America known as Beringia, for example, they note that "it is possible that initial megafaunal declines...are not explained by human occupation," suggesting that stronger declines began with major human population expansions (p. 888).

In other words, humans in the Americas were already coexisting with megafauna populations long before the extinction events took place. Further evidence seems to indicate that early peoples of the Americas did not even hunt most of the fauna that went extinct during this period, let alone in such massive numbers as to trigger a massive population decline (Dillehay, 2000; Grayson & Meltzer, 2002; Lyman, 2013). Opponents and supporters of overkill also tend to examine the amount of "kill sites" where early humans would have produced remains from hunts; the former asserts that there are an extraordinary number of sites while the latter contests that there is a bias in the sampling of sites (Surovell & Waguespack, 2008). Rather than attributing the death of North American megafauna solely to the "First Americans," perhaps it behooves us to acknowledge other predominantly adjacent factors, such as sweeping climatic and environmental changes. The ending of the Last Glacial Period and the overall warming of the planet after the Last Glacial Maximum signaled major shifts in the habitats of megafauna as disruptions to the distribution of smaller species compounded the fate of larger animals along with thermal stress from the rapid change in temperature and loss of access to fresh water (Dillehay, 2000; Meltzer, 2015). While Martin's model holds up under examination in regions such as the African continent or Madagascar, it does little to excuse the impacts of climate change on the Americas, the location that supposedly best maps the hypothesis.

One of the more notable examples of humans actively hunting megafauna comes from one of the last instances of mammoth habitation prior to their extinction: Wrangel Island. Despite the lack of archaeological evidence indicating the direct predation of the mammoths here, it is sometimes regarded as a sort of control sample where we can see the relatively quick extinction of a species once humans arrived to the island as environmental degradation on islands without human involvement reportedly leads to rare in-

stances of megafauna extinction (Barnosky et al., 2004).

The issue with island data is that it does not function as a control sample in this regard. It is an isolated incident in where the mammoth population was already going extinct, encountering a genetic meltdown, experiencing the effects of climate change, and was boxed into a confined geographic location—all elements that made it convenient for their demise to be at the hands of human predation if it occurred at all. More recent studies suggest that human settlement of the island did not occur until a minimum of 200 years after the latest extent of dated woolly mammoth material (Arppe et al., 2019). As a counterexample to Wrangel Island, we need look no further than St. Paul Island where the mammoth population experienced a rapidly changing landscape that led to its demise:

> Humans did not arrive on the island until 1787 C.E.... The island, which formed between 14,700 and 13,500 years ago rapidly shrank until 9,000 years ago and continued slowly shrinking until 6,000 years ago and now is only 42 square miles in area. While large animals like mammoths became extinct on the continents about 12,000 years ago due to climate change and habitat restructuring, the process was different on the island. The shrinking of the island concentrated the mammoths in a smaller area and diminished available water Pollen from the lake cores indicate that the area around the lake was denuded of vegetation by the mammoths... Both of these things increased erosion in the area and helped fill in the lake, decreasing the available water even more. (Messer, 2016)

The reality is that the debate around this topic is complicated, but it is pretty clear that attributing the death of North American megafauna solely to early humans or subsequently more recent peoples we consider to be Indigenous groups is becoming increasingly conspicuous. Even the late Paul Martin (2005) himself acknowledged the absurdity of laying blame "to the progeny of Paleolithic Europeans" or "the First Americans for the extinction of the Old World or New World mammoths" (p. 54). It is likely that a combination of elements—climate change, landscape changes, and predation changes—all culminated into a series of factors that interplayed with each other that ultimately contributed to the extinction of megafauna worldwide and the growth of the human population. To neglect the multitude of factors involved is simply an exercise in ideological rhetoric that is pointedly anti-Indigenous as the implications are conferred upon no other group but the successors to the first peoples of the Americas.

American Indians and the American Bison

With the extinction of various animals on the North American continent, the retreat of glacial ice sheets, and the warming temperatures at the end of the Pleistocene, other species began to flourish. Chief among them was the American bison who dominated the vast prairie lands left in the wake of the glaciers. Following the end of the Pleistocene, various kinds of bison roamed from as far north as northeastern Alaska to as far south as northern Mexico (Krech, 1999, p. 126). Though their actual range of migration and habitat would shrink dramatically by the mid-18th Century, evidence suggests that the bison population did not undergo extinction level degradation until the very late 18th and first half of the 19th Century (Flores, 1991, pp. 480-83). There are various factors to consider that led to the eventual decline

of the bison such as climate changes, landscape degradation, and species resource competition.

However, included also are more complex challenges posed by rapid human development and expansion, namely the introduction of more efficient technologies brought by colonialism and the creation of market-driven economic pressures built upon existing Tribal trade networks. Many scholars still take the approach that declares all human behavior at this time—including American Indians—as "responsible for the near extinction of the plains bison" (Feldhamer et al., 2003, p. 1011). It is obvious that American Indians influenced their environmental surroundings just like all humans do and this included manipulated the vast prairies to support the bison herds. Yet, the legacy of the overkill hypothesis would have us believe that the overhunting of the bison was an inevitably regardless of what the Plains Tribes might have thought or practiced.

Technological Changes

Two of the most consequential technological adaptions for Tribes on the Great Plains were the arrival of the gun and the (re)introduction of the horse. Together, these drastically changed the character of the Plains Tribes by augmenting their traditional hunting practices.

Firearms allowed for more efficient and quick kills compared to other weaponry and so long as ammunition was available, greater numbers of bison could be procured to meet the needs of the community and the growing economic and trade demands (Lueck, 2002, pp. 617-21). The horse brought with it several key advantages: mobility, endurance, and carrying capacity. Implementing the horse meant that American Indian hunters could keep pace with bison herds, extend their forays for hunting to great distances, and carry more supplies and spoils with them. There is no doubt that the horse greatly increased the ability of Tribes to hunt for bison, particularly with a more logistically sound method that allowed for targeted hunting of individual bison rather than massive undertakings such as buffalo jumps, though this method was clearly still fresh in the memories of Tribes as Meriwether Lewis had describe a buffalo jump as it was told to him, though he did not witness one personally (Lewis, Clark, and Members of the Corps of Discovery, 2002).

These advantages were meaningful for Plains Tribes and resulted in fundamental changes to their cultures, particularly by making them highly mobile. Still, we must also understand how the make up of their communities would have also imposed both practical and cultural limitations on their hunting customs. While the (re)introduction of the horse did increase each Tribe's capability for hunting, Tribes that lived more nomadic/hunter-gatherer lifestyles such as those out on the Great Plains were likely to avoid developing a surplus of resources due to the logistical challenges of preserving, carrying, and even consuming an over-abundance. It would have been essentially impractical. Tribes also saw a two-fold need to develop "buffer zones" along their borders with neighboring communities. Flores (1991) describes these areas as important "because game within them was left relatively undisturbed; they allowed the buildup of herds that might later be exploited when tribal boundaries or agreements changed" (p. 476).

The Market, Tribes, and Colonialism

Looking at a specific area of buffalo population decline, we can get a snapshot of the combination of forces that led to said decline. Severson and Sieg (2006) dig into the lengthy history of the ancestors of the American bison in North America by noting the overall strength of the herds during glaciation and subsequent warming periods, indicating that they were quite a strong species that persisted through the peopling of the Americas until around the 19th Century. They report on high and low points of visibility throughout various areas of the Great Plains by European visitors, from some as early as the first decade of the 1800s through to the 1860s. Many of these accounts reflect massive herds that persist through decades of accustomed hunting patterns, though some years have a noticeable and sizeable decrease in the strength of herds, sometimes attributed to weather conditions but ultimately proving inconclusive based purely on observations. Turning to contextual events, they state:

> The decline of bison in eastern North Dakota probably began in the 1880s... The bison decline in the northeastern part of the state may have been initiated by the drought and locust plagues of the early 1820s, but market hunting started about the same time. Giraud noted that "as the demand for buffalo robes increased in the United States, the Company [Hudson Bay], which at first had neglected the woolly hides of the bison, acquired them in increasing numbers." Market hunting for bison hides was not the same in this region as farther west and in the central and southern Great Plains, where hunters were interested only in hides... Native Americans also participated in the robe trade, procuring bison skins, tongues and tallow. The number of trading posts established in the vicinity of Big Stone and Traverse lakes and along the Sheyenne [sic], James and Minnesota rivers from 1823 to 1846 stood as evidence of the popularity of the trade economy. Area tribes participated as did Sioux hunters from various parts of Minnesota, especially those bands that lived along the Minnesota River... The influence of Euro-Americans on eastern North Dakota bison populations was primarily by providing a market for hides, pemmican and tallow. But neither can their direct influence be ignored. Members of almost every expedition or wagon train killed bison wantonly and indiscriminately. (p. 188-189)

It seems reasonable to accept as an axiom that adopting the horse would make the Plains Tribes more efficient hunters and would have an impact on bison herds to some degree. However, a multitude of factors seem to have converged that led to a massive population decline far after Tribes began utilizing horses. There was a reduction in their habitat between 1750 and 1810 primarily from the loss of their Eastern Woodland grounds due to colonial expansion (and where no strong bison hunting culture developed among Tribes of that region) and then a wave of environmental changes during the Little Ice Age that made prairie grass and water scarce (Neiburger, 1986); the explosion of the bison fur trade created high demand for the animal, putting economic pressure on both Indians and non-Indians to procure parts as commodities rather than for subsistence; competition with other animals abounded with more than a million wolves preying on herds in the early 19th Century and, horses directly challenging buffalo foraging due to an 80% dietary overlap (Isenberg, 1996, p. 17). [5]

Man, and Man Alone, Continued

A drought and surrounding environmental conditions were the kicker to the population decline going into the 19th Century, but these were ultimately compounded by the existing market pressure. The evidence we have seems to suggest that prior to this point, the 100 years enhanced predation techniques through use of horses and firearms did very little to decrease the bison population. Of course, human behavior does complicate this as people would have continued to hunt to meet their needs and a distinct lack of inter-tribal communication structures meant that Tribes did not coordinate hunting efforts between themselves during periods of peace, meaning it would have been difficult to quell the hunting in light of ecological disaster. However, the insistence on hunting did not actually prevent starvation in some cases, meaning there was not such an abundance to carry Tribal populations from year to year. Many Euro-American accounts during the mid-19th Century report that Tribes on the Plains were starving because of lost bison hunting opportunities. Consider, though, that while the entire population was beginning to undergo a downsizing, bison herds are notoriously random in their migration patterns. It was not unusual for people, Indians and non-Indians, to see a herd of 100,000 one week to then lose it and spend weeks searching for it. These scarcity conditions were also being compounded by genocidal policies brought by the federal government who sought to exterminate bison herds for the express purpose of controlling Tribal food sources and mitigating the possibility of revolt as they ushered in confinement to reservations (Smits, 1994).

This is to say that while we might tend to think that the introduction of more efficient technology means a dramatic increase in activities across the board, the reality is that these scenarios are filled with exceptions, isolated incidents, and incongruous results just as any other historical narrative. Some years were more ideal than others and likely produced close to the maximum yield that could be supported by the prairies. Other years would have resulted in the opposite, which also would have resulted in a decreased harvest. There are numerous factors to account for that we cannot simply boil it down to notions of overkill by human predation.

Conclusion

While Martin's overkill hypothesis has persisted through the decades having garnered some merit, its inadvertent weaponization by Western ideologues has provide anti-Indigenous proponents with harmful rhetoric that can be cloaked in scientific parlance. This has proven arduous for Indigenous Peoples as we contend with a world that is rapidly approaching a climate catastrophe that is predicated upon Western values propping up unsustainable economic systems and societal behaviors. Indigenous leaders, activists, and communities continue to be on the frontlines of addressing anthropogenic climate change both as victims of the impending crises and advocates for radical solutions (Gilio-Whitaker, 2019).

When we look to the scientific community, it can be hard to accept that it has been infiltrated by political actors and ideologically-driven ideas that undermine what the field is supposedly about—truth. Eurocentric assertions about human behavior reinforce philosophically-based misunderstandings of what

our role as humans is in the natural processes of our world and chauvinistic tendencies of Western knowledge continue to defame Indigenous ways of knowing, thinking, and being. If this continues, it will not only distort the historical reality of how our ancestors lived, it will further erode the ability to effectuate genuine human change to save our planet. When we look at examples such as the cohabitation of humans and the megafauna or the seemingly negligible impact on the bison herds, the application of hypotheses such as overkill do not seem to support the outcomes humanity currently needs; rather, they serve to manipulate the pattern of blame for a Pleistocene-era crime that nobody can be held accountable for in our time. When this rhetoric is directed toward Indigenous Peoples, I charge that people are projecting the noble savage trope onto ostensible historical narratives that are not accurate. This is because contemporary humans, particularly those in Western nations, have a difficult time envisioning a world that is not founded on Western values and worldviews.

This conclusion also points to holes in the narrative derived from turning back the geological clock to see that even Paleo-Indians are being shackled with a reality of their world and customs that does not map entirely well onto the evidence we can gather. Perhaps as time goes on, more data will confirm or refute the overkill hypothesis. But as for now, it fails to hold as much water as people may assume. The pertinent example of the American bison and hunting habits of Tribes on the Great Plains offers us a workable depiction of how Tribes both developed hunting practices over time but also enacted constraints, either internally or due to external circumstances, that did not result in a collapse of the bison herds despite thousands of years of harvesting. While it would be difficult to describe these constraints as active conservation efforts, this example does attest to the ability of the Indigenous Peoples of the Great Plains to live in such a way that was sustainable and that only became an evident issue with the inception of changes to the environment and drastic disruptions instigated by European colonization.

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4. Lueck (2002) states:

> At [the bison's] greatest moment, the total numbers for the continent may have been as high as 25-30 million before white settlement. On the Great Plains, where the bison were most suited and most plentiful, their population is estimated to have been 20 million as late as 1800. Even by 1850, more than 10 million bison roamed the plains. Yet, by 1890, these plains held just 1,000 bison. (p. 610)

Isenberg (1996) attests that the horse reached the Great Plains from Mexico in the early 18th Century; we can arguably say that for over 100 years, the bison population remained relatively high and even somewhat close to its Pre-Columbian size as American Indians became equestrian hunters but went to almost full extinction in a 40-year period that saw the height of the bison fur trade, resulting in "10 to 15 million [killed] in a punctuated slaughter in a little over ten years" (Taylor, 2011, p. 3163). The biggest factor seems to be the invention of this trade that was, as Taylor (2011) further confirms, particularly exacerbated by Americans and even an international European demand.

5. Isenberg (1996) provides calculations about the potential impact of Tribal Nations on bison herds, noting:

> The equestrian Indian societies needed to harvest about six or seven bison per person to obtain sufficient food, lodging,and clothing. Thus, to subsist, the estimated 60,000 Plains Indians probably killed between 360,000 and 420,000 bison every year ... The total Indian impact on the herds was probably not far from the estimate of Pierre Chouteau, a St. Louis fur trader, who calculated in 1859 that the equestrian societies harvested 450,000 bison every year for their own consumption and for intertribal trade. (p. 18)

Man, and Man Alone, Continued

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How do we listen?

By: Michelle Montgomery, PhD

How do we listen? How do we listen to hear the unspoken words of our ancestors of the past, present and the future - human and the natural world? In a time that evokes hopelessness and paralysis, unlearning and relearning to listen to our ancestors and the natural world through place-based Indigenous Knowledges (IK), art and storytelling assures us that we are grounded – mind, body and spirit. Listening creates an awareness of responsibility that makes it our most fundamental, multifaceted form of justice – everything we do matters. All life is radically interconnected in ways that embolden us to remember there is *no one-size fits all* lived experience as we re-learn to embrace an emotional journey of grace and humility to practice mindful listening through sustainability. It is time to acknowledge the consciousness of the natural world and abandon anthropocentrism all together to become courageous through reciprocal empathy. Over time, how we listen will be revealed and re-learned as dwelling in silence with our ancestors and the natural world beyond human languages. Through revelations of listening, we learn that the voices that influence our lives are often not spoken words.

Listening through sustainability explores how we listen through our mind, body and spirit as a form of justice grounded in place-based IK and what purpose it serves to nurture ecological awareness, but most importantly a sense of kinship to the natural world. The role of mindfulness-based listening creates a balance. Yet, it is essential that we must always remember – there is a fine line between commodity and reciprocity views of the natural world. How we listen will remind us that at a crossroads of reimagining relationships - speaking before listening – has proven to not be a reciprocal kindship measure for all ways of being and the natural world.

IK continue to bring to the forefront an increased eco-consciousness of culture, place-based identities, lived experiences and histories – being Indigenous, we navigate micro and macro racialized realities of power and privilege. From an Indigenous lens, we honor the reciprocity of relationships around us as having multiple realities that are defined by relational accountability as a form of justice, while knowing the act of listening through sustainability should reflect a dutiful and ethical responsibility – to change how we listen as both a process and practice that sustains respectful relationships with grace and humility.

How we listen must focus on the importance of advocating for transformed approaches that encourage respect for sustainability as a means of relational reciprocity. In my view, how we listen through sustainability is more than just un-learning and re-learning; it must be supported by accountable actions. It is also important to practice decolonization. For further context, decolonization is the intelligent, calculated, and active resistance to the forces of colonialism that perpetuate the subjugation and/or exploitation of our minds, bodies, and lands, and it is engaged for the ultimate purpose of overturning the colonial structure and realizing liberation. I use decolonization of listening to recognize the cultural rights of our ancestors (past, present and future) and the natural world in accordance with place-based identities, IKs, history and

Photo: *Wildflowers in Tomanamus Forest*

culture. With decolonization practices being at the core of my perspective of – *how do we listen?* - I strive to embolden the need to acknowledge our mind, body and spiritual connection, while embracing our individual differences. If we are to look at how colonization created the identities of the both the colonized and the colonizer, we must recognize the historical situations are created by how *listening* became a powerful tool for control. History has provided numerous oppressive examples of those who chose not to listen.

Through intentional decolonized listening lens for - *how do we listen?* - we can forge strong ties to: (1) uplift community needs, (2) empowers communities and students, (3) promotes regenerative and restorative emotional processes of sustainability, and (4) act as an agent for healing. How we listen through sustainability accentuates the need to remember the voices of our ancestors and the natural world. Always remember to listen - your ancestors and the natural world have not forgotten to listen to you.

A New Definition of Indigenous Cultural Resource Management

By: Niiyokamigaabaw Deondre Smiles,
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Introduction

When one thinks of moments of breakthroughs in thought, especially in academia, a highway ditch in Northern Minnesota would likely not be a place that comes to mind. However, for me, standing in such a ditch with my tribe's tribal historical preservation officer, on a warm July day during my doctoral research, was indeed a place where my thinking about the idea of cultural resources and what they mean to Indigenous nations changed irrevocably.

When the term "Indigenous cultural resource management" is mentioned, or when one thinks about the term, often one's thoughts of the topic immediately focus onto things rooted to the past. When we try to define the term, often, we think about associated terms such as 'heritage' or 'history'—a framing that is reinforced by the very language we use to refer to the broader field. I argue that while this framing is important when it comes to protecting our heritage, it only tells part of the story of how we become resurgent as Indigenous people. In fact, a broader definition of Indigenous cultural resources is necessary, especially in an era of climate crisis, where things that we need to understand as constituting cultural resources, including language, history, and the environment are under threat, in what is yet another apocalypse that Indigenous nations must face after generations of genocide and settler colonial violence (Whyte, 2017).

Fortunately, many Indigenous nations are taking important steps to protect these resources and are ensuring that we understand them as being important to our continued vitality and resurgence as Indigenous peoples. My aim for this paper is to briefly outline some of the ways in which this happens in Indian Country today. I do so via several means, including an overview of how we define cultural resources in Indigenous contexts, as well as using a case study from my research carried out with my own nation in which existing definitions are challenges. In doing so, I make the argument that models of cultural resource management and heritage preservation not only can be easily applied to models of climate adaptation and mitigation, but a broader definition of what exactly these concepts mean may provide a key path forward as Indigenous nations across North America and around the world work to contend with the consequences of anthropogenic climate change. Ultimately, by redefining cultural resources towards a more holistic model, we create a more desirable future for our nations. By outlining the ways in which my own thinking around the definition became unlinked from the past, I make the argument that we can move towards a form of positive environmental relations that becomes cyclical and more in alignment with Indigenous modes of relating and being in space and place.

Defining Indigenous Cultural Resources

What are Indigenous cultural resources/cultural resource management (CRM)? Part of existing definitions lies in the definition of cultural heritage. Patrick Garrow (2015) defines the concept of cultural heritage more broadly as "places, objects, structures, buildings, and evidence of past material culture and life that are important to understanding, appreciating, or preserving the past". The U.S. National Park Service further defines the idea of cultural resources/heritage as "archeological resources, cultural landscapes, ethnographic resources, historic and prehistoric structures, and museum collections" (National Park Service, 2023). The framing here is explicitly clear—cultural resource management is primarily concerned with tangible objects related to history, and to the past. Furthermore, it takes on a human-centric viewpoint, as it is mostly focused on tangible historical items that have been created and maintained by humans—therefore, it is the heritage of humans that CRM is focused on. However, this is a more general definition, and the question is raised—how have these topics been defined when it comes to an Indigenous point of view?

The literature surrounding Indigenous cultural resources and Indigenous cultural resource management similarly is rooted in a past-based/tangible framework. While a full accounting of the depth of the literature is beyond the scope of this article (and in fact probably could fill several journal issues worth of articles to even scratch the surface) a simple Google Scholar search about articles/chapters/literature that speaks on Indigenous cultural resource management and archaeology, for example, pulls up nearly 262,000 hits (Google, 2024), including pieces focusing on archaeological values and cultural resource management (Lipe, 2009), and pieces on how to engage with Indigenous nations when doing archaeological based cultural resource management work (Foster & Croes, 2002; Budhwa, 2005; Ross et al., 2010; DeVries, 2014) among many other takes on the field. There is vast diversity on topics and different geographical contexts, but the main thread that the literature has in common here is that it primarily focuses on not only how we can protect the past, but primarily the human-focused past—the aspects of the past that we have created ourselves.

Even tribal entities themselves support this temporal and human-centric viewing of Indigenous cultural resource management. The Leech Lake Heritage Sites program, a tribal entity that is responsible for overseeing Indigenous cultural resource management on my own tribe's reservation, defines some of the aspects of Indigenous cultural resources:

> *People have lived in the Leech Lake area for over 10,000 years. Remarkably, artifacts have survived that tell us the stories of their lives. People have always been drawn to the water. Lakes and rivers provided sustenance to ancient peoples, making these sites rich with cultural artifacts.*

A New Definition, Continued

> *Broken pottery and stone flakes might not seem like much, but even tiny fragments help us understand how people interacted with their environment. Because prehistoric people had an intimate relationship with the environment in all aspects of their lives, there is much we can learn from them in our stewardship of the land. That is why the Leech Lake Tribal Historic Preservation Office (THPO) and Heritage Sites Program work to preserve and protect the cultural resources of the region, so we can respect and learn from the wisdom of those who have lived before us.*
>
> *While most people know what pottery and stone tools look like, many don't know much more about them than their antiquity. Archaeologists on staff at the Heritage Sites Program are available to answer questions about the history of the area or cultural sites on public and private property. THPO maintains a large database of sites in the area, and this information is used to interpret past lifeways (Leech Lake Band of Ojibwe, n.d.).*

I want to be clear that I do not want to critique these definitions as being wrong or misguided—in fact, it is quite the opposite—I think it is extremely important to protect our historical and heritage-based resources, particularly about our presence upon the land as humans, as it can provide another way for us to be able to tell others about our histories and our historical lifeways. What I want to do in addition to this, is to think through the ways in which we can broaden our definition of what cultural resources and heritage are, to provide more protection to the things that are important to us, both tangibly and intangibly. As it so happened, one of the most important examples to me happened to take place close to home.

Case study: Leech Lake Band of Ojibwe

I had the distinct honour and privilege to be able to carry out work on the territory of my own tribe during my doctoral dissertation work. When I first approached the Heritage Sites office at Leech Lake and began to speak with the THPO there, I was chiefly interested in researching cases of burial disturbances on the reservation, as that was the major aim of my doctoral research—contestations over Indigenous dead and the spaces they inhabit. Over a period of time, as I got to know the THPO better as well as the office that she oversaw, I began to understand two things—one, that the THPO and her office had developed extremely robust systems of overseeing any projects that might disturb cultural resources on the reservation, and two, that the definition of what cultural resources were could shift in generative and liberatory ways. After a year of visits and interviews, I found myself driving around the reservation with the THPO one day—as we chatted, I asked questions about what the office did when there weren't any potential risks to cultural resources as a result of road construction projects or other infrastructural projects on the reservation—this was important to me, as I felt that the answers might point towards an end goal of a more ethical and respectful way of viewing spaces of Indigenous death.

However, the THPO's answer to the question took the conversation in a whole other direction completely. They had me pull the truck I was driving over onto into a ditch alongside of a highway that their office had been surveying, and we both got out of the vehicle. As we stood in the ditch, in the tall grass, the THPO pointed out the various species of plants that happened to be in this very ditch—they pointed out that these plants were important medicines to our people, and that we needed to ensure that we had continued access to them. They continued that protecting these plants were extremely important for cultural reasons, and that their preservation was within the purview of their office—that their surveys didn't just focus on artifacts, or remains, but all cultural resources that lay within the reservation.

This was a major paradigm shift in the way that I viewed my work. Up until that point, I had viewed my research as chiefly focusing on Indigenous death, the spatialization of such, and the implications that defense of the dead had for the living—to me, I had framed it as the defense of the dead inspiring resistance by the living. I had never stopped to think about the possibility that the defense of the dead also could have implications for the defense of the living as well, particularly our non-human relatives. Furthermore, I began wondering what this might all mean, given the increasing effects of anthropogenic effects on the environment, particularly in my tribe's homelands in Northern Minnesota, and the region more generally. It was at this point that I began to realize that a new definition of cultural resources would be key to understand this form of preserving life. Fortunately, I was not the only one to think about this topic.

Redefining Cultural Resources in an era of climate crisis and climate justice

It is abundantly clear that we are living in an era of anthropogenic climate change—I would go so far as to say that we are rapidly entering a climate hellscape. The data is clear, but we can see the effects with our own eyes, in a variety of geographies. For example, on the west coast of Canada, where I live and work, average temperatures have been steadily rising. A report commissioned by the Government of British Columbia, for example, states that average temperatures in the province warmed over 1.4 degrees Celsius between 1900 and 2013, with particularly dramatic warming occurring during the winters across the province, with the change being to such a degree that the Government concluded that it is "above and beyond natural variability and almost certainly reflect long-term climate change" (Government of British Columbia, 2015). Another report commissioned by the provincial government states that projections for average temperature change in the province could reach an increase in average temperature of 4 degrees Celsius by 2100, leading to increased volatility in weather patterns and potentially disastrous climate emergency events (Daust, 2013). Cities like Vancouver on the coast and Prince George in the B.C. interior saw multiple days in recent summers where daily temperature highs exceeded 30 degrees Celsius (86 degrees Fahrenheit), according to a CBC report (Kurjata, 2023). Indigenous settlements in the province, such as Lytton, have become synonymous with the destruction wrought by climate influenced events such as drought and subsequent wildfires that have become a fact of life in Western Canada.

A New Definition, Continued

B.C./Canada is not the only place where these negative effects are taking place, however. Closer to my homelands in Minnesota, people are feeling the heat (quite literally)—the Minnesota Pollution Control Agency (MPCA) estimates that temperatures in the state have risen by over 7 degrees Fahrenheit since the end of the 19th century in the northern section of the state (home to Minnesota's seven Ojibwe nations), going on to speculate that the shift in climate and weather patterns caused by these rising temperatures will lead to more disastrous effects on humans, environment, and infrastructure alike (State of Minnesota, 2023).

Furthermore, impacts in my tribe's homelands are reaching *nibi*—water, an important part of our culture and lifeways as Ojibwe people. In an assessment of water quality in Minnesota, the MPCA estimated that nearly 3,000 bodies of water in the state are considered 'impaired' due to land use and man-made changes/contamination of water, with many of these bodies of waters falling within both sovereign territories of tribal nations, as well as broader ceded territories (State of Minnesota, 2023). This is in addition to much of Ojibwe territories being under states of water scarcity up to moderate drought (State of Minnesota, 2024). A recent New York Times article speaks about the ways in which increased demand for water for agriculture in Minnesota has placed manoomin/wild rice beds at risk as well, endangering a major source of culturally significant food for Ojibwe people (Searcey and Rojanasakul, 2023). The implications for the continued vitality of our culture are dire.

However, to return to the words of Kyle Whyte (2017), this is just another 'end of the world' scenario that we as Indigenous people must face, and similarly to the other times that we've faced apocalypse, we find creative and resilient ways to survive. A group of Indigenous nations and scientists in the Great Lakes region have developed a Tribal Cultural Adaptation Menu to meet these environmental and cultural challenges that climate change and environmental change present to their nations, in ways that centre Indigenous lifeways and perspectives.

One of the very first guidelines that the Menu team presents is the importance of human/more-than-human relationships. "We consider beings in the natural environment to be elders and teachers who can teach us valuable lessons. This has ensured an equitable, long-term, sustainable, and generational existence for many of these human and nonhuman communities," the authors write (Tribal Adaptation Menu Team, 2019: 8). They continue to emphasize the need to take Indigenous culture into account when working to implement climate change solutions with local Indigenous communities (Tribal Adaptation Menu Team, 2019). In fact, throughout the Menu, the authorship team rarely differentiates between human and non-human/more-than-human in rigid ways, instead speaking to the ways in which these various aspects of the broader environment must work together in ways that are beneficial to all, including the preservation of Indigenous cultural lifeways rooted in the ways that our ancestors have practiced them for countless generations before us (Tribal Adaptation Menu 2019).

Implications/Conclusion

I first came across the Tribal Cultural Adaptation Menu soon after it was published, and when I thought about the messages contained within this document, combined with the words that were spoken to me by my tribe's THPO, my thinking on what is meant when describing tribal cultural resource preservation and management began to shift. For example, the work being done by my tribe's heritage sites program in regard to the environment was no less rigorous and no less caring than the work that they did with historical items—in fact, the two seemingly disparate areas of protection seemed to inform each other—protection of the environment comprised both protection of the tangible—plants, animals, water, and all of the things that guided the way that we interacted with our environment, and intangible—the very aspects of our culture that made us Ojibwe. In this,

I'm reminded of the work of Métis scholar Max Liboiron (2021), who writes on the ways in which Indigenous connections to the land can be viewed as a set of relations. I'm reminded as well as Nishnaabeg scholar Leanne Simpson, who asserts (2017) that the path to our own resurgence as Indigenous peoples can be brought about simply through reconnecting with the land and our environments, a sentiment that resonates particularly well with me given the Ojibwe creation story, which centres around the ways in which we are interconnected with the environment.

To me, this provides a whole new way of thinking about Indigenous cultural resource management and preservation, at least from an Ojibwe perspective. If our relationship with the environment and our non-human kin is a major component of our culture as a people, is it not important for us to ensure that we are also doing what we can to ensure that this aspect of our culture is preserved as well? What good is being Ojibwe if the things that make us us aren't around anymore? It would be at least in part the death of our people.

It is important to ensure that our past is well protected, of course, but one day, we will be part of 'the past' to a whole new generation of Indigenous peoples—while I am confident they will do what they can to ensure that our memories and presences are not forgotten, we can make the job easier for them by taking robust action now to protect all components of our culture.

One critique of the term Indigenous cultural resources is that the word resources suggests something that can be exploited or 'used up', similar to how we view the term natural resources. I wish to gently push back on this as part of redefining what this means. One of the dictionary definitions of "resources", according to the Merriam-Webster dictionary is "a natural feature or phenomenon that enhances the quality of human life (Merriam-Webster, n.d.). Another definition states, "an ability to meet and handle a situation (Merriam-Webster, n.d.)," and it is in these definitions that we can really get at the meaning of what Indigenous cultural resources mean—they are the things that make us Indigenous, that inform our culture, that give our lives, and the lives of those around us (human and non-human) meaning, and that can equip us to be resilient and resurgent in the face of settler colonialism. It is us ensuring that our cultures do not disappear, but instead can be passed on to generations after us, so that they can reach heights we can only dream of today.

Mii iw (That's all).

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Photo: *Cedar Sprig*

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Practicing Relational Accountability

By: Madrienne White

Positionality

ha2ł sləxʷil, Madrienne White tsi dsda2 bəqəlšułabš čəd. (Good Day, my name is Madrienne White and I'm a Muckleshoot Tribal member.) My husband is Colby White Sr. (Yakama/Dine') and we have a six-year-old son, Duke. I am also the bonus mother of Colby Jr. and Ali Max. Professionally, I am the Muckleshoot Tribal College Administrator. Academically, I am a doctoral student in the Muckleshoot Cohort at the University of Washington Tacoma's School of Education, Ed.D. program.

I was born in Kapowsin Washington, but I grew up mostly on the Muckleshoot Indian Reservation -- and spent some time during my elementary years living in Southern California. My Muckleshoot heritage comes from my mother's side. Specifically, we come from the Ross family and our Muckleshoot ancestors descend from the traditional Muckleshoot village of sqwəlac, or what is also known as Boise Creek, near Buckley Washington. My mother is Laurie Molina (Ross) and my father is Niceto Salgado. My maternal grandparents are the late Marvin Ross (Muckleshoot and Yakama) and the late Alfreda Ross (Cline family of Nooksack). My paternal grandparents are the late Isaac Salgado and late Nico Salgado, both of Guerrero Mexico, the village of Apaxtla.

I walk with my ancestors from both sides of my family as I navigate the academic, professional, personal, and cultural pathways of life. I give them gratitude for their guidance and for providing me with strength and protection.

I acknowledge my ancestors and recognize it is through an Indigenous lens that I view and perceive the world. It is through this lens that I absorb and assess information and engage with the world around me.

Activity

Throughout the year, our people transition with the seasons. That is to say, depending on the time of year, we may have certain celebrations, ceremonies, harvesting practices, etc. These activities are forms of direct participation in reciprocal relationships with our lands, our people, and our non-human relatives. Examples include Salmon ceremonies in the spring, Canoe Journey in the summer, four-legged harvest in the fall, and Spiritual Work in the winter.

Fall, for example, is an especially busy time of year for my fellow Muckleshoot colleagues and me. As tribal members, we participate in cultural and treaty rights, practices such as hunting and harvesting. For example, the time for Coho fishing is September through October, and Chum fishing takes place from October through November (J. Molina, personal communication, 2025). Participating in these treaty rights practices takes a considerable amount of time, resources, skill, and dedication. However, it is also an honorable practice -- and my hands go up to all our people practicing and protecting our Tribal treaty rights throughout the year.

Additionally, in the fall, as representatives of the Education division, my colleagues (work family) and I get requests to engage with our partners, local schools, and other non-tribal entities to participate and present during holidays. Examples include Indigenous People's Day and activities such as National Native American Heritage Month. Notwithstanding our busy schedules during the fall, my colleagues and I were inspired to take on an activity that would engage our people and honor our connection to place and ancestors, in truth this would be a practice of Indigenous praxis and pedagogy.

We set out to provide an engagement opportunity for our present-day relatives, which acknowledge our lands and ancestors, to whom we owe so much for their sacrifices, thoughtfulness, and care. Without their fortitude, strength, and love, we wouldn't be here today, enjoying and practicing our Tribal, educational, and cultural sovereignty.

During the summer of 2023, as part of a team of instructors providing place-based education during our Early College Program, I was able to visit several of our Muckleshoot Traditional village areas, including sqwəlac, Illalko, and ʔ̓awayac (Burns Creek). These visits were an element of one of our seminars, headed by my cousin, Wayne Buchanan, the Muckleshoot Tribal College Program Manager. In this seminar, our tribal students and instructors were invited to learn about our traditional Muckleshoot village areas and explore family connections to the sacred places.

Practicing Relational, Continued

Findings

While at ƛ̓wayac, a critical location for our people during the 1850s Indian wars (W. Buchanan, Early College Program, July 2023), we noticed there was a heartbreaking amount of garbage in the area along the trail, by the water, and in the water itself. After witnessing the amount of garbage in the area, I suggested we do a cleanup activity as a way to celebrate and commemorate the area and as a gesture to our connections to the land and our ancestors.

We ended up executing the event during the early fall, as an activity linked to Indigenous People's Day. We purchased gloves, garbage bags, buckets, garbage pickers, etc. for our clean-up. A group of us Tribal College staff members went back to ƛ̓wayac to conduct the cleanup. We gathered garbage, loaded up our bags, and discarded the contents at our Muckleshoot transfer station.

It was an overcast day when we went back to ƛ̓wayac, but our spirits were bright and this added light to the day. We were proud to be there and in those moments, we were living out a moto we say here at the Muckleshoot Tribal College (MTC) -- developed with help by one of our language carriers, and MTC CTE Instructional Coordinator, Olivia Courville -- tə sc̓aliʔčəɬ gʷələ swələx̌ʷ dxʷʔal syayusčəɬ (our hearts are strong towards our work). The entire experience was an example and expression of the axiology and relational accountability we hold dear at the Muckleshoot Tribal College. That can be explained, as Wilson and Hughes, put it:

> Relational accountability points to the experiences that when we recognize reality as relationships, we have to act differently. We become bound by our relations of responsibility, care, and reciprocity. We have to act in accordance with our values-well beyond the limited framework of academic ethics requirements (K.L. Martin, 2008)-and fulfill our responsibility to care (Wilson et al., 2019, p. 13).

Conclusion

While appreciating and acknowledging these relationships and responsibilities to ancestors and places during this activity, we were also actively practicing social and environmental justice. We were also demonstrating acts of sustainability and resource management. We were also engaging in intergenerational knowledge sharing, place-based education, and respect for ancestral knowledges. Finally, we modeled for future generations our commitment, responsibility, and connection to our identity as Muckleshoot people. This, I believe, is what our ancestors would be proud of.

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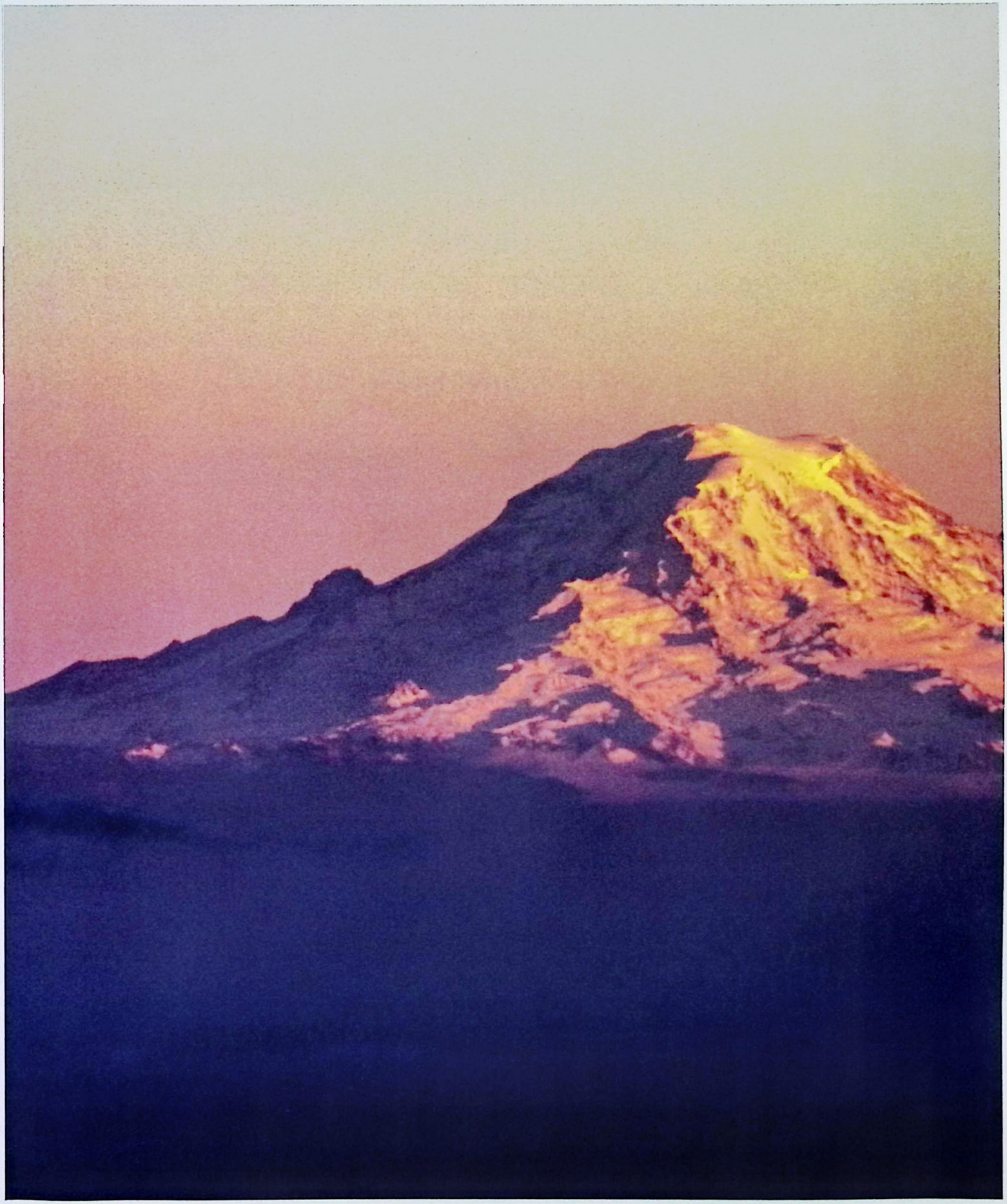

Photo: *Mt. Rainier at Sunset*

Small Geese Fly

By: Tayona Heller

Memories and shadows play
Moonrises over the straits

Pale light carrying birds of song and waning,
Beating time to the drums of the mourning
pieces of driftwood, Landmark the home
An Elder's reminder, *do not go where you can't see me*
down the beach, gangly limbs jutting out

Visible from everywhere to the stars, to the sky
Is this one way my ancestors used to navigate, get by?
To the earth below, to the sea
This piece of driftwood is apart of me

I sit in the sand,
Breathing in the seaweed
the breath of my Ancestors all around me

I say to my elders,
Will the memories return? Of the names and times,
Past and futures collide
Cottonwood breezes by,
Bleeding yarrow in wounds,

Be *patient*, listen to the wind
Be kind, they say
Because even if you can't feel it,
Everything heals with time

Photo: *Moon*, By Tayona Heller

Traditional Introduction

My name is Tayona Heller and I am a descendant of the Jamestown S'Klallam Tribe. Born and raised in Washington state.
Learning and listening are my passions, and to be able to tell a story in many ways is a skill I am constantly crafting.

Thank you for taking the time to join me on my journey. Thank you for reading my stories.

Climate Justice: The Teachings of Plants and The Honorable Harvest

By :Zachary Ziska

Abstract

Ethnobotany is the study of plants and their variety of uses such as food, medicine, tools, clothing, crafting, resources, stories, and cultural value. It broadens our understanding of the interconnectedness of human's complex relationship between the community, plants, and the Earth. Ethnobotany reminds us that we have allies growing in our ecosystems that are meant to support and guide us to share and respect the land as it was meant to be so that we may live in harmony with the native land by practicing the honorable harvest. The honorable harvest is the idea of sharing and conserving Earth's resources by foraging and collecting only what we need. This means harvesting only when there is abundance of Earth's gifts so that it does not prevent others from harvesting it themselves. This principle also teaches us to be grateful for the gifts we are given so that we can return the kindness and care for the land so that it may continue to prosper for future generations.

Introduction

Plant medicine has been a constant and intimate relationship with humans and the natural world for centuries. For generations, trial and error for using plants as medicine and healing has been an ongoing process as people have applied plants for sores, wounds, infections, diseases, and internal sicknesses. Even if our ancient ancestors did not know what the outcomes of the plants they were choosing were for, in the ways that we know now (because of plant teachings, science and traditional knowledge), plants have always held medicinal and sacred properties for the purpose of having a symbiotic relationship with humans. Our symbiotic relationship with plants is valuable, but unfortunately over-looked, ignored, taken advantage of, or even forgotten. Plants have so much that they can show, teach, and offer us. In the fast-paced world that we exist in today, it is important that we keep this relationship with our plant allies and pay attention to what plants are showing up among the land. What this means is that we should be educated about the plants and their precious medicines that they hold, so that we may get to know them and ethically gather from them to use them as they were meant to be used for. If we ignore the land around us and do not spend the time to identify, learn, and connect with the plants that grow among us, we miss out on the generations of teaching, traditional knowledge, and ethics that have been shared and passed down. Overlooking the land and not getting to know the plants is a contribution to unsustainable factors that threaten our ecosystems, relationships, and overall climate justice. If we ignore the honorable harvest and neglect the land and plant allies, how can we ensure we are conserving the landscape for future generations?

Educating ourselves and the community about the properties, teachings, and synergy of plants is one huge step that contrib[illegible]to sustainability, ethics, preservation of our land. Learning the symbiotic relationships of plants and h[illegible]ns encourages us to connect with the flora and appreciate the gifts that we are lucky to live beside. It is important to get to know the plants and not just see it as a 'plant', but a friend and ally.

Exploration

In the fast paced world today, people expect products to be received at their convenience. With the mass production of goods and the high demand of products, many have forgotten the ways of what sustainable, intimate, and ethical gathering looks like, and yet, do not think about the dishonorable harvests that occurs all around us. Over gathering of plants, fish, and game, illegal poaching and harvesting, and unsustainable practices are what's driving our planet towards extinction, scarce resources, degradation, and the loss of relationships between humans and our land. With the world we live in today, it is understandable that the convenience of products is quick, easy, and quite essential for our population. Though convenience of goods are important, it distracts us from getting to know the product of what we are buying. We go to the grocery stores and quickly buy and then consume the products we get, however, we forget to realize the processes of how the product ended up on the shelf in the first place and think to consider if all practices to produce the product were honorable and sustainable. We forget to thank the farmers for growing the food, thank the soil for enriching the food, and thank the food that we are fortunate to receive. The lack of acknowledgments towards the processes of receiving our products is overseen, which is why the connection between humans and the Earth is slowly disappearing.

Everything in life must come with a balance. Because of how fast-paced our world is and how we are well adapted to the convenience of getting goods, it is important that we do not forget, or at least relearn the ways of incorporating our symbiosis with plants and the land again. What this can look like is growing or foraging our own food. Getting to know the plants, soil, and ecology of the land is one huge step to rebuilding the bridge and our relationship again. Learning about the plants that grow among us and taking time to reflect, give thanks, care, and gift them is important for climate justice. When gathering plants, it is important to never take more than what we need, use as much of the plant as we can, and to ask the plant permission if we can gather from it. The plant will not tell, but will show us if we are allowed to harvest. If the plant we want to collect from is the only plant within the forest, or has a birds nest or spider web on it, or even out of arms reach, then the answer might be a no. The plants shows us that it does not want to be harvested as it is providing a home for wildlife, doing what it can to survive and regenerate a population, or growing in that area that it does not want to be interacted with. Ethically gathering from a plant once allowed permission and observing the plant and its surrounding to see if we can collect is essential so that we continue to be responsible stewards. Once gathering is complete, taking the time to give thanks to the plant by clearing invasive weeds around it, sharing kind words to the plant, playing music, or offering gifts such as tobacco, coffee grounds, or a piece of ourselves is encouraged, so that plant may get to know us and trust us.

Climate Justice, Continued

Growing our own food and medicine is another way that we can reconnect with our relationships with the Earth. Creating a garden, collecting seeds, and connecting with the soils is how we can get to know and spend time with the Earth. Growing our own food is like caring for a family. Providing love, time, and cherishing the gifts of plants you are growing is an honorable blessing. When a garden is ours, we choose to take care of it by weeding, watering, pruning, and enriching it. All these acts are performances of the honorable harvest. Caring for the plants, sharing gifts and thankfulness by adding nutrients and weeding, and only taking what we need is what the average person with a garden performs within their own garden space. When we have the opportunity to use of what we have self-grown, harvested, and foraged from the garden or our land, we take pride in those gifts. We had the opportunity to get to know the plant from identifying it or even growing it from a seed and watching it flourish. All these patterns reflect our synergetic relationships with plants.

Conclusion

These relationships learned from traditional ecological knowledge and plant teachings is what we need to practice ensuring longevity of our land, plants, and interconnected relationships with it. Educating, listening, and learning is the journey that is our responsibility to restore good stewardship and kinship for the future of climate justice.

My Home

By: Tayona Heller

Peaceful sunset
Bountiful harvest

We dance in the moonlight,
Beating to the time of
Twinkling stars

Winds talking in my ears
You're here, you're here
howling wolves of ancestor's distant call,

We do not possess we enjoy,
Respectfully feared,
My home is wherever the dirt will hold me
Soil has memory

Sunrises through treetops,
Rays of gold embody the trees
Guardian Post of forgotten past,

So they say "go back home"
It has always been
This, there,
Everywhere

Indigenous Climate Justice: Allyship through Tribal Canoe Journey

By: Lucas Olson

This article is an autoethnography of my first Tribal Canoe Journey in 2023, the "*Paddle to Muckleshoot: Honoring Our Warriors Past and Present*." This was the first journey in several years due to the Covid pandemic, and I pulled with two related canoe families, one which was on its first Journey. Both families are unique in their inclusion of non-Native participants, such as myself. I offer this article as a reflection on the experience and how it has transformed my academic research in a PhD program as well as my thinking about the relationship between identity, knowledge, and climate justice. My aim is to illuminate some of the challenges and opportunities of including non-Native people in spaces and places that are otherwise primarily Indigenous.

Preparing for Journey

As a new PhD student at Seattle's University of Washington campus, I began researching lessons learned from Canada's Truth and Reconciliation Commission for the US. Native advocacy organizations were highlighting a gap in research on church involvement in Native boarding schools, and I was well qualified to do this work as a researcher in international education with a background on religion and politics. I wanted to know how pending Congressional legislation for a Truth Commission was going to impact development in the Pacific Northwest. My family has called this region home for many generations, and I have an ongoing curiosity about what the future will look like as millions of new people are projected to move to the Salish Sea in the coming decades to likewise call this region home. However, my PhD committee would not let me off so easily with my research plan, and in taking coursework on Indigenous Studies, I was challenged to look beyond deficit-based models of research to explore what Native and First Nations are actively doing today to revive their cultures.

Such an opportunity arose when the Center for American Indian and Indigenous Studies (CAIIS) decided to start a Canoe Family at the University of Washington. They recruited an elder named Philip Red Eagle to lead the effort, and he began weekly meetings at the artist studio of the Burke Museum to carve canoe paddles. On inquiring if I could join, he replied, "*We have decided to remain open to non-Natives*," and with his characteristic guile, he added, "...*for now*." And so I began carving a canoe paddle using a hand-sharpened adze and curved knifes to chip away at a block of sweet-smelling yellow cedar. No power tools allowed—this was part of Phil's "*methodology*." For a researcher such as myself, this word stuck out. This wasn't just a way of *doing* something, it was a way of knowing something.

So nearly every week for the next year, I would go listen to Uncle Phil (as students affectionately referred to him) talk with us about culture and share stories from his life. I quickly learned that many of these stories come from his war tours in Vietnam, and I felt a connection with him because of his military history. Both my grandfather's served in the military in WW2. One of them, who taught me to carve wood, was on the same class of destroyer as Phil and also stationed in Sitka, AK where Phil went to high school. My other grandfather was born and raised in North Dakota near the Red River where Phil's father was from. Phil's design of the paddles featured a diamond in honor of the diamond willow walking cane used by his father. Hearing his stories gave me a different perspective of these otherwise familiar places, and I couldn't help but be grateful that we were able to meet in this Canoe Family at a time and place where we could carve together rather than fight on a battlefield.

Besides war stories, Indigenous culture was always being discussed. Phil was an early activist in the global Indigenous movement, including attending UN conferences in Geneva. I would hear him say many times, "*Everyone is Indigenous to somewhere.*" The Canoe Family was inter-Tribal, and so everyone would take turns sharing a bit about their own culture and where they were from. Phil was quick to shorten my last name to "Olly," and I became the token Swede of the group. However, just because we weren't at war didn't mean that power dynamics and privilege weren't constant factors. I would watch people come and go in the carving sessions, observing how group dynamics would change depending on whether there were other non-Native students in the room or curious museum guests dropping by to ask questions. Over time, I began to appreciate how Phil worked to create space for Indigenous students to share not just their culture but also their challenges and struggles. I couldn't help but wondering how the conversation changed when I wasn't there. However, trust began to slowly grow and community along with it.

These conversations left me with lingering questions about my own place and role. I found an awkward irony of this group was that while most of the people were Indigenous to different places across the continent, I was born and raised within walking distance of where our carving group met. Furthermore, I have never been to Sweden! I may be a descendent of people who have settled here, but how can I be a settler for living in the place I was born? Where am I Indigenous to? I began learning more about the Native history of the place where I was born, and I learned the Lushootseed place-name is *líq'təd* (Licton Springs), which means Red Mud. This area of Seattle used to be natural hot springs that gave the mud a reddish tint and gave the place a reputation for healing. Only one small spring was left as a reminder of what this place was like before concrete roads and suburban development, and Native students at the local school had recently advocated for Seattle to designate it as a protected historical site. The right to harvest the red pigment belongs only to those Duwamish descendants with ties to this place.

Throughout my experience with Canoe Journey, this strange feeling reoccurred from learning the differences between my relationship with a place and Native people(s). It didn't take much investigation to learn that no one else in my family knew about *líq'təd*, though everyone had their own stories about the park where this spring is located. Following the creek this water drained into led to another revelation as

Indigenous Climate Justice: Allyship, Continued

it flowed right by my childhood church. A book on the church's early history describes its founding by Swedish Baptists as a "*mission to the local Native Americans.*" The words at the end of the preface echoed in my head, "*Ultimately, our homeland is in heaven.*" The lesson to me is clear: my home may be here, but this place is another people's homeland. Perhaps rather than me being Indigenous to somewhere, a better way to put it is, in the words of Robin Kimmerer, that I come "*from people who were once Indigenous*" (Braiding Sweetgrass, p. 377). In this manner, I too can go through a process of "*reculturation*" that Phil keeps talks about—reclaiming the cultures of my Indigenous ancestors.

While the paddles were making progress, another recurring question for Canoe Family was a canoe. Phil began talking about carving one from a log, and he took me up on my offer to help him find one. The chal- lenge was that Phil wanted a Western Red Cedar, 4-5 feet wide. I did the math to estimate how old that would be, and it was roughly ~500 years old. Just old enough to predate most people from Europe arriv- ing to this continent. However, I eventually heard back from the state's Department of Natural Resources (DNR): "*Currently, we have about 4-5 requests from Tribes we are unable to fulfil because the resource doesn't exist.*" A convenient way to avoid saying they've all been logged. What does climate justice look like when a millennia is needed for these forests to regrow? Some old growth is still available in national parks and forests, but I learned requests needed to be made directly from federally recognized Tribes for their treaty rights to harvest in their customary lands. Furthermore, finding a tree to harvest for Canoe Journey requires very specific cultural protocols to which I was not privy.

Instead, Marylin Oliver Bard provided the way forward by donating a canoe called the *Willapa Spirit*. As I would learn from her, this canoe was carved as an honor canoe for her father, Emmitt Oliver, who helped start Tribal Canoe Journeys, and the donation was directly facilitated by the President of the University of Washington. As the Supervisor of Indian Education for Washington State, her father worked with the US Forest Service to provide several old growth logs for dugout canoes during the first Tribal Canoe Journey on the 100th anniversary of Washington State. However, the *Willapa Spirit* was a strip canoe instead of a dugout canoe, a common design now that old growth cedars are so rare. Regardless, like all Indigenous canoes it was said to hold knowledge.

Before the canoe could go in the water an Awakening Ceremony was required, and I was invited to parti- pate along with all the other Canoe Family members. At the ceremony Marylin quoted [illegible] other founding member of the Canoe Journey who called [illegible] ceremony: "*[illegible]*" [illegible]

noe Family memb[illegible] homeland as an un[illegible] meant to be a guest[illegible]

However, I was invi[illegible] the Montlake Cut. I[illegible] but I joined when it[illegible] the Cut wearing mat[illegible] what these people th[illegible] many knew the Lush[illegible] Channel)? What doe[illegible] lake was drained 9 fe[illegible] this story?

My departure for Can[illegible] Canoe Families. The fi[illegible] Lummi. The second w[illegible] south down the coast. tents and a long line of[illegible] and the spacious intert[illegible] hard it was to find, let[illegible] was like entering a cath[illegible] began by honoring the[illegible] The emotion was palpa[illegible]

Indigenous Climate Justice: Allyship, Continued

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Before the canoe could go in the water, an Awakening Ceremony was required, and I was invited to participate along with all the other Canoe Family members. At the ceremony, Marylin quoted Frank Brown, another founding member of the Canoe Journey, who talked about the entirety of Tribal Canoe Journey as a ceremony: "*To lose a ceremony, is to lose a past. To create a ceremony, is to create a future*" (Emmet Oliver. "Two Paths"). Then we walked around the canoe, blessing it with cedar branches dipped in water. In addition to the University President, descendants of the city's namesake, Chief Sealth, were there too, and they talked about the millennia of their ancestors who have lived and died in this place—their bodies absorbed into the Land, the trees making up the building we were in, even the food we were eating. Another Ca-

noe Family member presented the Duwamish with gifts and sang songs to thank them for being in their homeland as an uninvited guest. I felt embarrassed I didn't have anything similar to give. If that's what it meant to be a guest, then surely I was not one.

However, I was invited to pull in the awakened *Willapa Spirit* in the annual spring boat parade through the Montlake Cut. I was skeptical at first, not wanting to take a seat in the canoe from a Native student, but I joined when it became clear they needed as many pullers as they could find. As we pulled through the Cut wearing matching purple t-shirts with crowds of cheering people on either side, I wondered what these people thought of this Native canoe otherwise surrounded by powerboats and yachts. How many knew the Lushootseed name of the place and nearby Duwamish village, slu?wił (Little Canoe Channel)? What does climate justice look like to know the watershed was permanently altered when the lake was drained 9 feet to flow out of the canal instead of into the Duwamish river? What is my role in this story?

On Journey

My departure for Canoe Journey began on the Lummi reservation. Several people were pulling in two Canoe Families. The first was Uncle Phil's "home" canoe family based out of Tacoma and leaving from Lummi. The second was the new university canoe family that was leaving from Tulalip, just a bit further south down the coast. When were first arrived to the park along the coast, we were greeted by a sea of tents and a long line of intricately designed canoes on the beach. Dinner was served at the Big House, and the spacious interior was framed by the trunks of at least 10 old growth trees. I thought back to how hard it was to find, let alone obtain, one old growth tree for a canoe, and the experience of walking inside was like entering a cathedral. Evening protocol began shortly, and representatives from Muckleshoot began by honoring the names of those who had died during Covid, helping to put together this journey. The emotion was palpable of holding this journey after several years hiatus due to the pandemic.

We went back to our base camp amongst the sea of tents and went through a round of introductions since there were some people meeting for the first time. This Canoe Family included quite a few non-Native people who had been doing Canoe Journey for many, many years. I didn't notice anyone introduce themselves as being a Settler or White. Instead, people introduced themselves by the culture of their ancestors. We ended with an exhortation to take care of the elders in our group first and foremost, even before the pullers. I did not feel like people were there motivated by a sense of guilt or shame. Rather, we were finding ways to follow protocol, recognize privilege, care for those who needed it most, and support Indigenous cultural revitalization. Phil gave me a fist bump when I told him goodnight, and I was grateful to feel like I belonged.

The next morning began early with the buzz of a double rainbow on the horizon, which set the stage for departure protocol. A representative from Lummi was granting each canoe's request to leave, and each canoe was given a wreath of cedar boughs. I sat on the beach watching the process, which reminded me of an exit visa when leaving a country. I heard the representative saying "*Thank you for remembering the old ways*. We need to learn to work together." Unfortunately, the weather was quickly turning foul – strong winds, heavy rain, and clouds in every direction. Nevertheless, people waded fearlessly up to their

Indigenous Climate Justice: Allyship, Continued

waste in the cold water to hold the large canoes steady as people climbed in. Our Canoe Family had needed an extra volunteer for ground crew, and I was feeling lucky to not be on the water that day. Before I knew it, the park was all but deserted as we all departed for the next stop along the way.

The next host was the Samish Nation. While we missed most of the landings because of the time it took to set up camp, we arrived in time for one last welcome protocol. When word of the canoe approaching reached the shore, several Samish rushed to the beach to sing and drum while the canoe pulled close to the beach. The canoe asked for permission to disembark and "*honor your shores.*" On that note, everyone present on shore raised their hands in enthusiastic response, and the Samish welcomed them to disembark on their "*territory.*" The next day is my first day pulling in the canoe, and I feel a bit odd to be a part of the departure protocol but not yesterday's welcome protocol. Perhaps that is poetic for a Settler, or at least someone who was never granted permission by the Samish to be there in the first place. However, the protocol is, at least in part, performative compared to an actual immigration visa; it's meant for those arriving and departing by canoe and not those moving about by land or outside the pilgrimage that is Canoe Journey. And my anxiety was for naught; our non-Native skipper that day enthusiastically shared their gratitude with the Samish delegates on the shore, saying "*We love you!*" The Samish responded in-kind in the Lushootseed language before adding, "*I'll see you later.*"

After several hours of pulling, we finally arrived at our destination just next to where our campground was set up. Three huge picnic coverings in the shape of cedar hats sheltered the shore where we arrived, just across the water from the town of Edison. I couldn't count the number of times I had eaten at the restaurants lining the waterfront of Edison, looking across the canal to the Cedar Hats with curiosity. This was the first time I looked back from the other side at the small gaggle of tourists watching the canoes pull into shore. The Swinomish had a stand with a mic system set up to help participants here what was going on, but it also helped put on a good show.

Over the following days, we continued pulling along the coast in this manner until we were finally joined by the university Canoe Family pulling alongside. The university Canoe Family had recruited enough Native people eager to pull in the *Willapa Spirit*, so I largely stayed with Phil's "home" Canoe Family where there were elders whom I could help support. However, when we reached Suquamish, our first destination together, the UW skipper allowed me to sit "princess" for their first landing protocol. The canoe was packed with so many people that it was almost sitting low enough to take on water. The Suquamish chairman, also a UW trustee, was there to welcome us along with a young Suquamish child who was clearly being trained as part of the next generation. On shore was one of the largest feasts I have ever seen in my life, with enough food for over a thousand people, including fresh smoke salmon, oyster, clams, and shrimp.

The next day was a naming ceremony for the *Willapa Spirit* to receive a Lushootseed name. The name was čawaʔyaltxʷ, which means Shell House Family, named after the Shell House building on campus where the canoe is kept and the Awakening Ceremony occurred. Everyone in the Canoe Family was required to participate, and the President of the UW as well as the President of the UW Board of Trustees were both present to witness the ceremony. I was surprised at the powerful turnout for this ceremony, demonstrating how important this canoe is to bringing people together. On the way to the ceremony, I struggled with what my role was supposed to be in this ceremony from a culture that was not my own, and I silently made a commitment to learn more about my own Nordic heritage going forward. The Board President said a few words about how grateful he was to be there with his family and their journey learning about Native American culture. I remembered the lesson I learned early on in my PhD program to say "*Native peoples*" instead of "*Native Americans*" to recognize the diversity of cultures as well as their rights through the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). Maybe a part of my role is sharing what I've learned with other non-Native people.

That evening was an additional ceremony led by Phil Red Eagle. Over the last several decades, he has made thousands of copper ring necklaces for participants in Canoe Journey. The ring has a small break in it that he said means,

> *The circle is always open for those who want to rebuild our cultures. It isn't about being at war with White people. Though not everyone may agree with that.... When Tribal Canoe Journey first started, it was barely a decade after the US government passed religious freedom for Natives in 1978. I think that passed because Carter knew how many Natives died fighting in Vietnam. We had to go to houses along the coast in advance to let them know not to shoot at the canoes when they came by.*

His words reminded me of a conversation during our carving class many months ago where we were talking about what brought us to the canoe movement, and all he said was, "*Peace.*" What a powerful transformation for someone to go from a warrior on a foreign battlefield to someone fighting for peace back in his homeland. Who are the warriors today and how are they fighting for peace?

The next day was the final day of pulling as we went from Suquamish to Alki beach. As we made the final approach, I said to the university skipper that I should probably stay out of the canoe this time or else it would be too full for the landing. I could feel the gratitude in his response for stepping back to allow the Indigenous students to land on their own. They pulled away from the support boat with their matching hand-carved paddles while singing in Lushootseed. I was reminded of Phil's methodology. Canoes do indeed carry knowledge.

Indigenous Climate Justice: Allyship Continued

After Journey

The protocols of Canoe Journey provided a medium through which to reflect on my changing perception of identity and knowledge, as well as the importance of a changing perception of time when thinking about climate justice. Perhaps the challenge of identity labels like Native, Indigenous, Guest, and Settler lies in the language being used. What words are there to describe myself in Lushootseed? One option might be ʔəs√kʷəd=í=dup that translates to "squatter" or "settler," which has a similar root as to "take" or "grab." Alternatively, xʷəltəb translates as both "Caucasian" and "shotgun." Still another option is ləliʔ=áʔkʷ=bixʷ that translates as "foreigner" or someone "different." Or tul'√lil that can also mean "foreigner" and shares a root with "from where?" A bolder option might be t'əd=áx̌ad that translates as "neighbor" or "lined up side by side." These terms add some context that can be lost in English and highlight different relationships with a changing landscape that ties us all together. What might it mean to be a good neighbor, if not today then maybe in the lifetime of a cedar tree that can grow for over a millennia and maybe one day become a canoe?

Elk at Work

By: Justice Bill

Empowering Habitat Stewards and Indigenous Knowledge Preservation through Geospatial Data Collection:

A Comprehensive Tool for Community-Driven Ecological Restoration and Land Management

By: Annette Woolley

I'd love to say that I was fully engaged in every single class I took in high school, but I can't. There were some that had a bigger impact on me and some that didn't. I was much more interested and focused in classes with an inquiry-based method of learning. Inquiry-based learning is one where the student's curiosity drives the learning, and the student is also responsible for doing the work of learning. Environmental Science was a newer science class offered at my high school at the time. At first, I didn't know what to expect from this class. As the class progressed, I was fascinated by the web of connections that everything has. Also, I discovered that I cared deeply about taking care of our Earth. Later in college, when I had a chance to choose courses, I ended up taking another environmental science class and again enjoyed the learning. I still remember being questioned by the professor to think of the impacts of certain pollution. I thought about it and posed the wondering if air pollution contributed to water pollution. Was it possible that when water fell through the air that it gathered the pollution particles from the air and brought them to the earth? The short answer is yes; air pollution does impact water pollution. What amazes me is how things are connected that we may not even be able to see. Something as small as a particle can have a big impact, especially collectively. Thus began my journey to try and be eco-conscious. By eco-conscious, I mean that I try to be aware of the impact I have both in a positive or negative way on our environment and in turn, make more positive choices to live by. By no means am I perfect, but I try to make choices that will help our Earth versus hurting her.

Fast forward to today, where I am enrolled in the Muckleshoot Cohort at the University of Washington, Tacoma, working toward my Ed. D. degree and I had the choice of writing a paper that researched an issue of a specific tribe that spans from the time of pre-context to the present day. Being a teacher myself (and Yakama), choosing to focus on the Yakama Nation and storytelling came easily, but what caught my attention was the theme of Indigenous environmentalism that emerged as I looked at Creator stories. Indigenous environmentalism is distinct because it is rooted in the relationship that we have with Mother Earth: a relationship based upon reverence and respect. Furthermore, Indigenous environmentalism consists of the belief that we need to do our best to create a good place for future generations. I like the way Kimmerer in *Braiding Sweetgrass* describes what becoming Indigenous means. "For all of us, becoming Indigenous to a place means living as if your children's future mattered, to take care of the land as if our lives, both material and spiritual, depend on it" (Kimmerer, R., 2013, p. 9). I see strong values in her definition

that speak to me, and I see these values in the Yakama Nation Creator stories and in their current practices, specifically in their Climate Action Plan.

The Yakama Nation has used storytelling to teach each generation about the earth and Indigenous environmentalism for thousands of years. The use of stories generated knowledge that was shared by Elders for tribal youth to listen to and learn from. These stories formed the roots of Indigenous environmentalism. Stories about the Creator show how to treat the land and all living creatures. "Generations before the advance of the modern world, the lands of the Yakama extended in all directions along the Cascade Mountain Range to the Columbia River and beyond. We considered it land given in trust by the Creator for the use of the living and a heritage to be held and protected for unborn generations" (Yakama Nation, yakama.com). Lessons to be learned from storytelling about modern day Indigenous environmentalism inspire living in balance with Mother Earth and protecting her. Within the stories, there is a message of communal living with the Earth and a focus on respecting all living creatures within it.

Yakama people have used legends since the beginning of time. There is a strength and durability of the stories that have lasted. Virginia Beavert is a Yakama Elder that has been sharing her knowledge for many years. She began recording Yakama legends, stories, and language for future generations of Yakama to utilize and know. From her recent book, *Anaku Iwacha: Yakama Stories and Legends*, it speaks to the tradition of storytelling and the importance of the Elders that impart this knowledge. "...coming together to benefit future generations through the power of storytelling and recognizing Elders as revered teachers was not new; indeed, that is how our people have always survived and organized ourselves" (Beavert, V., Jacob, M.M., & Jansen, J.W., 2021, p xv). In her book, *The Gift of Knowledge,* she goes on to explain the importance of Storytellers, "The Storyteller was my educator about the value of Native culture, and how to respect other people and all of Creation" (Beavert, V. & Underriner, J.L., 2017, p. 103).

The children learned from the Storyteller and Elders. They learned about their world and the living creatures in it. They learned about their connection to the earth and in effect, what we now refer to as Indigenous environmentalism. "An Elder is an important part of a child's entire life as they are the transmitters of cultural knowledge. Training begins at an early age when the Storyteller recites the ancient legends while pointing out lessons about what is right or wrong" (Beavert, V, & Underriner, J.L., 2017, p. 39).

The Storyteller was a leader in the Yakama community and had meaningful ways to teach children the value of respecting the environment and community. One way the Storyteller would engage youth was through the use of animal stories. Coyote (Spilyay) was often used to teach lessons about Indigenous environmentalism and the respect of nature. "Spilyay is the legendary trickster who appeared most often in the guise of a coyote and who- with daring and humor- taught mankind how to survive and live harmoniously with nature in all forms and moods" (Yakama Nation Museum, 2023). Using Coyote as a fun character to transmit important stories was a method that has been remembered and lasted.

Respecting nature was a core value for the Yakama that they taught their children. "Children were taught from the beginning that the life he or she carried was not his or her own. It is a gift from the

Empowering Habitat, Continued

Creator. The child is taught to take care of life, to respect it, and to respect everything on this earth that has life, because all things are like brothers and sisters" (Beavert, V., & Underriner, J. L., 2017, p. 41). Respecting life and knowing that "everything on the earth has life" guides the Yakama to be care takers of the Earth, as it takes care of them and provides them with life, creating a sacred circle of reciprocity.

The Yakama People have a relationship of respect with the land. They do not believe they own the land nor can they control it. Scheurman highlights this when he studied the ancient legends of the people from the Columbia Plateau, (which includes the Yakama). In *Sharing the Fire: Place-Based Learning with Columbia Plateau Legends,* he writes specifically that the Yakama had a *relationship* with the earth as opposed to owning the earth. "Human beings are to be stewards or proprietors (vs. owners) of creation. Humanity exists in a covenant relationship or sacred trust (ahtow) with the Creator through which sustenance is provided to people, animals, and plants" (Scheuerman, R. et.all, 2010, p.51).

An added benefit to learning the values of Indigenous environmentalism is that it helps Yakama people know who they are. Beavert reveals this idea, "That was the reason the Elders were teaching the youth, nurturing them gradually to acknowledge their identity" (Beavert, V., & Underriner, J. L., 2017, p. 40). For the Yakama people, knowing their identity and connectedness to the earth is important. Not only is identity development an important characteristic but other authors point to the importance of a person's holistic development too. "We need to all strive to live, daily, as real human beings. 'Traditional ways respect the life support system of our planet, show us how to live sustainably, and teach us to use what we call common sense, by which we mean how to live. We need these skills more than ever today'". (Merculieff and Roderick 2013, 117) This is an Indigenous Elder's view of what a valued education should contain. Students must learn to respect the planet, and live sustainably. From an Indigenous perspective, the development of the whole person is crucial (Jacob, M. M., 2016, p. 50). Students are learning from their Elders who they are, how to live, and they have learned this from traditional ways of storytelling and listening to leaders in their communities.

Yakama legends draw on a relational and communal nature that derive from a deep understanding of the place and people from where they came. "We also gain a perspective of the past, preset, and future through selected stories of one's people and place. And we recognize and honor the "teachers" who reside within us, within our relationship with others, and within our relations with the natural world" (Cajete, 2015, p. 98). Mother Earth is our teacher. Each generation of learners should know the places where they came from and be open to hearing the lessons Mother Earth has to share.

Trauma in the form of pollution, abuse of resources, and harm to animals has been done to the Land. Just like trauma in people, trauma to the Land must be healed too. Listening to the teaching of the ancestors through legends may help in the healing process. "We all have a spiritual responsibility to care for the environment,to recognize that the health and well-being of the people are tied to the health of the land, water, and air. In helping each other and healing our relationship with the land, we are healing ourselves.

While (Chief Joseph) Nez Perce people continue to resist a colonizing vision of harmful invasion, Indigenous peoples who are holding fast to their ancestors' teachings are guiding the way to healing our lands, communities, and the planet" (Jacob, M. M., 2016, p. 72). It is imperative that we look to the past to help heal ourselves today. Climate change is a problem we are facing today that was initiated in the past. "We need acts of restoration, not only for polluted waters and degraded lands, but also for our relationship to the world" (Kimmerer, R., 2013, p. 195). In order to heal, we need to listen to Mother Earth and hear the stories and lessons she has to give us. "As a society, we need to 'Stop Talking' and slow down to listen, understand our place in the large collective, and sense our responsibility to Mother Earth" (Jacob, M. M., 2016, p. 69).

Yakama legends and storytelling about the Creator and Mother Earth, given to us by Elders from the beginning of time have become more pertinent because of the knowledge of climate change and its accelerating impacts. Indigenous environmentalism incorporates and includes multiple communities because it is an issue that impacts Yakama Nation, Turtle Island, and the world. We are all connected. Yakama Nation has included other groups to work on the challenges of climate change and have created a Climate Action Plan to try and address it. One motivator for addressing climate change is the concern for the next generation and all subsequent generations after. Indigenous environmentalism is important. Knowledge from our Elders needs to be heard, respected, and implemented together to heal Mother Earth.

Yakama Nation has developed a strong sovereign tribal system and has been able to utilize its government, resources, and systems to support the protection of Mother Earth. Yakama Nation has multiple departments that focus on the Earth, including the Air Quality Section, Department of Natural Resources, Environmental Management Program, Forest Development, Water Resource Program, and a Cultural Resources Program (Yakama Nation, 2023). The Cultural Resources Program goals state, "The Cultural Resources Program was set up as the arm of the tribal government to preserve, protect, and perpetuate the principals of the unwritten Creator's law of water, land, air, the cultural, natural and human resources to include legendary sites, places that our ancestors utilized and enjoyed for thousands of years prior to Treaty time" (Yakama Nation, 2023). At the heart of their goals are lessons from the Creator. Their mission of respecting our Earth has been prevalent and continuous. More recently, it has led to the development of an official Climate Action Plan. "The goal of this Yakama Nation Climate Action Plan is to honor, protect, enhance, and restore all human and natural resources that support historical, cultural, spiritual, and economic practices of the tribes. We will emphasize strategies that promote healthy communities, ecologies, and river systems to achieve this goal. We will protect tribal sovereignty and treaty rights and reclaim the precious resources and the environment on which they depend for our future generations" (Yakama Nation & Cascade Consulting Group, 2019, p.9).

Yakama Nation has put cultural practices through storytelling at the center of their work on helping protect the environment. "Oral stories remind us of our origins and serve as lessons for the younger members of our communities; they have a place in our communities and in our lives (e.g. see Basso, 2000; Battiste, 2002; Olives, 1990). They also serve as guideposts for our elders and other policy-makers in our tribal communities" (Jones Brayboy, B. M., 2005, p. 439). Storytelling and legends guide the steps and actions the Yakama Nation take and can be seen in the policies in the Climate Action Plan.

Empowering Habitat, Continued

Community is important to the Yakama Nation, and they know that in order to take care of our Earth, we need to work together with multiple agencies. Other people have seen this too and said, "In light of climate change, water and salmon resources will likely require federal, state and tribal management actions" (Montag, et al, 2014, p. 395). In the Climate Action Plan, Yakama Nation collaborates with multiple groups. "The Yakama Tribal Council calls upon the United States government branches and agencies to work with us to assess and document these findings and directs Yakama Nation staffs to work closely with other tribal, state, local governments, and non-governmental entities to find areas of common interests and support for future collaboration" (Yakama Nation & Cascade Consulting Group, 2019, p.20). It is important to recognize a shared responsibility to try and help our Earth heal. "...Since we all live in Earth's environment, and we all depend on our interactions with our environment to continue living. The principles of living sustainably do no apply only to Indigenous Peoples" (Cajete, G. A., 2015, p.204-205). We have to work across the invisible lines we create to divide the Land because the Land connects us all, and we all impact the Earth and are impacted by climate change.

People cannot live without what the Earth provides for us. "We need the earth. The earth doesn't need us" (War Bonnet, M., 2023, personal communication). We need to have conversations and focus on what we need to do to help our environment. "Land-inclusive dialogue deepens both an ecological and an ethical relationship to a place, a landscape, and a homeland. It also restores a political relationship-the land where the People belong and where the People belong to the land" (Cajete, G. A., 2015, p.217).

In order to create more impactful change, we need to focus on environmental leadership. "Leadership occurs in the context of the importance and wisdom of Elders, leading within and understanding that adaptability and tradition are essential and part of our history, that committed relationships are critical to deep transformation, and that we are strengthened within and by the collective" (Minthorn, R.S., & Chavez, A. F., 2015, p. 8). Much like how tiny air particles can collectively pollute water. Our positive collective actions and leadership can be transformative too.

Yakama Nation is stepping in the right direction to address climate change with a focus on tradition and culture. Jeremy Takala from Yakama Nation said, "You hear that term, 'traditional ecological knowledge,' we understand it, we know it, our elders knew it, and that's why we always share our concerns for the progress that is made by a western society" (Yakama Nation Fisheries, 2023).

It is important to have open dialogues that can lead to better ideas, solutions, and work that can begin to develop strong climate change strategies. "Community dialogue is not a onetime event but stimulates an ever-growing spiral: shared thoughts lead to informed actions, which lead to new knowledge, understanding, competencies, and effectiveness, all of which motivate the community to keep engaging in dialogue. The process generates an ever-evolving spiral of inquiry, action, and knowledge creation" (Cajete, G. A., 2015, p.216).

As a collective group, we all need to figure out what we need to do to change. We need change from all levels of government and from each person so that we can make a positive impact, otherwise our planet will continue to be unhealthy and critical species will disappear. This Climate Action Plan will have little value if it is not implemented. It must be implemented. This Plan represents a wide variety of strategies and actions that have wide support within the Yakama Nation and are consistent with actions advocated by neighboring tribes and state, federal, and local governments. This Climate Action Plan represents a milepost; it is a beginning to an ever-changing story for generations to come. Implementation will require a persistent and resolute effort by both tribal leadership and staff. Many of the actions will be expensive, cross jurisdictional lines, and require appropriate monitoring to understand their effectiveness. To date, many of these actions are difficult or cannot be funded under current governmental budgets. To implement this Climate Action Plan, there must be appropriate funding. New funding avenues to address climate change must be advanced. New innovative partnerships between non-governmental organizations, tribes, and non-tribal governments must be established. Future business cannot be "as usual." This is the challenge for our current and future Yakama leadership, our staff, and our people. It is the intent of this Climate Action Plan to guide these future efforts for the benefit of the Yakama Nation and our children" (Yakama Nation & Cascade Consulting Group, 2019, p. 11). The Climate Action Plan is a big undertaking, and it will take many people leading the way and working on behalf of the next generations.

Yakama Nation has the ability to be a leader in climate change and action and I hope that we continue to speak up about it. "There will always be impacts. That's what we've been saying all along, that's what our ancestors have been saying all along... You have to speak up for our wildlife" (Jeremy Takala, Yakama Nation, Yakama Nation Fisheries, 2023). Every Yakama Nation member has a role to contribute to this plan and has the ability to impact it in some way. One part of the plan was to get all of this knowledge to each tribal member so that there can be a shared vision and hope. We all have a responsibility to serve our tribe and our Earth. "...the great responsibility that Native people feel-to our cultures, to our ancestors, to all the leaders, students, teachers, and healers of the past, and to the students, teachers, and healers who are yet to come. It is about fulfilling one's potential to carry out the instructions that the Creator has provided. To be a leader is to be a servant" (Jacob, M. M. in Kenny, C. & Fraser, T. N., 2012, p. 179). We are at a point where we need to listen to our Earth's needs. "To maintain this sense of coherence, we can accept the earth as our first embodied concept of leadership. We follow Earth. We respond to the guidance of the processes expressed in our home place. Many say we listen and respond to our Mother. Everything begins here" (Kenny, C. & Fraser, T. N., 2012, p.3).

The Yakama Nation is working to honor the Earth, lead with others, and make positive action happen. Other organizations across the globe can emulate the work Yakama Nation is doing in their efforts to work together to solve or minimize climate change. Jeremy Takala said, "The Northwest is a key part of our world, and my hope is that it can be protected" (Yakama Nation Fisheries, 2023). We need to respect our Earth and work together to leave a healthy environment for our children. Davis Washines said it so simply and profoundly, "Yakama Nation-one of the beliefs that we carry is that we don't own this. It belongs to our children. Wow, what a thought! (Yakama Nation Fisheries, 2023).

Empowering Habitat, Continued

Yakama Nation is working with multiple diverse groups. One such group is the University of Washington Seattle where they have a class called, "Role of Culture and Place in Natural Resource Stewardship: Yakama Nation Experience" (Climate Impact Group, 2016). It is a great utilization working with different groups such as educators and students. Working with multiple groups will be key to making the biggest difference in slowing climate change. "The impacts of climate change are being noticed by our people today, and our grandchildren will likely see profound effects upon our communities and our way of life. We cannot know and anticipate all changes at this time, but we can prepare. Together, we must look ahead and blend our traditional knowledge and cultural insights with newer innovations to create a future where the Yakama Nation will continue to thrive despite the changing climate" (Yakama Nation & Cascade Consulting Group, 2019, p.15). Perhaps there will be more students that are inspired in their science classes and this will lead to innovations to help Earth heal, mitigate climate change and they will know where this knowledge comes from.

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El Río me dijo que íbamos a ganar

By Aleyda Cervantes

If you lay down
and feel the soil underneath your palms,
Intimately making its way to you,
smelling you
Flavoring your touch
Listening to genetics buried in your hair
Murmuring back to you
The secrets of generations
crunching dead leaves.
Inaudible
drums made out of
thunderstorms
Rhyming
to the sound of Monarca wings.
River ancient memory
pulling us back to its current
Only one truth
we hold true
From the Earth we are

I believe you Bertita,

how you reminded us we are winning.

El Río me dijo que íbamos a ganar
The river, the ocean and all of the waters
Tell us we are winning.

Here we are fighting.

Standing and never forgetting.

In loving memory of all of our indigenous leaders in Turtle Island who keep teaching us how to love our home. Like you, Berta Caceres. We remember the power of your words.

Photo: *Iridescent Seaweed, Lummi Island*

Traditional Introduction

In my small town when you greet someone they usually ask you? Y tú de quién eres? Which roughly translates to who do you come from. Then I answer, I am Aleyda, Maru's daughter, from Chema and Refugio. The following question is usually Chema Gutierrez and I say yes, and they comment on how grown I am. To know people in my community is to know the people they come from.

My family has passed down their knowledge through dichos[1], storytelling and conversations. We have sat in our living room endless evenings as my abuelita[2] told me how she had to walk miles to get water and wash her clothes, how you had to watch them often as they were drying or they would get stolen. My abuelo has told me about living in the same house since he was a child, how he gave his sister part of it and now his son lives there. Their stories are history. In this paper I reflect on the stories my grandparents have helped me understand historical moments, their own journey and how our small town landscape changed. Using platicas methodologies (Fierros & Bernal, 2016) and storytelling as a framework, I plan to reflect on the importance of listening and historicizing the stories of elders and answering the following questions. Can the land speak to us through the stories of our elders? How has our environment changed and how can we learn through stories? What would it mean to write our history using storytelling?

1.Dichos are Mexican sayings where usually a lesson is hidden in between riddles.
2. I addressed both of my grandparents as abuelita (grandma) and abuelito (grandpa)

Empowering Habitat Stewards and Indigenous Knowledge Preservation through Geospatial Data Collection:

A Comprehensive Tool for Community-Driven Ecological Restoration and Land Management

By Amy Boucher

Abstract

There is a need for a geospatial data collection tool that volunteer habitat stewards and other groups or individuals can access that allows them to collect information about the work they are doing on the ground and in their communities, in a simple yet comprehensive way to promote people to connect to nature and participate in habitat restoration activities. The other part of this data collection tool is for it to be easily shared with the agencies they serve and the land managers that coordinate the overarching work on the ground. By creating such a communicative tool, land managers can tap into location intelligence that will reach beyond the paper trail of numbers that are the common way of collecting volunteer information and volunteer habitat restoration work. The tool can also collect qualitative information about the benefits individuals receive while participating in habitat restoration work or park clean up's. In addition to collecting volunteer information, it is important to have a dataset that provides a geographical visualization of Traditional Ecological Knowledge (TEK) of the local indigenous communities that traditionally managed the land pre-colonization, this is an integral part of the restoration process. TEK practices have the power to unlock a deeper connection that promotes a sense of place that leads one to want to honor and respect the land. The benefits of using an effective data collection tool include creating opportunities to fill service gaps, meet agency and community needs, increase volunteerism, and restore ecological and social systems while also preserving culture and history. The output of these 3 datasets is key to a successful and sustained habitat restoration.

Introduction

There is an urgent need to create opportunities for people to re-connect and/or connect deeper to nature, especially coming out of the pandemic, which isolated us indoors and increased our exposure to the 'extinction of experience'(Soga and Gaston 2016) This is the process in which, "increasing urbanization and urban lifestyles have progressively disconnected individuals from nature and threatens human's well-being." This is just one of many ways that cause people to disconnect from nature. William Cronon's book "Common Ground," explains wilderness as"out there vs. in here....we need to get back to see that nature surrounds and is a part of us (Cronon.1995)

So how do we protect humans' connection to nature and promote the benefits that come with it. (Coll ′eony et al., 2020b; Coll ′eony and Schwartz, 2019; Pr ′evot et al., 2018). How to we grow a respect for the land and an obligation to care for it? One way of doing this is by documenting the work that is being done and sharing the story of that work to inspire others. Collecting this information using a simple yet complex data collection tool, will also help those managing the land do it more effectively thus resulting in more support to volunteers doing a lot of the habitat restoration work in these natural areas and open green spaces. Natural areas and open green spaces get limited funding and staff time appropriated to them, so volunteer habitat stewards truly are a key factor in the ecological health of these natural areas and open green space. It should be a priority of land manager working with volunteers, to implement an effective data collection tool that collects data that taps into location intelligence, by doing so informed decisions that creates opportunities to fill service gaps, meet agency and community needs, increase volunteerism, and restore ecological and social systems while also preserving culture and history can be designed. However, the problem here is Agencies managing these lands don't have the staff or time, or don't have access to capital to support the cost purchase pre-designed programs, and many times they don't have staff that has the GIS expertise needed to design such a tool.

What this research will provide agencies managing these lands and volunteers doing the habitat restoration work, is an info sheet to educate and inspire people to take the time to collect the data. In addition to the info sheet/tutorial, there is a form that was created for Metro Parks Tacoma that will be given as an example of the build out of the dataset and the importance and value of each layer, feature class, and domain. The hope is this tool can be adopted by other agencies or volunteer groups doing habitat restoration work, or if not, to give them the insight to think about what type of data needs to be collected and how it could be set up using ESRI field maps.

The second phase of this project is the geographical visualization of Traditional Ecological Knowledge (TEK) of the local indigenous communities that traditionally managed the land pre-colonization; this is an integral part of the restoration process. TEK practices have the power to unlock a deeper connection that promotes a sense of place that leads one to want to honor and respect the land. Having a layer on Field Map or a separate story map the steward can easily click or access will be a tool used to recruit volunteers or inspire them to return.

Empowering Habitat Stewards, Continued

Most people appreciate receiving knowledge like this. Having the TEK information alongside the restoration data collected over time, a powerful story of stewardship can be shared and bring us alongside the Tribes. Opening doors for meaningful allyship and partnership. We can assist them in the preservation and protection of their local history and culture. Providing access to this important information, agencies managing the lands and habitat stewards leading volunteer groups doing the work can have literally in the palm of their hands that has the power to foster deeper connections to the place and meaning to the volunteer work they are doing, thus resulting in a more resilient ecological-minded community that respects that land and takes ownership in caring for it.

Literature Review

Background & History of Ecological Restoration

Ecological restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed, as defined by the Society for Ecological Restoration. We can look at history and see the disconnection between people and nature grow as development progressed. In the book, Wilderness and the American Mind, author Nash, highlights the philosophers in the early to mid-1800s who were considered transcendentalists. These people saw the capitalist and materialist world growing around them, and wanted to warn America not to do what the "old world" did...which was cultivate all the land, but instead leave some untouched, untamed, wilderness. The balance of these two would come to be the symbolism of nature to our country and the roots of our land stewardship ideologies. The book continues to go through history and explains the different ideologies behind conservation versus preservations: Pinchot vs. Muir. Knowing the history behind our conservation methods, land management, and how we view and value nature is what guides our actions to get involved. Whether a volunteer, a steward, or someone who is interested in learning more. (Nash 2014)

These ideals about how one should manage land vary across the landscape and are dependent upon many things such as access to resources to manage them and resources that are staffing, funding, and knowledge. Each agency managing land will determine what lands they manage and how based on their priorities and available resources. This is where volunteers come into play. Volunteers that take on a personal responsibility to help an agency manage natural areas and open green spaces are called habitat stewards, native plant stewards, land stewards, tree stewards... you get the point. Merriam-Webster defines Stewardship is defined as "the careful and responsible management of our natural resources. Or more eloquently described by Aldo Leopold (1949), "changes the role of Homo sapiens from conqueror of the land-community to plain member and citizen of it. It implies respect." (Lee and Hancock. 2011) Many of these habitat stewards are part of larger environmentally focused groups like the Sierra Club, Forterra, Earth Corp, Washington Conservation Corp, and Surfriders just to name a few. The groups will have monthly work parties where they gather to care for or clean up a specific natural area These groups are doing great work work and many times the people attending these events are connected to nature, however, in order to

strengthen these connections and share with others that aren't connected, insight into how volunteers are relating to nature, and what their environmental attitudes and behaviors are, will greatly advance the retention and growth of volunteers caring for natural areas.

Data Collection Processes & Systems

We are going to shift now to reviewing types of data collection systems and processes. In Kittredge research, he states, "the reciprocal relationship between people and place is mediated through story because the story is central to our definition of self and place in the world." Before creating a data collection tool one needs to step back and consider the emotional appeal that lends meaning to our place within a place; the relationship, and therefore actions. Kittredge sees stories as the way we make sense of a place and the primary way we affect that place; by changing our stories we have the power to change the place in which we live, hopefully for the better.

A great example of this is The Waterlines Project. It is a rendering of the Seattle region in the mid-19th century, just prior to large development shifts. The map content integrates research from the sciences, natural and cultural histories, and informed imaginings. One goal of the project was to make this history accessible to a wide audience in hopes to engage the community in Seattle along the Duwamish River.

A goal of the data collection tool is to connect people to nature. In the "Urban Ecological Citizen" Light suggest 3 things to help people in urban spaces to see themselves as 'apart' of nature, even though they may not be in a remote wide open natural area or in Mt. Rainier National Park. The point of doing so is to bring about respect for the land and obligation to the environment in which they live regardless of a pristine national park or their local community park. Light expresses people's care of the land is dependent on what they consider nature. Most people connected to nature are aware of the health and wellness benefits they are receiving and are more likely to want to be active stewards of the land. However, those that aren't connected, walk past/through nature but never really connect to it. They see the tree but don't take the time to touch or smell the tree or learn its name. People experiencing nature as part of a daily routine, whatever the type of experience, were more connected to nature and more likely to implement active pro-biodiversity practices. (Pr´evot. 2018)

A few ways we can foster connections to nature is through a collection of information about the work, habitat stewards are doing on the ground and in their communities, in a simple yet comprehensive way. This information is then geospatially visualized on a map. Collecting meaningful information about the work habitat stewards are doing can inspire others to want to get involved in the habitat stewardship work and/or park clean-ups. (DiEnno & Thompson. 2013)

Knowledge that Guides Habitat Restoration & Data Collection Creation

Setting up the data collection tool, one must look at the knowledge that guides their creation. Looking deeply at what type of information is being collected, how it's being collected and how we want to display the data being collected and what impacts they want to make, and whats the mission is. Lots of whats!

Empowering Habitat Stewards, Continued

Unfortunately, the way ecological restoration has been taught and valued is through the environmental sciences. "Western scientists codify knowledge, but they do so through reductionist approaches and in written form through publications, media that strive to eliminate context and rely on limited variables from which to draw conclusions." (Symma, Herne, Castille. 2016) "WS is the most dominant science in the world today. However, because WS has been implicated in many of the world's ecological disasters—pesticide contamination, introduced species, dams, and water diversions that have impacted salmon and other indigenous species—it seems that reliance on Western Science alone can be seen as increasingly problematic and even counterproductive." (Snively, G., Willimas, W.,) We need a different approach other than the dominant Western science approach. "Traditional ecological knowledge refers to the knowledge, practice, and belief concerning the relationship of living beings to one another and to the physical environment, which is held by peoples in relatively nontechnological societies with a direct dependence upon local resources (Berkes 1993). Traditional ecological knowledge is not unique to Native American culture but exists all over the world, independent of ethnicity. It is born of long intimacy and attentiveness to a homeland and can arise wherever people are materially and spiritually integrated with their landscape." (Kimmerer 2000). Robin Kimmerer, in her article, " Weaving Traditional Ecological Knowledge into Biological Education: A Call to Action," talks about the complexity of the issues of environmental sustainability, and how a thoughtful consideration and incorporation of traditional ecological knowledge is needed. This also applies to habitat restoration and land management which promotes people's connection to nature.

Indigenous TEK encompasses a holistic perspective that underscores interdependence and places emphasis on relationships, interconnectedness, and respect for the surroundings and all forms of life (Cajete, 1999). Historically, Indigenous peoples have been systematically deprived of access to their traditional and sacred lands as a result of colonialism and in response, undertaken measures to safeguard their traditions and preserve their self-governing identity. The continuous decline of the natural environment and the traditional territories of Indigenous peoples underscores the necessity for cooperative endeavors that combine Traditional Ecological Knowledge (TEK) and methodologies to handle land administration. This also involves recognizing the historical and current encounters of Indigenous communities regarding the utilization, misuse, and displacement of land (IPCC, 2018). There is a need within the ecological restoration process to affirm the rights of Indigenous Peoples to steward and manage their lands and natural resources according to their own customs as well as acknowledge the significant role that Indigenous Peoples play in environmental conservation and the protection of biodiversity. Reports such as UNDRIP and the IPCC report emphasize that Indigenous traditional ecological knowledge and practices are critical to maintaining ecosystems and mitigating further climate change risks (Abate & Kronk, 2013).

Description of Application

Being able to collect ecological restoration work volunteer habitat stewards are doing in the parks and natural areas that Metro Parks Tacoma owns, will help close the communication gap between the habitat stewards, CHIP Coordinators, and Park Maintenance staff, and will increase efficiencies around land management and staff scheduling.

As well it establishes geospatial visualizations of the numbers that get reported to directors and boards, that fund these volunteer programs. The various data collected can be creatively displayed in a way that speaks to specific focuses. An example of this would be filling gaps where we have low volunteer attendance in certain areas. We can then target our outreach efforts. Looking at a map saves CHIP-In staff from having to dig through a file tallying up the number of volunteers, or having to go through spreadsheets and filtering each park. The current volunteer management program they have can generate specific reports, however, you don't have the geospatial visualization. These displays can inspire volunteer recruitment and can validatethe steward's restoration efforts.

In addition to this recap of work being done by individuals, there is also a need to collect information from individual volunteers about their experience and connectedness with nature. Well, that is the goal and based on research and experience I believe this tool will help do that.

The project has been broken into 3 parts:

- Develop a data collection tool: This template comes with a how-to guide to support and encourage volunteer groups and or agencies to do the collection. This tool will track volunteer work, and ecological restoration work, and has the potential to have a layer to provide information to the volunteer leading the group to share traditional ecological knowledge with their volunteers to encourage more meaningful connections.

- Share Data Collected: Sharing what's been collected via map(s) weekly with park maintenance staff or for them to have access through a dashboard or other system. Since MPT will be transitioning over to an OMS system later this year, we are going to stick with sharing maps of work done.

- Stretch goal develop a story map and create the visualization: Create a geospatial visualization of the volunteer work and opportunities, display and share TEK, people to connect with nature, and help land managers to see the greater impacts happening outside of the ecological work.

Empowering Habitat Stewards, Continued

Methods

The first step was deciding on what program to use as the data collection tool. My initial plan was to use an open-source platform to make it more accessible to volunteer groups doing this work in natural areas that are remote or don't have Wi-Fi services. Most volunteer groups or habitat stewards don't have access to fee-based and proprietary systems like ESRI. However, the problem I ran into was I needed to be able to collect data when there was no Wi-Fi. Since Metro Parks Tacoma (MPT) has access to ESRI, I chose to go with an ESRI application, Field Maps.

Next was to look at what information is being collected in paper form, who was using this information and what was it being used for. This information was what I used to create the feature classes. Having worked for MPT and being a part of collecting information about the restoration work being done in the natural areas, I was able to use this insight to help me determine what to name the feature classes, and what domains I needed to create for the drop downs. One of the goals of creating this tool was to create a simple yet complex tool. Providing drop downs for volunteers to click on. This would create a sense of ease and they will be more likely to use it consistently, as well the data being collected will have less error.

Now that I knew what I wanted to name and collect the next step was to create the geodatabase and feature classes in ArcGIS Pro. Storing the feature classes in a geodatabase seemed like a smoother and more functional way to store the information and share it.

I have created a table in Figure 1.1 - 1.5, to show what feature classes I created and which had domains attached. As well I have shown below in Figure 2.1 -2.5 the list of domains. The TEK feature class is empty. This will be part of phase 2 of the project and will be a great example to share with Puyallup and Muckleshoot, to see if they are interested in using a tool like this. needed to create and how I wanted them to be displayed in Field Maps.

Feature Classes

Habitat Restoration (MSGT2023_Fi

Read Only	Field Name	Alias	Data Type	Allow NULL	Highlight	Number Format	Domain
☑	OBJECTID	OBJECTID	Object ID		☐	Numeric	
☐	HabitatZone	HabitatZone (if applicable)	Text	☑	☐		
☐	PlantType_Ins	Total native plants planted	Text	☑	☐		
☐	PlantType_Remov	Total non-native Plants Removed	Text	☑	☐		
☐	Site	Site / Park	Text	☑	☐		Site
☐	SqFtWork	Total Area Worked (sqft)	Long	☑	☐	Numeric	
☐	Stew_name	Steward / Lead	Text	☑	☐		
☐	TrailMaint	Trail Work Done	Text	☑	☐		Trail
☐	Volun	Total Voluneers	Long	☑	☐	Numeric	
☐	Phase	Restoration Phase 1, 2, 3, or 4	Short	☑	☐	Numeric	Phase
☐	Trash	Trash bag(s) Collected	Short	☑	☐	Numeric	
☐	TreePlant	Total Tree(s) Planted	Long	☑	☐	Numeric	
☐	VolunteerHours	Total volunteer hours	Long	☑	☐	Numeric	
☐	StewHours	Indiviual Steward Hours	Long	☑	☐	Numeric	
☐	GrpName	Group Name / Company	Long	☑	☐	Numeric	
☐	Date	Date Work Completed	Long	☑	☐	Numeric	
☐	History	Historical Information	Long	☑	☐	Numeric	
☐	Culture	Traditional Ecological Knowledge	Long	☑	☐	Numeric	
☐	Field	Field	Long	☑	☐	Numeric	
☐	Water	Watering Needs	Short	☑	☐	Numeric	Watering1
☐	Notes	Notes	Long	☑	☐	Numeric	
☐	Shape_Area	Shape_Area	Double	✓	☐	Numeric	
☐	Shape_Length	Shape_Length	Double	✓	☐	Numeric	
☑	GlobalID	GlobalID	Global ID		☐		
☑	CreationDate	CreationDate	Date	✓	☐		
☑	Creator	Creator	Text	✓	☐		
☑	EditDate	EditDate	Date	✓	☐		
☑	Editor	Editor	Text	✓	☐		
☐	Shape	Shape	Geometry	✓	☐		

Figure 1.1

Empowering Habitat Stewards, Continued

Volunteer Connect (MSGT2023_Fin

Read Only	Field Name	Alias	Data Type	Allow NULL	Highlight	Number Format	Domain	D
☑	OBJECTID	OBJECTID	Object ID		☐	Numeric		
☐	Shape	SHAPE	Geometry	✓	☐			
☐	Group_	Group/Company Affiliation	Text	✓	☐			
☐	Park	Site / Park	Text	✓	☐		Site	
☐	Hours	Total Hours Worked	Long	✓	☐	Numeric		
☐	Com_Serv	Was this a part of Community Service Hours	Text	✓	☐			
☐	Age	Age	Text	✓	☐		YouthGrp	
☐	VolRetent	Volunteer	Text	✓	☐		VolRetent	
☐	Notes	Notes	Text	✓	☐			
☐	Ben	Benefits	Text	✓	☐		Benefits	
☐	Phase	Task completed	Short	✓	☐	Numeric	Phase	

Figure 1.2

Native_PlantsTrees (MSGT2023_Fin

Read Only	Field Name	Alias	Data Type	Allow NULL	Highlight	Number Format	Domain	De
☑	OBJECTID	OBJECTID	Object ID		☐	Numeric		
☐	Shape	SHAPE	Geometry	✓	☐			
☐	CommonName	CommonName	Text	✓	☐		NativePlantCom	
☐	SciName	SciName	Text	✓	☐			
☐	TraditionalName	TraditionalName	Text	✓	☐			
☐	TEK	TEK	Text	✓	☐			
☐	Planted	Planted	Date	✓	☐			
☐	FieldNotes	FieldNotes	Text	✓	☐			

Figure 1.3

Trail (MSGT2023_FinalDataColTool

Read Only	Field Name	Alias	Data Type	Allow NULL	Highlight	Number Format	Domain
☑	OBJECTID	OBJECTID	Object ID		☐	Numeric	
☐	Shape	SHAPE	Geometry	✓	☐		
☐	Shape_Length	ShapeL	Double	✓	☐	Numeric	
☐	Trail	Trail Work	Text	☑	☐		Trail
☐	Maintenance	Maintenance	Date	☑	☐		

Figure 1.4

Traditional Ecological Knowledge

Read Only	Field Name	Alias	
☑	OBJECTID	OBJECTID	O
☐	Shape	SHAPE	G
☑	Shape_Length	Shape_Length	D
☑	Shape_Area	Shape_Area	D
☐	Ancestor_Name	Ancestor_Name	T
☐	TEK_creation	TEK_creation	T
☐	TEK_PlantTreeAnimalName	TEK_PlantTreeAnimalName	T
☐	URL	More Info	L

Figure 1.5

Age

Code	Description
HS	HS Student
MS	MS Student
under11	Pre-k / Elementary
Over18	Adult not in HS.

Figure 2.1

VolunteerConnection: Benefit

Code	Description
H	Physical Health
K	Gained knowledge / Attitude
E	Emotional Wellness / Behaviors
C	Social Connection /Community
S	Sense of Place / Stewardship
N	Connected to nature

Figure 2.2

Habitat Rest: Event Type

Code	Description
Ind	Independant Work
WP	Work Party
SE	Special Event
CS	Commmunity Service

Figure 2.3

Park Maintenance Area

Code	Description
South	South
NE_Central	NE / Central
Point_Defiance_Ruston	Pt. D / Ruston
West	West

Figure 2.4

Native Plant

Code	Description
bindweed	bindweed
camelthorn	camelthorn
Egeria	Egeria
English holly	English holly
fanwort	fanwort
goatsrue	goatsrue
gorse	gorse
hawkweeds	hawkweeds
houndstongue	houndstongue
hydrilla	hydrilla
indigobush	indigobush
Johnsongrass	Johnsongrass

Figure 2.5

Empowering Habitat Stewards, Continued

Discussion

First, we see in Kittredge's research that, "the reciprocal relationship between people and place is mediated through story because the story is central to our definition of self and place in the world." Before creating a data collection tool one needs to step back and determine what the goals and objectives are.

A sustainable relationship with the place can be captured "story bypasses rhetoric and pierces the heart."(Kittredge. 1996) It is an emotional appeal that lends meaning to our place within a place; the relationship, and therefore actions, that result from the story is the embodiment of a sense of place. William Kittredge sees stories as the way we make sense of a place and the primary way we affect that place; by changing our stories we have the power to change the place in which we live, hopefully for the better.

Part of the process of creating a data collection tool is looking at the end result. In the case of habitat restoration, one goal is to create positive experiences to strengthen people's relationships with nature. The research conducted in this paper agrees when people feel a strong or meaningful connection with nature, they are more likely to care for it better. Therefore, being able to collect data about the work the habitat stewards are doing and volunteers' reaction and connection to it is important as we have seen.

Data collection tools like this are necessary, to provide land managers or volunteer habitat stewards with how to connect people to nature through apps and maps, inspiring community action through sharing the stories of stewardship and the guiding principles (that are rooted in traditional ecological knowledge and sharing both pre and post history of our land) and lastly creating a data collection tool that park maintenance staff (or any land managers/ friends of groups) can use to coordinate work & inspire positive change and connection.

I was disappointed that I wasn't able to make this an open-source collection tool, however, my workaround is to suggest to the volunteer groups or stewards to reach out to their local Conservation Districts, local Indian Tribes, County, or City Agencies; and propose the opportunity for a Citizen Science data collection. Being sure to share with them that you already have a geodatabase and all they do is have to add it to Field Maps. Some agencies may allow you to work with their GIS staff to edit the form, as it may need a little cleanup.

The data collection tool that will be used via Field Maps will help fill gaps in communication as it will show geospatially where the volunteer work is happening. This will keep park maintenance staff informed about the work happening in the natural areas and will help with scheduling, faster response time to steward support needs, and a clear understanding of where exactly the restoration areas are so there are no mishaps with removing something that a habitat steward has planted.

My hope was to train the park maintenance staff on how to use Field Maps, so they could be inputting data as they work in the natural areas. However, MPT is holding off on a rollout of Field Maps as a solution to their communication gaps and volunteer data collection needs because they are implementing EAM software in Fall. The GIS Specialist is hopeful that we can possibly marry together the geodatabase I created with the new system. However, in the meantime, the CHIP-In Staff are happy to implement this in the near future. I have agreed to schedule a time to train them to use the tool as well as provide them with a Quick Start Guide on how to use Field Maps. I will help them get logged in and Field Maps downloaded on their phones. Once I have got CHIP-In Staff set up, we plan to have a Habitat Stewardship training on how to use the data collection tool in the field with the stewards. The hope is habitat stewards will feel empowered and want to use the app. However that may not be the case for all the stewards, so CHIP-In staff will need to be sure they are collecting the Volunteer Work Summary Forms and inputting this information in field maps. There will need to be an addition process with the CHIP-In staff or stewards to document the location. This could be a screenshot of google maps of the area they worked.

Currently, there is one map in Field Maps, named "Habitat Stewardship & Park Clean Up's." As explained in the methods there is one layer, with 5 elements in the form. Ideally, I want to make a separate map only for the "Volunteer Connection", so that I can create a QR code to put on a postcard we give to volunteers after the event saying "Thank you, please tell us how you are connecting"... or something like that. Volunteers may get confused about having the layer show all 5 elements.

Collecting this data will help tell the restoration story, and capture people's connection to nature and how they are benefiting. As research has shown in many of the articles reviewed, those aware of the benefits they get from participating in habitat restoration activities, participate more often. This then becomes infectious and the hope is we will see the volunteer numbers increase. This information may be useful in understanding how to appeal to emotions and engage urban people as volunteers in hands-on environmental restoration. (DiEnno, & Thompson, 2013)

People's disconnection from nature has negatively impacted communities, the environment, and their all-around individual well-being. Thus why a need to encourage people to connect to nature and begin the restoration process ecologically and socially. This data collection tool can be one way that agencies that manage lands help build creative, connected, generous, and resilient communities that invite diversity are connected to nature, respect history and culture, and promote volunteerism.

Although we may know this overarching theory about the negative impacts of people's disconnection from nature we need to stay focused on what connects them and do more of that. Part of solving that problem is the second phase of the continued work that needs to happen here. We need to take the next steps and look at the opportunities before us to honor and respect TEK as an integral part of our habitat restoration efforts.

Empowering Habitat Stewards, Continued

Conclusion

The goal of this work is to empower habitat stewards and Indigenous Knowledge preservation through geospatial data collection. A comprehensive tool will be a community-driven ecological restoration and land management.

Being able to show geospatially the work being done in natural areas will allow for Parks staff to better support in a timely manner the habitat stewards and the stewards will feel more supported and willing to participate in the data collection process. Being able to collect more robust information than just a volunteer headcount or total square footage of invasive plants removed... tells more of a story, shows the greater impact, and can help create more effective communication between those managing and caring for the land but also provide an opportunity to connect people or strengthen their connection to nature.

To take maximum advantage of this window of opportunity, it recommends that researchers, alongside agencies managing lands, their practitioners, and the habitat stewards establish data collection processes and get them to establish sooner rather than later. Recognizing and understanding people's role in ecological restoration is critical to the success and longevity of habitat restoration efforts. If agencies that manage lands want to encourage volunteer habitat stewardship and rely on their support and contribution to help maintain the health of the natural areas and open green space they own; they need to support the data collection efforts. An example of what supporting the data collection efforts looks like is:

- Providing a dedicated staff to managing habitat restoration work and providing them GIS training if needed. (In Metro Parks Tacomas Case, they have dedicated staff to work with the habitat stewards)
- Providing access to electronic tools such as tablets if needed.
- Provide access to licenses or an ArcOnline account if applicable.

Although I was not able to complete the collecting of Traditional Ecological Knowledge to display geospatially, the framework has been set. In closing, I want to share a quote from Robin Kimmerer that brings home the purpose and power of creating a geospatial data collection tool and its role in habitat restoration. "Restoring land without restoring relationship is an empty exercise. It is relationship that will endure and relationship that will sustain the restored land."

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Photo: *Blue Mountains of Tomanamus Forest*

Rethinking the University and Climate Justice through Multispecies Justice

By: Yuruo Liang

Why Multispecies Justice Matters for Climate Justice

In the growing climate crisis, the development of a climate justice regulatory framework is gaining more attention and participation, but there is also a hidden problem: the ignoring of non-human animal groups. If humans focus only on themselves, both for understanding the world and for understanding themselves, it is not enough; justice is not just for humans. The anthropocentrism that people hold, especially since the advancement of technology in modern times, has given humans the illusion that they are the masters of the earth, and with that comes the unbridled abuse of animals and the plundering of natural resources.

In human societies, the usual defense of oppressors for their atrocities is often that the oppressed are not fully evolved human beings or that they are closer to animals and therefore do not deserve the same moral care. For example, proponents of slavery argue that Black Africans are not fully evolved human beings who can be possessed or bought and sold "like monkeys." Proponents of women as second-class citizens also believe that women are "like geese without souls" (Simons, 2002). In World War II, the German Nazis redefined the "chain of life" under the banner of racial superiority, placing the Aryan race at the top and categorizing the Jews with rats and fleas (Kete, 2002). Thus, once the powerful associate the oppressed group with animals, their oppression and plunder seem reasonable. Without the elimination of speciesism, it will be difficult to achieve truly equal coexistence within human society and to properly address climate justice in the face of the climate crisis.

Numerous scholars have found that species discrimination is the deep ideological root behind racial discrimination, sexism, and class discrimination, all of which embody a distinction in respect for life. If a human being cannot be arbitrarily tortured because of their Black skin, then a creature with the ability to feel should not be tortured because of the number of legs, the fuzz on its skin, or the position of its spine (Bentham, 2007). Man's hierarchical conception of animals can also lead to hierarchical attitudes toward groups different from his own. Moral demarcation based on species identity harbors latent evil; it reproduces, in the most terrible ways, the identity-based discourses that legitimize discrimination, injustice, violence, and slaughter against other human groups (Lynn, 1998). Thus, to achieve the equality emphasized in climate justice, it is necessary to first respect the natural rights of animals. However, this does not mean weakening human responsibility for behavior in climate justice, but rather expanding the subjects of justice implementation, broadening the scope of climate justice understanding, and re-engaging the university imagination for UW's future involvement in climate justice activities.

What UW Is Going to Do to Join Multispecies Justice

I. Curriculum Education and Scholarship

I propose to the administration of the UW program that we first increase the number of courses and academic research on biodiversity and provide more outdoor courses where students can meet animals, recognize that species have equality, and understand that disadvantaged and minority groups need to be given the same care mechanisms as animals. Second, we should increase the interdisciplinary construction of the "third university" to encourage the joint training of science and technology projects and humanities projects, so that those who master science and technology can also be aware of what direction technology should take in the future. This includes recognizing the importance of new energy construction in addressing the climate crisis, particularly the need to pay attention to how to minimize the destruction of animal life by new energy devices on a large scale.

The development of responsiveness to the "other" mentioned above can lead to a greater connection with it in our daily practice, help develop the sense of "empathy" that is so important in university education, and help us extend our legal rights and responsibilities to non-human entities in our daily practice. If we treat animals as people, they become "persons" with interests and moral rights. Making animals persons before the law means that animals or people acting on their behalf can bring legal action against biodiversity reduction rather than merely advocating for their protection at the conscious level or relying on a few specific pieces of legislation. On this basis, we can do the same for climate justice.

Third, I propose that UW's scholarship institutions increase the creation of scholarships in the humanities, providing financial support for research directions such as biodiversity building, climate and environmental justice, and environmental politics to attract more students to devote themselves to research in these areas. Only by first increasing attention to these topics will there be a chance to change the dormant status quo of the research field.

As we move beyond the campus to political policymaking, we should also consider how to develop mechanisms to prevent and respond to multispecies suffering in advance in the face of future climate emergencies, such as the effects of extreme heat and cold on wildlife due to global warming. Such multiple types of knowledge and practices to understand what humans and nonhuman animals have in common can help develop students' awareness across differences and co-create spaces for justice.

II. Anti-Colonial Movement

In our discussion of the case of colonial universities, we have been focusing on the issue of land, where not only humans but also many non-human animals live. In fact, there may have been a primitive and harmonious relationship between Indigenous people and animals at the beginning. However, due to the occupation of land in the construction of the university and the establishment of various teaching provisions, both humans and animals were severely interfered with and drawn into the foreign social and cultural system, forcing both to readjust to survive under domination, resulting in a distortion of their relationship. Animals were forced to become involved in the construction of the university, and thus the effort to liberate them should be given the same importance as the return of land.

Rethinking the University and Climate Justice, Continued

The idea that Black people were once historically considered an "endangered species" has a specific history. Blackness is seen as a species construct, and animality is seen as a racial construct, and the two have been dynamically constituted by each other, linking Black people to animals through a framework of "shared vulnerability" (Claire Jean Kim, 2018). Because the connection between animals and slaves lies in their shared dehumanizing characteristics, the abolition of animal suffering can also be considered a precondition for solving the historical problem of racial slavery, and racial slavery is also a significant ideological obstacle to solving the problem of climate justice.

This violence is also happening on our campuses today. The University of Washington's National Primate Research Center (WaNPRC) has tortured nearly 9,000 monkeys in 60 years of painful experiments that have mutilated, strangled, and starved them to death in medical experiments that did not actually lead to the promised vaccine, and the university has turned a blind eye to the "Quit Monkey Experiments" protests. Therefore, I strongly urge the WaNPRC to stop the monkey experiments, which are not the pathway to human health. Furthermore, because of the "monkey and Black" analogy, this discrimination and oppression of animals may eventually spill over into Black racial issues, resulting in the demands and interests of people of color being even more ignored in the global climate justice movement.

I also call on UW's medical institutions to stop similar animal vivisection and dissection, to lead the policy-making level in recognizing the reduction of animal abuse and killing, to resist the live animal market and animal trading, to curb racial issues under the topic of climate justice in advance from a multispecies justice perspective, and to provide ideas for solving the legacy of Blackness and slavery in colonialism.

III. Human Rights

With the importance of human rights highlighted behind the anti-colonial movement and the focus of the justice movement on the transformation of human consciousness in direct opposition to injustice, the struggle to address climate change also goes hand in hand with the struggle for human rights. In the field of human rights, we should no longer think only in terms of what causes human rights violations from an individual or systemic perspective but try to understand what causes human rights violations to persist and how human rights are to evolve in the future with a more macro-ecological mindset. From a psychological perspective, if a person can abuse an animal for no reason, then he or she might torture the same kind of person in the same way. Thus, this abuse of animals for no reason is indirectly contributing to the persistence of human rights violations, and human rights awareness cannot be effectively addressed without a fundamental change in the disregard for the natural rights of animals.

In the prison-academic-industrial system, prison inmates, especially the colored ones among them, are one of the most despicable groups of human beings considered "not entirely human" and are portrayed as a group of "animal" human beings (Patterson, 2002). Prison cages are likened to zoo cages, where the prisoners share the same physiological experience as the animals in the cage, and the process of incarceration is, in

fact, a form of "making" animalism. Electrocution and hanging are used for prisoners, and zoo animals are subjected to the same punishment if they do not meet the requirements during training, eroding animal rights along with human rights in the face of violence. Therefore, I propose that in UW's involvement in the prison-academic-industrial system, the relevant academic outputs pay more attention to the establishment of a normative disciplinary system, including the power-giving and violent structures of prisons. More advocacy in society and online to resist the violent abuse of animals is also needed, thus awakening people's consciousness to improve violence in the construction of prisons, military, and other systems; without this, the problem of climate justice cannot be fundamentally solved. Racism and species discrimination are identical in their moral logic and expression, and our education should be about stopping "violence against those who are categorized as inferior to us in a cruel human hierarchy."

IV. New Energy Construction

New energy construction has mostly positive effects for humans, but not entirely positive for non-human animals. Wind turbines on land and at sea kill millions of migratory birds and bats each year from collisions. Concentrating solar power plants produce beams of sunlight intense enough to incinerate insects and birds. Solar facilities may also fragment important wildlife habitats or migration corridors through fencing and landscape alteration, limiting the gene flow of plant and animal populations. Migrating waterfowl traversing arid areas may even mistake these facilities for bodies of water and fall into them. Hydroelectric dams block migratory routes for fish and prevent them from reproducing.

Therefore, we need to continuously seek effective technologies to achieve a balance between new energy construction and animal protection, which is the only way to truly uphold the justice and interests of all subjects (both human and non-human) in climate justice actions. For example, in the UW New Energy Project, one of the energy conversion steps is lake cooling, using cold water from the deep sea to provide natural cooling for the campus. The cold water from the deep sea creates better conditions for salmon to survive in the energy conversion because the cold water contains more oxygen and slows down the digestion of the salmon to conserve physical energy. This is a very positive case, and I propose that UW pay more attention to and encourage the care of animal interests in the construction of new energy sources for climate justice in the future. If UW needs to build new energy facilities in the future, such as wind turbines whose rotation may accidentally injure birds, we can automatically shut them down at dusk and dawn during peak migration times. For example, in the construction of offshore wind farms, the noise of wind farms may interfere with the communication of whales and dolphins, so we can try to reduce the wind speed. For example, in the construction of hydroelectric power generation, we will design a special fish passage in the dam to allow fish migration.

Although this may increase the cost of construction, the greenhouse gases emitted by human beings for economic development are costing animals their lives, and we already owe too much to animals in climate change. If the natural rights of animals can be treated equally, it will provide a basis for our thinking and a path to treat different races and groups equally. However, if we still ignore the rights of the weak and destroy the living space of animals, more and more owls will crash into the Allen library, and the distribution of responsibility for climate change will never reach justice, because developing countries are like animals that "lose their voices."

Rethinking the University and Climate Justice, Continued

Conclusion

Multispecies justice helps humans reposition themselves in an ecology where they are not above all life on earth but exist in relationships where groups of life nourish and sustain each other. These groups of life refer not only to non-human animals but also to various groups of human races, rich and poor, and genders. Similarly, in the university's commitment to and care for climate change, I hope to learn to ask who benefits, who is harmed, and who is dominant in the planning. By engaging in multispecies acts of justice to rethink universities and climate justice, universities, as guides of values for the nation's future citizens, can help establish values of equality and kindness for students in their processes and overall operations, and can help students think about their future missions, with corresponding research findings and initiative statements as a vein for future responses to climate change.

I have not currently found accurate scholarship linking multispecies justice to climate justice for interpretive writing, but in The Red Deal, the author suggests that biodiversity is key to keeping the planet alive and thriving and points out that animal rights and liberation are as important as abolishing prisons and police, abolishing slavery, decolonization, anti-racism, and anti-capitalism. Implying that all animals are in the same position of value as humans makes me aware of the importance of multispecies justice in climate justice issues. With this proposal, I aim to provide a new perspective for understanding and a new way of addressing climate justice. Solving the problems of racism and human rights involved in climate justice does not happen overnight but requires a long history of friction, and the treatment of animals undoubtedly influences human understanding of the world in a subtle way. Multispecies justice is like a historical/conscious foundation for climate justice, so revisiting this historical origin will help us understand the urgency of climate justice issues more deeply. Starting with the question "How can we better acknowledge and respect wildlife issues on the UW campus?" will also help students and faculty see more tangibly and clearly the impact of climate change on the communities around us, rather than just imagining the "homeless polar bear" narrative.

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Increasing Inclusiveness and Vetting Valid TEK: Optimizing Climate Change Work

By: Dr. Samantha Chisholm Hatfield

Traditional Inroduction: Chee'la, Dr. Samantha Chisholm Hatfield waa vm nvsh shi. Hello, my name is Dr. Samantha Chisholm Hatfield, I am enrolled in the Confederated Tribes of Siletz.

Abstract

With the surge of Indigenous and Tribally-focused issues in relation to climate change topics, a wealth of valid Traditional Ecological Knowledge (TEK) and verified information has come forward in a relatively short time. Traditional Ecological Knowledge was sought out early on by western scientists to help inform and detect climate change events (Carey 2012, Hosen et al 2020), and has been at the forefront of climate change work. TEK has been heralded as a panacea to assist in addressing climate change issues. This integration, reliance, and expectation on TEK to provide information, is in part due to the longstanding relationship Natives have with their lands and resources. Not all of this TEK information is correct or "valid", however. There are better methods to access and meld TEK with western science in order to better address climate change impacts.

Issues Addressing Climate Change and TEK

Addressing issues impacting Native communities, particularly with TEK and climate change, much of the focus revolves around scholarly activity. The default usually means bringing a researcher unfamiliar with the TEK discipline, not vetted, nor close in the communities that TEK is gleaned from. Work needs to be done to improve situations for Native communities who are invited to or attempt to enter discussions, as well as scholars who have been working in these fields. Valid TEK comes from familial lines that contain and uphold multiple generations of knowledge. Clan systems contribute and maintain information systems that require these specialized knowledge systems that build the foundational support for our cultures to continue. Researchers, both academic and those who were interested in the exploitation of the locality, have been extracting information from Native communities for centuries. Scholarly and governmental arenas have recently sought out TEK for the purpose of assisting and informing climate change work, however it's often been co-opted during the process. These information-seeking channels clearly recognize the potential TEK holds when addressing natural resource and adaptation concerning climate change (Berkes et al 2000, Pierotti and Wildcat 2000), but improvements are needed. in acceptance, inclusion, and promotion of TEK holders, and specialists.

Omission of TEK specialists can mean the absence of valid TEK, resulting in corruption or faulty TEK, and the wide spread of misinformation presented as fact. The largescale conflation of work that is repeatedly claimed as "TEK" is instead often LEK (Local Ecological Knowledge), FEK (Farmers Ecological Knowledge), FEK (Fisheries Ecological Knowledge) or some form of citizen science. Valid TEK cannot be created from other systems of knowledge, nor borrowed from shorter-standing systems. TEK usually comes from a minimum of four (4) to twelve or more (12+) generations of passed down information (Chisholm Hatfield et al 2009, 2018, 2020).

Within the last couple of decades, information regarding Indigenous environmental information has seen a large uptick in data inclusion regarding TEK (Smithers 2019). Likewise, the TEK discipline has seen a recent surge of individuals who purport to "do" TEK. They are doing so without admitting to understand, practice, or even specialize in TEK or Native culture, while churning out written material without doing due diligence of consulting, and sometimes not even acknowledging the Tribal communities they are discussing. This situation becomes particularly evident in publications, workshops, or consultations where the researcher doesn't understand complexities or nuances of cultural information, nor of sensitive information that should not be included for public use.

Much of the mainstream system, including other scholars, remain unaware of this aspect of faulty information. Invalid data is sent around and relayed readily, as if congruent with accurate and vetted TEK coming from verified Indigenous Knowledge Systems. A significant portion of this flawed information emanates from scholarly systems where "experts" have been sought out. The problematic aspect is that these "experts" have been predominantly non-Native, are commonly quoted, and circulated and re-circulated as if verified. The emphasis of trust has been assumed, and the information that is put forth from these systems as "experts", is elide upon as if accurate.

Assumptions based on and put forth through faulty information can unknowingly be carried forward by individuals, including scholars, who do not fully understand, or accept responsibility for their actions. The widespread belief of "academic freedom" neglects to take into account official rules and regulations of a Sovereign that is not solely governed by the United States. Failing to get permission(s) from Tribal administrative officials, carefully vetting data from the tribe itself, or learning from the Tribe directly about cultural expectations, can be highly detrimental. There has been a clear link in regard to environmental issues and power structures that have been, and continue to be, seated in colonialism, decreasing and even removing power from Tribes (Cameron 2012; Haalboom et al 2012; Marino 2015; Whyte 2016a; Wildcat 2009) even when couched as "decolonizing" action.

The integration of TEK with western science is certainly beneficial to non-Indigenous scholars, and maintains a status quo of gatekeeping knowledge along with power in academic structures. While much of the early information included TEK, it also was from non-Indigenous scholars who sought to use it, oftentimes not including or even crediting Native scholars or Tribes (Nadasdy 1999).

Increasing Inclusiveness, Continued

Not All Tribal Information Is Shareable

Not all Tribal data is available for consumption. The exploitation and collection of Native cultural information was historically widely extricated and promoted for gain, without deference to Indigenous communities that it was stolen from (Harding et al 2012). Some of this material remains at large and still is promoted, with some researchers seeking TEK information utilizing old tactics, avoidance of protocols, and expectations of Indigenous naïve complicity. Despite this, intellectual property rights remain in effect (Ghosh et al 2024) even for historically extracted information (McGregor 2004, Native Nations Institute 2024) Understanding how to work, or not work with Tribal data under a Tribal governance data policy (Tsosie 2019), and weaving this understanding with scholarly efforts has been a challenge for many. Tribal administrations and TEK specialists work to have data sovereignty respected, and included when working with any form of Indigenous data.

Traditional Ecological Knowledge: Holders and Practitioners

Traditional Ecological Knowledge stems from multiple generations' knowledge, passed down through lineage in specific and detailed paths (Fixico 183). This time-tested system is far more than simply an oral history (Babcock 2012) containing pertinent information that dates back centuries to time immemorial, TEK is additionally an oral documentation system. TEK extends much further than simply recounting information or "telling a story". The holistic nature of TEK allows for detailed and inscribed generations worth of knowledge, which come from oral documentation systems pre-dating the colonial academic system. Claiming expertise in such an area after only learning information from mainstream academic systems is laughable, and yet it is commonly assumed by many that this can be accomplished.

TEK experts are generally considered in many Tribal communities to be Elders who have spent the majority of their life having been taught, as well as practicing TEK. TEK specialists are individuals who work with TEK, learning it, learning from Elders, practicing TEK, and are often regular practitioners and knowledge holders themselves though of a lesser degree than Elders. Communities regulate, monitor, and understand individuals who claim knowledge, yet are not vetted or supported by Native communities.

TEK contains nuanced information and levels of understanding which hark back to verified cultural systems, and contain cultural referencing. It is impossible to do accurate assessment of TEK data and offer valid results if someone is not able to put aside colonial systematic thought processes and examine the information in a holistic and muti-faceted manner. TEK data an assessment process through colonized ways of thinking is invalid and cannot accurately be presented as valid. It becomes imperative then to listen, collaborate and consult with the individuals who are vetted in Tribes and Native communities.

Native scholars who are experts and understand the muti-faceted holism that TEK contains, while understanding working with, as well as within communities, withholding sacred information. Native scholars providing protection, due diligence, ethical understanding from Native perspectives along with care, are the scholars who are the ones on the front lines doing accurate and valid TEK work. These are the individuals who should be looked to, and relied upon for labor integrating TEK into climate change work.

Native Scholars, and Native TEK Expert Scholars

As Native scholars remain the minority in academic settings, they also remain largely ignored with regard to TEK information, or inclusion of climate change work associated or based on TEK. This makes it difficult to ascertain where correct TEK information has come from, which exacerbates the issues of verified climate change work that seeks the very accuracy and informative data that valid TEK can provide. Determining if academic scholars, who are in fact the true experts in the field, have been collaborated with, or even consulted at bare minimum is difficult at best and problematic, as the TEK field is rife with scholars who eagerly jump at a seat at the climate change-TEK table.

Increasingly there are growing numbers of scholars and non-scholars who tout themselves as "experts" in areas of TEK and Indigenous environmental information, but fail miserably when presented the task of analyzing, interpreting, and incorporating accurate and valid TEK data. The assumption of understanding TEK has been laid by early non-Native scholars who cherry picked information and presented it as if wholly accurate. Some of this dissected information omits the very core of information that would assist in climate change, but was misunderstood, and thus lost. This failure allowed the precedent groundwork to be laid for others to erroneously assume TEK was a discipline which could easily moved into because it was straightforward, simplistic, and understood.

The Heart of the Work

At the crux of this valid TEK understanding, along with compliance with Indigenous sovereign data and intellectual property, is the heart of climate change work. One cannot occur without the other, due to the legacy research in Native communities that has been established based on dubious extraction and profit from that theft. Indigenous experts in areas that can contribute to studies and information concerning climate change in meaningful ways, are available, and yet overlooked.

The difficulty in this premise is that TEK runs deeper than western science or academic scholarship, is intrinsically tied with cultural nuance, relevance, linguistic choices, and understanding on multiple levels. It is a holistic approach, which is much like that of a kaleidoscope effect – an optical device where individual pieces are evident, and mirrored in unique and individual as well as collective ways. The entire view is only complete when viewed with all pieces in place. This moves past the mainstream dichotomous viewpoint system, offering more than one perspective, along with multiple sets of information, when viewed from different angles. Instead of pieces in an optical device, we have environmental and longstanding informational perspectives through valid TEK sources, which then makes a truly holistic view of the environment, its components, as well as the issues and changes that have occurred. Western science rarely offers this path of depth and breath of information.

Increasing Inclusiveness, Continued

The heart of the TEK data being sought is learned and practiced long-term. Jumping in without multiple decades of information, learning, clarifying, and understanding presents issues. This impulsivity can create environmental justice issues for Tribes who find themselves in situations where someone is speaking "for" them, but who is unauthorized, and vastly unqualified to do so. Erroneous information, even from the most well-intentioned, can have detrimental impacts on a Tribe.

Transfers of knowledge that are rooted in cultural systems, have embedded ethical guidance(s) on how that information is to be shared, used, or kept. (Cochran et al. 2013; Barnhardt et al 2005). These Indigenous systems of guidance can be drastically different from colonial systems where power is based off an extractive and exploitative system (Mignolo 2013, Ramanujam, 2023). Longstanding passage of Traditional Ecological Knowledges is done over a series of lifetimes, and information is only given when the time is right. This process is done carefully, with consideration, within ethical confines, and is non-exploitative.

By including Native scholars who are skilled and trained in TEK in climate change venues, and by including Tribes and vetted Tribal representatives, it allows authenticity and validity to be brought into information systems and collaborations. The information that TEK specialists bring is deeper and broader in scope, due to the holistic nature of the discipline, but also often brings a transdisciplinary aspect as well as multidisciplinary focus. This muti-faceted, kaleidoscope approach seeing, learning, and understanding is beneficial. It removed the dualistic and dichotomous colonial ideologies that often plague scholarly work. Instead, it brings a dimension of set of data to scholarly work that cannot be produced in any other way, and also challenges the manner in which superficial information can be debunked and rectified, so that climate change work and research standard practices are inclusive, obtaining accurate valid TEK, and becomes more highly accepted. This also provides an opportunity to repair the inaccurate information that has been put forth in the past, and empowers the Indigenous communities themselves, thereby creating a more accurate version of TEK, and contributions to climate change work.

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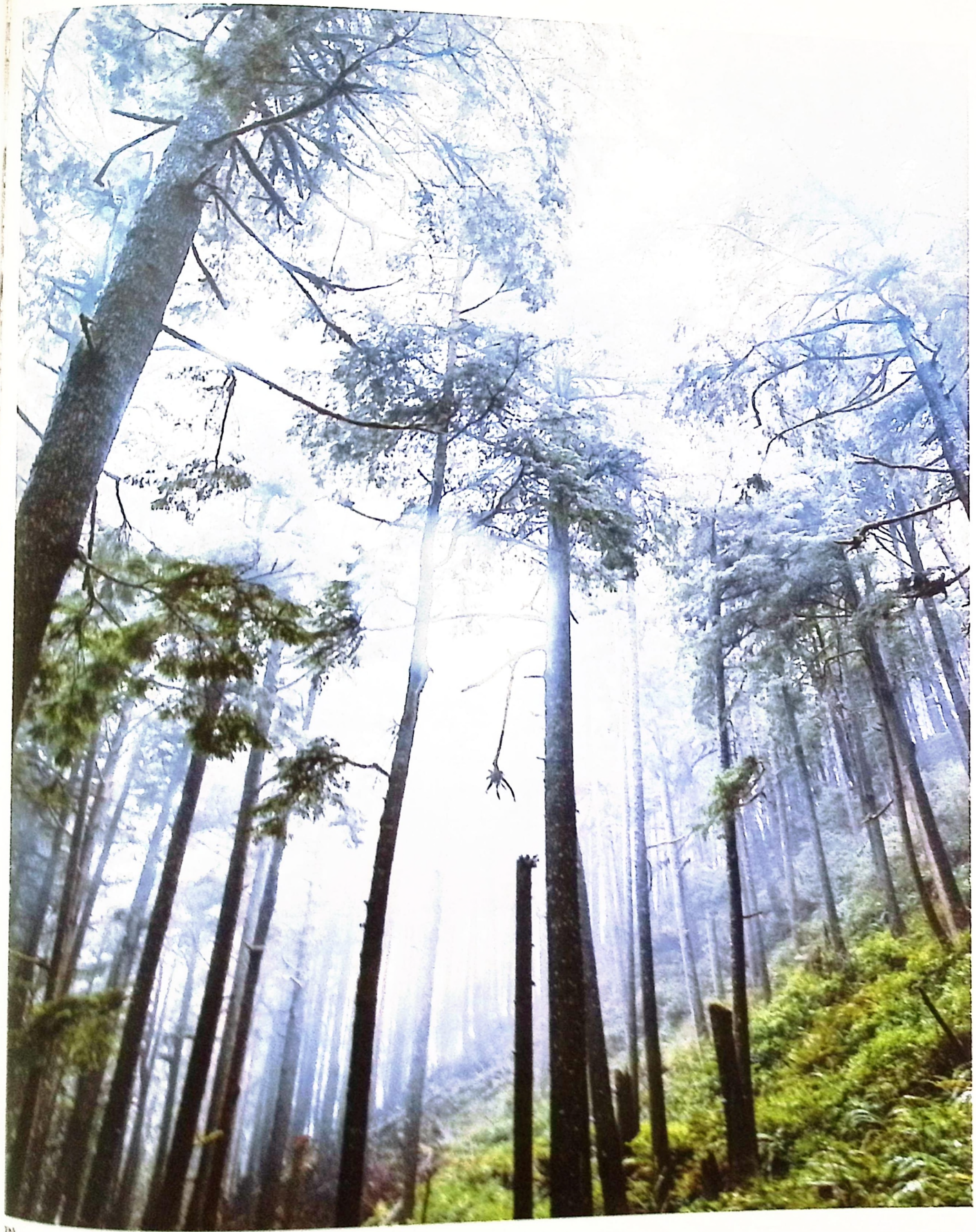

Photo: *Rainy Day in the Forest*

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