RESTORING WHAT? AND FOR WHOM? LISTENING TO KARUK ECOCULTURAL REVITALIZATION PRACTIONERS AND UNCOVERING SETTLER LOGICS IN ECOLOGICAL RESTORATION

by

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THESIS ABSTRACT

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Title: Restoring What? And for Whom? Listening to Karuk Ecocultural Revitalization Practitioners and Uncovering Settler Logics in Ecological Restoration

What does it mean to restore a landscape degraded by settler colonialism? How might a well-intentioned process like ecological restoration end up causing harm from underlying settler colonial logics? This thesis explores these questions through interviews with nine Karuk ecocultural practitioners and offers pathways forward for collaborative ecological restoration processes that support Indigenous ecocultural revitalization efforts and stand-up to destructive settler logics.

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I. INTRODUCTION

Karuk ecocultural revitalization

The middle Klamath region is one of the most biologically diverse regions in the Western United States. The Karuk Tribe, like diverse Indigenous peoples around the world, have been tending this landscape since time immemorial, with land-based practices guided by spiritual and social responsibilities. A story map on the Karuk Tribe's Department of Natural Resources website titled: kúkuum yáv nukyâati peethívthaaneen (we make the world good again) describes how Karuk people continue to care for their homelands, with traditions passed down since time immemorial.

> "Since time immemorial the Karuk áraara (upriver people) have been at home on the Klamath river and its surrounding forests and mountains, located in what is now called Northern California and part of Oregon. Before humans came into being here, the ikxaréeyav (spirit people) inhabited this land. At a turning point in creation, some of the ikxaréeyav transformed into the humans, plants, animals, and geologic features, and they gave the people the original teachings on how to live, adapt and sustain future generations in this place. These teachings have been passed down through the stories and ceremonies to their living descendants who comprise the membership of the Karuk Tribe today. This collective body of knowledge is referred to by scientists as Traditional Ecological Knowledge (TEK) . These stories and ceremonies help retain the cultural ties between Karuk People and their ecosystems. These ancestral relations were formed during creation of the various species that inhabit their homeland. These species are still utilized by the Karuk people for food, medicine and fiber." – (Karuk Tribe Department of Natural Resources Story Map)

In the Karuk language *pikyav* means to *fix it,* and as Bill Tripp (Director of Natural Resources and Environmental Policy, Karuk Tribe Department of Natural Resources, Karuk tribal member) explains:

> "When we say we're practicing *pikyav*, it means that in our lives and work we're striving to fix the world and make it a better place. In the context of our world renewal ceremonies, which we refer to as *pikyávish*, we enact our ceremonial practices in a way that they've been done for millennia, and work with the spirit beings of this place to help renew the world and to remind ourselves of who we need to be in order to fix it."[1]

[1] Bill Tripp, *Good Fire: Indigenous Cultural Burns Renew Life,* retrieved Feb 1 2022 from https://bioneers.org/good-fire-indigenous-cultural-burns-renew-life-zmbz2108/

Caring for, fixing, and putting the world back into balance have been a part of Karuk culture since time immemorial, and as such are integral parts of the ecology of Karuk homelands. Whyte, Caldwell, and Schaefer describe ecologies as "systematic arrangements of humans, nonhuman beings (animals, plants, etc.) and entities (spiritual, inanimate, etc.), and landscapes (climate regions, boreal zones, etc.) that are conceptualized and operate purposefully to facilitate a society's capacity to survive and flourish in a particular landscape and watershed" (K. Whyte, Caldwell, & Schaefer, 2019, p. 159). Karuk people's cultural ties and responsibilities to all beings in their ecosystems are powerful examples of how *ecologies*, from Indigenous perspectives, are distinct and expand upon Western cultural understandings of ecosystems. The definition of ecology from the Merriam webster dictionary is: *the totality or pattern of relations between organisms and their environment.* While there are 370 million Indigenous people globally belonging to more than 5,000 different peoples[2] , speaking over 4,000 languages and with diverse cultures and customs, Whyte and authors articulate how *Indigenous ecologies* include the moral, religious, and cultural responsibilities people have to their more than human *relations* (K. Whyte et al., 2019). In Indigenous ecologies *the landscape,* is not an inanimate backdrop, but rather, it is a homeland, full of relations and interactions that are purposefully enacted through spiritual responsibilities to ensure the interconnected well-being of humans and their more-than-human relations (plants, animals, waters, etc.).

The Karuk Tribe's Department of Natural Resources eco-cultural revitalization work is guided by these inherent responsibilities:

> "The Eco-cultural revitalization efforts of the Karuk Tribe are centered around fulfilling the responsibilities we have as Karuk people to all our living relations, ancestors, and descendants. Since time immemorial Karuk people have remained steadfast in our commitment to this land and its resources." – Karuk Tribe Department of Natural Resources website

[2] https://www.amnesty.org/en/what-we-do/indigenous-peoples/

Bill Tripp, shared with me how the term *revitalization* attends to supporting the *quality of the relationships* Karuk people have with their homelands and relations, recognizing that the quality of those relations has been, and continues to be *disrupted* by Euro-American invasion and the imposition of settler land management practices. Whyte et al (2019) describes the socioecological nature of this settler colonial invasion as *waves of settlement seeking to incise their own ecologies onto territories already inscribed with Indigenous ecologies that result from Indigenous practices of survival and flourishing (p 159).* They continue to describe how this imposition of settler ecologies includes not only ecological alterations, but also the cultural narratives and systems that drive those actions. "For a territory to emerge as a meaningful homeland for settlers, the origin, religious, and cultural narratives, ways of life, and political and economic systems (e.g., property) must be engraved and embedded into the waters, soils, air, and other environmental dimensions of the territory. That is, settler ecologies have to be inscribed so settlers can exercise their own governance systems" (K. Whyte et al., 2019 p. 158).

When Euro-American settlers invaded Karuk homelands, they *inscribed their ecologies on the landscape,* wreaking socioecological havoc on Karuk people and their more than human relations. Settler logics of capitalism, individualism, racial superiority, ownership, and possession (Jacob, Gonzales, Chappell Belcher, Ruef, & RunningHawk Johnson, 2021) are part of settler ecologies and are inscribed by altering socioecological relationships on the landscape (Bacon, 2018; K. Whyte et al., 2019).

The scale of the imposition of settler ecologies can be seen in tree-ring data that shows how settler fire suppression altered historic fire regimes (Taylor, Trouet, Skinner, & Stephens, 2016). The depth of the violence of the imposition of settler ecologies is profound. Ron Reed (Traditional Dipnet fisherman, Cultural Biologist, Ceremonial Leader, Karuk Tribal Member)

speaks to the depth of violence that the socioecological degradation from settler ecologies has on Karuk people.

> *"Everything, all the degradation and everything like that, all comes back to family. All comes back to the concept that makes World Renewal a unique religion. It's a place- based religion, a place-based people, a place-based community, management perspective, and ideology. And when that gets degraded, the sense, the health runs parallel with human beings. Because we don't have those type of resources available to us, we lack. We lack to be able to practice inherent responsibilities. And the cultural integrity of the Karuk people goes down the tube. And when the physical management has that type of dramatic impact on the management, the health of the people runs parallel to the health of the landscape". – Ron Reed*

The health of Karuk people and the landscape are interconnected. When the land is degraded, so is the health of Karuk people. When Karuk people's ability to care for the land is degraded, so is the health of the landscape. This form of violence that comes as a result of these eco-social disruptions (Norgaard, 2014a) has been described as *colonial ecological violence* (Bacon, 2018). Recalling Whyte et al's definition of *Indigenous ecologies*, and the relationships and responsibilities that are the core of them, what makes the eco-social disruptions of settler colonialism uniquely and profoundly violent are that they *foreclose the possibility of relationships with and responsibilities to ecologies, contributing to physical, emotional, economic, and cultural harms* (Bacon, 2018 p. 63).

In Karuk aboriginal territory, as in all of northern California, settler colonial violence has taken many horrific forms. Euro-American invasion in Karuk homelands began in earnest around 1849, and included state-sponsored genocide, land dispossession, followed by forced assimilation through boarding schools (Norton, 1979, Madley, 2016). Karuk people fought all attempts of settler invasion and removal. Ideologies of white supremacy and heteropatriarchy played a role in settler assimilative practices, attempting to shame and outlaw ceremonial practices and disrupt traditional gender roles (Baldy, 2018). As ceremonial practices, like World Renewal, are integral parts of the Karuk and neighboring tribe's profound relationships and

responsibilities to restore the world, heteropatriarchy and white supremacy are violent not only to Indigenous peoples, but to their more-than-human relations as well. The socioecological impacts of heteropatriarchy and white supremacy are inscribed on the landscape through their violent disruptions of Indigenous ecologies.

After initial invasion, Euro-American land management practices based on these settler ecologies followed, altering the landscape to support the flourishing of settler ecologies. Gold mining, the damming of rivers, extraction of timber, and fire suppression wrought socioecological havoc on Karuk people and their more than human relations. The creation and imposition of settler land management institutions like the United States Forest Service facilitated these forms of extraction (Wallerstein, 2011). These institutions continue to inflict colonial ecological violence to this day through policies and structures that continue to cause eco-social disruptions for Indigenous people (Norgaard, 2014a, Marks-Block & Tripp, 2021).

Fire suppression is one of these persistent policies that restrict Indigenous fire stewardship, and as such act as an assimilative force of settler colonialism by restricting practices that are foundational to Indigenous cultures and landscapes (Norgaard, 2014, Marks-Blocks & Tripp, 2021). Fire suppression policies of the Forest Service were based in a fear of fire, as well as a desire to maximize timber production on the landscape for capitalist gain (Vinyeta, 2021). This i*mposition* of fire suppression policies on the landscape disrupted Indigenous fire stewardship practices, and along with plantation timber practices modeled after European style forestry, altered the landscape from a mixed hardwood-conifer forest with a frequent mixed severity fire regime, to a fire-suppressed landscape thick with Douglas fir trees and an altered fire regime that with the addition of climate change is now more prone to high-intensity stand-replacing fires (Taylor et al., 2016).

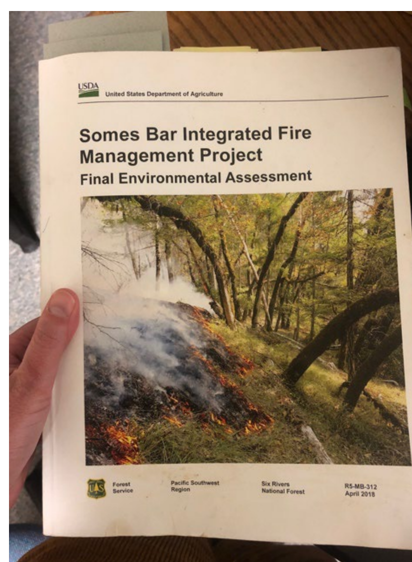
Despite this ongoing invasion and imposition of settler ecologies, Karuk people, like diverse Indigenous peoples around the world are revitalizing their relationships and responsibilities with their homelands and healing the eco-social disruptions caused by settler colonialism. Ecocultural revitalization work from the Karuk Tribe Department of Natural Resources (Karuk DNR) takes place through activities and policies that support Karuk people and families to carry out their inherent responsibilities, and thus care for the interconnected well-being of people and places.

The Karuk DNR does work in fire, wildlife, GIS, fisheries, water quality, habitat restoration, environmental education, career training, policy work, research, intergenerational knowledge transfer, climate change monitoring, climate change adaptation planning, and academic partnerships. The revitalization of Karuk fire stewardship practices is a major area of focus for Karuk DNR. Like Indigenous people in fire-prone areas around the world, Karuk culture has been described as a *fire dependent culture* (Marks-Block & Tripp, 2021). As Ron Reed explained to me, *"Fire, is the start all end all with our religion. It carries our prayers to the great creator in the smoke. It creates a near optimal levels of management for the resources we call our relations. That provide food, clothing, shelter, but much more importantly, the mental and spiritual awareness of how we raise our family and live our everyday life.*" Revitalizing these fire practices takes many forms- from families carrying on their traditions in their places to landscape scale, collaborative management projects between the Tribe, the United States Forest Service, and NGOs. This thesis centers largely around one such collaborative project, The Somes Bar Integrated Fire Management Project, as it brings together multiple partners, partners that bring with them different cultural ideas of *what does it mean to restore and environment.*

Somes Bar Integrated Fire Management Project

The Somes Bar Integrated Fire Management Project is a collaborative project with the Six Rivers National Forest, the Karuk Tribe, and other partners in the Western Klamath Restoration Partnership. It is a landscape scale forest restoration project focused on thinning and fuels treatments to prepare for the safe return of cultural fire and aims to promote the associated socioecological benefits from a revitalized cultural fire regime. I was introduced to the Somes Bill Tripp and Leaf Hillman (Ceremonial Leader, Karuk tribal member). When describing my research interests to them about collaborative ecological restoration, they said that this project was a story that needed to be highlighted. Similarly, when I met with Dr. Frank Lake (Research Ecologist, Karuk descendant) he handed me a digital and a hard copy of the Forest Service Environmental Assessment about the project.

Upon first glance the bulky, 450-page Somes Bar Integrated Fire Management Plan looks just like any other Forest Service Publication. Perhaps the photo of a low-intensity fire gently creeping through a stand of tanoak trees is a hint that this project, which is *promoting the return of fire*, is different.



(photo credit Sara Worl)

Instead of Tribal involvement being marginalized into a box to check, or Indigenous sciences included only as an appendix in the back of the document, you see how Karuk science and management are front and center. The publication opens with the Karuk Fire Race Story:

> "A long time ago, only the three Yellow Jacket sisters had fire. Even though other animals froze, the fire was kept from them. Coyote wanted to steal fire, which had been lost in a bet. He collected various animals, and placed them at intervals from the river to the mountains. Frog was in first place-closest to the river. There was forest fire in the mountains, and he stole it by diverting the children who were in charge of it, and then pretending to fall asleep by the fire, having placed oak bark between his toes. At the right moment, he ran away with a piece of burning charcoal. The ember was passed from one animal to the next as each got tired. Turtle was able to escape by rolling down from a mountaintop towards the river, and then gave it to Frog. Frog hid the fire in his mouth, dived in the river, and swam to the other side, and spat the fire out under a Willow. Dogs howled as the fire rose up, and mankind came into existence."- Karuk Fire race story, in the introduction section of the Somes Bar Integrated Management Plan (USDA Forest Service PSW Region, 2018, p. 8).

This Forest Service Environmental Assessment describes how the Fire Race Story "encapsulates elements of traditional ecological knowledge, and outlines the combination of responsibility, respect, and reciprocity that links people to the environment" (USDA Forest Service PSW Region, 2018, p. 8) and that these teachings help inform the current practices that are a keystone of the Somes Bar project. This is a publication from the very agency that suppressed and racistly dismissed Karuk fire stewardship practices for almost the entirety of the agencies short (but highly disruptive) history (Vinyeta, 2021). As I learned and will be discussed more in a future chapter, collaborations like this one that are respectful of Indigenous sciences and management have come after decades of failed collaborations and broken trust, and that their existence shouldn't be taken for granted.

The Somes Bar project became a jumping off point for the interviews I had with Karuk practitioners about *what does it mean to restore an environment*, and about how Western science and management practices can either support or hinder those efforts. People I spoke with talked

about some of the ways settler logics showed up in the Somes project, as well in other collaborative land management experiences they've had with non-Native partners. Therefore, while this thesis circles around the Somes Bar project, other accounts of collaborative ecological restoration were shared as well.

As ecological restoration is a land management practices that influences and shapes relationships between people and the environment, it holds possibilities for revitalizing Indigenous ecologies, or further inscribing settler ecologies. The questions that guide this thesis are around these possibilities:

- How do settler logics show up in collaborative ecological restoration activities? What are their impacts?
- What are pathways forward for collaborative ecological restoration that stand up to the violence of settler ecologies, and support the revitalization of Indigenous ecologies?
- What are pathways forward for collaborative ecological restoration that respectfully bring together Indigenous and Western sciences?

As we will hear in examples in the following chapters, in collaborative land management projects like the Somes Bar Project, non-Native partners can create barriers to Karuk ecocultural revitalization efforts. I argue that these barriers are part of a larger paradigm of Western approaches to ecological restoration that are embedded in settler ecologies. When guided by settler ecologies, ecological restoration practices, no matter how good-intentioned, become another way that settler ecologies inscribe themselves onto the landscape. This imposition of settler ecologies not only threatens Karuk ecocultural revitalization efforts and further inflicts colonial ecological violence on Karuk people, but it also results in bad management by foreclosing the possibility of drawing from *the best available sciences*, such as Indigenous sciences. Standing up to settler colonial logics in land management is imperative for pathways forward in facing the socio-ecological crisis all humanity is facing today. As authors Bang, Marin, and Medina (2018) eloquently state:

> “Humanity is receiving clear messages that our ways of doing are no longer sustainable. Indeed, human responses, adaptations, and reimagining’s of interdependent relationships with, and responsibilities to, the natural world may be the central challenge of the twenty-first century and will figure centrally in the stories told to future generations. However, the kinds of relations between humans and other life forms, and the lands and waters we all dwell in, are yet to be determined and enacted in these stories. The role of the sciences in meeting the challenges, developing policy, and shaping the stories of the future is critical. But what sciences? Indigenous sciences may be critical in cultivating the just and sustainable futures that will be part of our survival.” (p. 156)

While working with broad theories of Indigenous studies and settler colonialism, this work is grounded in interviews with nine Karuk and Karuk descendant practitioners about their experiences with collaborative ecological restoration in Karuk aboriginal territory. This work is put forth in service of supporting Karuk ecocultural revitalization and standing up to the violence of settler colonialism. I hope that by centering Karuk ecologies, I am disrupting dominant settler colonial narratives of place and restoration. I also hope to honor the important stories Karuk people shared with me about what is needed to revitalize Karuk management practices and support the flourishing of Karuk ecologies.

Below is a beautiful art piece by Vikki Preston (Cultural Resources Technician III, Karuk, Yurok, Paiute, Pit River).

by Vikki Preston, art featured on the 2018 Klamath Prescribed Fire Training Exchange T-Shirt

When I asked Vikki about this piece, she described how it was inspired by the fire race story, is meant to represent reciprocity, and that humans are a part of the ecosystem. She shared:

> "*Our Karuk stories are an important aspect of fire. The willow in the center of this ecosystem highlights all the relationships that go into just one species' health. Willow is an important basket weaving plant for Karuk people. So, this piece also had a woman leading the lighting. I imagined her being a basket weaver and being happy to be burning her willow patch. Most of my work is highlighting the need for woman in all of our fire sovereignty work." - Vikki Preston, email communication*

As Vikki shares in her words and in her art, Karuk women are central to Karuk fire sovereignty work. I hope that readers of this thesis will hear the important lessons that Karuk women shared with me about ecocultural revitalization and restoring landscapes harmed by settler colonialism.

Introducing the researcher: positionality and reflexivity statement

This thesis follows feminist and critical research paradigms that recognize that researchers are social being that bring their own worldviews and power dynamics from their

social locations, and Indigenous research paradigms that describe how researchers form a relationship with their topic and the people and communities they are working with (Wilson, 2008). Much like when I met people I'd be interviewing for this thesis, I will introduce myself and how I came to this research so you as a reader can understand how this work came to be, how I understand my responsibilities as a researcher to not replicate oppressive relationships in the research process, and some of the limitations that my social location may hold.

My name is Sara Kimberly Worl, and my pronouns are she/her. I am a white settler from German, French, British Isles, and Norwegian heritages. I am a mother to River, a partner to Jerome, a truly blessed aunt to many amazing children, a sister, a daughter, a niece, a grandniece, and a granddaughter. I grew up in the ancestral homelands of Atfalati-Kalapuyan people, what is now called Beaverton, Oregon. Shortly after I turned 18, I moved to what is now called Eugene, Oregon, ancestral homelands of Kalapuyan people. I didn't know until I was well into my 20s that the beautiful camas fields and oak woodlands that I love are a part of Kalapuyan land management traditions, including the use of fire, traditions that are currently being rekindled by Kalapuya and other local Native people.[3,4]

The first time I went to Karuk homelands was in 2010 as a staff member at a YMCA summer camp. As we camped and rafted along the Klamath river, I was in awe of the beautiful landscape around me: osprey and eagles along the river, bears ambling up steep slopes, cold clear creeks, and a diversity of trees that I had never seen before. I had heard a bit about the Karuk Tribe, mostly through getting to work with many wonderful Karuk youth at that summer camp over the years. But like many visiting settler summer recreationalists, I had no idea about the Karuk ecocultural traditions that had tended these beautiful landscape since time

[3] https://www.klcc.org/2021-10-20/ancient-native-american-forest-practices-demonstrated-in-burn-near-eugene
[4] https://www.hcn.org/issues/53.12/indigenous-affairs-perspective-rekindling-with-fire

immemorial, nor did I know about the ongoing settler colonial disruptions that threatened them. While at the University of Oregon in 2016 I met Dr. Kari Marie Norgaard, and learned about some of the dam removal and fire revitalization work of the Karuk Tribe and their allies. After speaking with Dr. Norgaard about my interests in decolonizing ecological restoration, she invited me down to the river to a meeting at the Karuk Department of Natural Resources, where I witnessed how the Karuk Tribe wasn't being included in regional climate adaptation plans conducted by a nonprofit organization commissioned by the Forest Service. After that meeting I got to return to the river many times and was always heart-warmed by everyone's care and generosity: inviting me over for dinner, giving me a place to stay, taking me to an awesome swimming spot, teaching me the basics of being around fire at the Klamath TREX prescribed fire training, and spending time with me and sharing about Karuk land management traditions. I am honored by the generosity of people taking time to share their experiences (good, bad, and otherwise) of collaborative ecological restoration with me. While writing this thesis I kept a card by my desk that said, *I am writing a fierce and humble love letter, that honors what people shared with me, uplifts Karuk fire stewardship, and speaks truth to power.* I hope that this thesis is a reflection of my care and admiration for the people I spoke with and is in service of the flourishing of Karuk ecologies.

How did I come to this research about ecological restoration? What are my intentions and hopes for this research, and how have they evolved? Let's back up about 6-7 years, to a time that I didn't even know what ecological restoration was and was just starting to learn about settler colonialism. Before I came to graduate school, I was working for the Willamette National Forest, who's offices are shared with the National Guard. I remember walking down the hallways, starting in the Forest Service side, and seeing historical photographs of white settlers cutting

down enormous trees; trees I rarely saw remaining in Oregon, because they had almost all been cut down. I witnessed narratives of the landscape focusing on white men and logging, while seeing nothing of the millennia-old land stewardship traditions of Kalapuyan peoples whose homelands the building was occupying. As I walked down the hallway, these images and narratives transitioned to those of the National Guard, with images of American soldiers occupying Iraq and Afghanistan. There seemed to be some common threads that tied these narratives together, but at that time I was just beginning to understand them. During this same time, somebody put a noose on a Black Forest Service employee's car. White supremacy seemed to be everywhere. While I couldn't articulate an understanding of these violent belief systems and power structures, the weight of the intertwined social and ecological violence felt heavy. I also became sharply aware that as a white person in America, it was a violence that I nor my ancestors was constantly threatened by. Shortly after this time, I was accepted into the Environmental Studies Program, and I remember entering the program with a feeling of desperation. *What can I do to stand up to all this socioecological violence towards people, places, and beings that I love? What is my role as a white settler?*

As I mentioned, I didn't even know what *ecological restoration* was until my early 30s, but I was immediately drawn to wanting to *assist in the recovery of ecosystems that have been degraded, damaged, and destroyed.*[5] I didn't have an environmental science background, but I got introduced to the practice of restoration from working with the United States Forest Service. I worked with the USFS in youth and community engagement programs, as well as doing anti-racism and Diversity, Equity, and Inclusion work there, and with local outdoor organizations. I had been learning about and witnessing the ways that white supremacy, heteropatriarchy,

[5] Definition from the Society for Ecological Restoration

transphobia, and other systems of oppression were operating in institutions like the Forest Service. Once I got to graduate school and became interested in ecological restoration, I wondered, *how might these systems of oppression also be operating in the field ecological restoration?* I was beginning to understand how even well- intentioned fields were deeply implicated in white supremacy and settler colonialism. Thus, my first year of graduate school I carried the question around with me*: What does it mean to restore an ecosystem that is being degraded by settler colonialism?*

As you will hear more about in the methodology section, my approach to answering this question was informed (and limited) by the ways I had learned to be in the world, both through a western education, and my privileged lived experiences as a cis, middle-class, white woman, with very little understanding of what systems of oppression actually mean. As is further explored in the methodology section, I understood that I had a responsibility to be vigilant and thoughtful about ways that I might be replicating white supremacy and colonialism in my research approach. I took this responsibility to not replicate systems of oppression very seriously, and yet recognize that my approaches, and what I ultimately chose to write and include of people's interviews, are shaped by my western worldview. Even so, I worked to push through constantly worrying about how I was going to mess up and came to understand that everyone has a role to play in standing up to the violence of settler colonialism and in decolonization. I held that understanding and a belief in what I could offer close to my heart throughout this research.

I've come to understand settler logics as violent traditions that have been passed down through many generations, including in my lineage, and that I have a responsibility to identify, uproot, and compost[6] these destructive logics. Cree Scholar Shawn Williams writes, *if research*

[6] Uprooting and composting whiteness came from a workshop I took with the organization *Rise up Rooted* in the summer of 2021

doesn't change you as a person, you haven't done it right (Wilson, 2008, p. 135). In the methodology section, as well as the conclusions, I share some of the ways that this research has changed me. I offer these reflections as a white settler wanting to engage in collaborative ecological restoration that stands up to settler logics and supports Indigenous ecocultural revitalization. I hope my reflections are in service of settlers recognizing and breaking from harmful traditions of settler colonialism, so that they/we may be better partners in restoring the flourishing of Indigenous ecologies throughout the world. I hope that this work is in service of Karuk ecocultural revitalization, and for the ecocultural revitalization of Indigenous peoples everywhere.

(photo of author helping to revitalize *good fire* in Karuk aboriginal territory, during 2018 Klamath Prescribed Fire Training Exchange)

II. METHODS

Methodology

As described above, I began this research pursuit wishing to critically analyze how settler logics show up in *dominant* (Euro-American, United States, Western culture and science based) ecological restoration practices. In this way, I knew from the beginning that my research would align with activist and critical research paradigms, seeking to examine and expose underlying racial and colonial power structures in service of social and environmental justice. What I didn't fully realize when I began was the extent to which myself, and my research approach, was embedded in, and informed by those very same dominant systems I was trying to confront.

When I presented my initial research proposal to one of my committee members, Dr. Michelle Jacob, she gave me powerful feedback that helped reshape my approach to my thesis research. She observed how the majority of my proposal at that time was about doing a critical content analysis of dominant ecological restoration projects and interviewing non-Native ecological restoration practitioners to uncover underlying belief systems about place that could be tied to settler colonial logics. At *the end* of the proposal, I spoke about how I was going to interview Karuk practitioners about their perspectives of ecological restoration. Dr. Jacob asked me a few questions that helped illuminate to me how in my pursuit to be critical and stand up to settler colonial power structures, that I was in fact actually centering those very harmful voices and processes in my work. She asked me, *where were Indigenous perspectives on the topic of ecological restoration? Where were Karuk fire management traditions, founded in spiritual responsibilities and integral parts of the landscape since time immemorial? Why weren't those being honored?* Furthermore, besides just criticizing and pointing out the violence of settler colonial land management, she asked what would I be *offering* in this research pursuit? In that

short meeting in the Many Nations Longhouse, I remember a feeling of something shifting inside my mind, about my perspective and my approach. Perhaps for a moment I was able to zoom out and get a glimpse into how I was embedded in a western, Euro-American way of knowing and doing, what I later learned were called epistemologies and ontologies. I later read a paper by Corntassel, Snelgrove, and Dhamoon (2014) that offered:

> "without centering Indigenous peoples' articulations, without deploying a relational approach to settler colonial power, and without paying attention to the conditions and contingencies of settler colonialism, studies of settler colonialism and practices of solidarity run the risk of reifying (and possibly replicating) settler colonial, as well as other, modes of domination" (p. 4)

I seemed to be observing a trend around me at the time (2017) that for white scholars wishing to engage in decolonial and anti-racist activist scholarship meant that their/our role was to provide as hard-hitting of a "call-out" and critique of settler colonialism as possible. While this uncovering and dismantling of systems of oppression is of course important, as Dr. Jacob hinted to me, in the process of doing so, who's ways of doing things and who's voices were being centered? Like the quote from Corntassel et al (2014) above, was I actually reifying settler colonialism by centering settler articulations of restoration, and by the Western approaches of critical research that I was pursuing?

One of the many things I heard in that meeting with Dr. Jacob - and again in further readings in Indigenous feminisms - was an offering of a pathway forward from ways of doing things that are steeped in the violence of settler colonialism. In their paper, *Indigenous Cultural Values Counter the Damages of White Settler Colonialism,* Jacob and coauthors explain how *analyses rooted in settler logics are inadequate because of their inherent inability to meaningfully engage with colonization* (Jacob et al., 2021 p. 1). Their paper concludes with an

invitation to all those working for justice, across a variety of disciplines to respectfully engage in Indigenous cultural values:

> We invite environmental sociologists, activists, and those working for justice in health, legal, education, and related academic spaces to engage Indigenous cultural values in efforts to challenge the exclusionary white spaces and counter the settler colonial violence that plagues all peoples. Doing so will allow for healing humans' relationships with the environment, our more than human relations, and with each other" (Jacob et al., 2021, pp. 9-10).

With a growing awareness of the limitations of Western paradigms and their underlying logics of domination and destruction, I turned towards Indigenous research methodologies for further guidance in how to embark on a research journey that would be in service of decolonization (the repatriation of Indigenous life and lands), and in service of healing the harms of settler colonialism for all beings, myself included.

From Linda Tuhiwai Smith's *Decolonizing Methodologies*, I learned about how *research* conducted by white, Euro-American researchers, was far from objective, and rather was informed by racist ideas of white superiority, resulting in knowledge production which then served to reify colonial power structures based white supremacy and exploitation of Indigenous African, Asian, American, and Pacific lives and land (Smith, 2012). I also learned about how Western, white, euro-American research is based in traditions of extraction and theft, where researchers take Indigenous knowledges, treat them as *discoveries*, which would then became property in Western institutions (Smith, 2012 p. 64). This extraction of knowledge is part of larger processes of colonial resource extraction, and as Lisa Morehead-Hillman (Cultural Practitioner, Karuk tribal member) reminded me, this settler colonial tradition of extraction continues in Karuk aboriginal territory. When I asked Lisa about what she never wanted to hear again from non-Native ecological restoration partners, she shared: *don't be extractive with your research. You better be invested, or else you are just like the miner, logger, or weed farmer.* I

heard how as a white, settler researcher, working in a Western academic institution and wishing to do research with Indigenous communities, I had a responsibility to break from these violent traditions of research that I was embedded in.

For further guidance, I turned to *Research is Ceremony,* by Dr. Shawn Wilson (2008), and it was there that I learned about *relational accountability* as a part of Indigenous research paradigms. Wilson cites Cora Weber-Pillwax's 3Rs: Respect, reciprocity, and responsibility as key elements of an accountable relationship, and poses these questions based in the 3Rs for researchers to consider:

- How do my methods help to build respectful relationships between the topic I am studying and myself as a researcher?
- How do my methods help build respectful relationships between myself and the other research participants?
- How can I relate respectfully to the other participants involved in this research so that together we can form a stronger relationship with the idea that we will share?
- Am I being responsible in fulfilling my role and obligations to the other participants, to the topic and to all of my relations?
- What am I contributing or giving back to the relationship? Is the sharing, growing, and learning that is taking place reciprocal?

(Wilson, 2008, p. 77).

These questions helped guide me as I met with Karuk practitioners and my research proposal and questions evolved. I learned about projects they wanted to highlight, as well as problematic instances that they wanted to call out. Through these conversations my research shifted to the form that it is in today. In one of these conversations, we discussed how this work might take future forms to be more accessible and useful to Karuk and other Indigenous activists. These conversations are happening at the time I am writing this, and I hope that these relationships continue, and that this work continues to evolve and be of use for Karuk people and ecocultural revitalization.

As my proposal took form, I followed guidelines put forth in *Practicing Pikyav*, as well as the *Protocol on Karuk Tribe's Intellectual Property Rights Research, Publication and Recordings.* As laid out in Practicing Pikyav, by entering into a collaborative research agreement with the Karuk Tribe, I agreed to support Karuk policies and practices of *pikyav.* Developed by the Karuk- UC Berkley Collaborative, *Practicing Pikyav* opens by describing how in the Karuk language *pikyav* means "to fix it", and that Karuk people often describe themselves as *fix the world people.* The document continues:

> "As part of this philosophy, the Tribe is continuing its timeless responsibility to repair and restore the complex socio-cultural and ecological systems that comprise its world. This work includes mitigating environmental and social damages that continue to have profound impacts on Karuk people, and Karuk Cultural Heritage, traditions, and Aboriginal Territory. One example of *pikyav* in action today is the Tribe's active engagement in research programs that are currently guiding land management policy change and restoration activities in the Klamath River Basin." - Practicing Pikyav[7]

Along with following the ethical and legal guidelines outlined in the Karuk Tribe's collaborative research agreements, Practicing Pikyav for me served as a reminder that I am accountable to Karuk people, their more-than-human relations, and their responsibilities to repair and restore the world.

Limitations

As a person not from the community, and from a white, Western worldview, I understood that I would be limited in my ability to understand what people were sharing with me about their religion, culture, homeland, and experiences with settler colonialism. I tried to be thoughtful of these limitations, as well as what Tuck et al (2014) explain as a tendency for white scholars to over-simplify and misrepresent Indigenous people's relationships with land. One of the ways I addressed this was to send people I interviewed drafts with their quotes highlighted and asked

[7] https://sipnuuk.karuk.us/system/files/atoms/file/ATALM17_PracticingPikyav.pdf

them to review and offer any edits or requests for removing something shared. I intentionally included some large transcript excerpts so that readers would be able to draw their own lessons and meanings from what people shared with me. In an ideal situation, I would have worked with more people to read the transcripts to listen and look for themes, knowing that there are themes I may have missed. I take away from this experience a deeper commitment to, and appreciation of collaborative and multicultural scholarship.

Finally, I would be remiss if I didn't mention the impact of the COVD-19 pandemic on this research process. I had a trip planned down to the river for early March of 2020, with my then 3-month-old son and my partner. We had looked forward to getting to stay with Shawn Bourque and his family, visit people I had interviewed to meet and share in the joy of our new baby, and meet with more people to interview. Like in so many people's lives, the pandemic disrupted our abilities to be together, to share food, and to have the kinds of conversations and connections that come so much more easily when being physically present with one another. While I was able to hold three very powerful interviews virtually in 2020, it has been hard to maintain the level of connection that I had hoped for. I hope to stay connected to those that I met, and more importantly, I hope that everyone I met continues to stay well through this ongoing pandemic.

Methods

Following the guidelines in the Karuk Tribe's research protocol[8] I submitted a proposal to the Karuk Resources Advisory Board. In October of 2018 I presented my thesis proposal and answered questions to the Karuk Resource Advisory Board (KRAB) meeting in Orleans,

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[8] Protocol on Karuk Tribe's Intellectual Property Rights Research, Publication and Recordings, https://sipnuuk.karuk.us/digital-heritage/protocol-karuk-tribe%E2%80%99s-intellectual-property-rights-research-publication-and

California. The proposal included a description of the research, the intent of the research, and benefits to the Tribe or other groups. I was assigned three committee members for my KRAB resource committee: Two were employees of the Karuk Tribe, Earl Crosby and Shawn Bourque, and the other was long-time research collaborator with the Karuk Tribe, Dr. Kari Norgaard.

Dr. Kari Norgaard and Shawn Bourque recommended people for me to contact to interview. Along with the introductions from Kari and Shawn, I got to know some of the people I interviewed before I interviewed them while participating in the 2018 Klamath TREX (a prescribed fire training held with The Karuk Tribe, Nature Conservancy, and other partners), and while working as a research assistant for the Karuk Tribe's Department of Natural Resources to work on their Climate Change Adaptation Plan in 2019. During my participation in TREX I participated in fuels reductions work (lighting hundreds of piles of wood and brush on fire) as a part of the larger effort of revitalizing Karuk fire stewardship to the landscape. While working on the Climate Change Adaptation Plan, I synthesized Karuk and Western sciences to create management recommendations based on the lessons from 22 cultural indicator species. These experiences gave me more context and grounding into my research topic, and a deeper sense of accountability to Karuk people and their more than human relations.

I interviewed nine people for this thesis. Participants were Karuk tribal members or descendants, and all are involved with eco-cultural revitalization in varying capacities. Some are either current of former employees of the Karuk Tribe's Department of Natural Resources, and/or current or former employees of the United States Forest Service. Most participants were directly involved in the Western Klamath Restoration Partnership and the Somes Bar Integrated Fire Management Project in some capacity. Six in-person interviews were held at the Karuk Department of Natural Resources office or personal residences in and near Orleans, California

between April 2019 and June 2019. Three were held virtually between March 2020 and October 2020. Per the guidance of my KRAB committee, two of the elders I interviewed were given a monetary honorarium for their time. Everyone was given small gifts of appreciation for their time and expertise they shared.

Interviews were recorded and transcribed verbatim. Transcripts were stored in a password locked computer and kept confidential. I followed the coding methods outlined in *The Coding Manual for Qualitative Researchers (*Saldaña 2009), with multiple rounds of coding that began with descriptive and In Vivo, to then identifying emergent codes, and from there into emergent patterns and themes. I did this process by printing out copies of the transcripts and writing descriptive codes in the margins, as well as copying and pasting quotes from digital transcripts and grouping them into themes. I focused on themes that spoke to my original overarching research questions: what are Karuk practitioners' articulations about ecological restoration? And, how do settler logics show up in collaborative ecological restoration? Once I had written a draft of the *Findings and Discussions* chapters I sent copies to each person I interviewed and asked them if there was anything they would like me to add, change, or remove about their quotes or the context they were presented in. I highlighted each person's quotes and told them the page number for ease of locating their quotes and making edit suggestions. Along with edits for individual quotes, I told people that I was open to feedback on any other aspect of the document as well. Beyond small factual edits, I had some follow-up email exchanges and phone calls with some interviewees about enhancing some of the topics with their input. I am currently working with one of the people I interviewed about working with a Native artist to create some visual representations of how settler ecologies show up in ecological restoration so that it may be useful

for Indigenous activists working with non-Native partners. I hope that these connections and relationships continue.

III. LITERATURE REVIEW

Why is it important to uncover settler colonial logics in ecological restoration? The United Nations declared 2021-2030 the Decade on Ecosystem Restoration. This declaration represents how it is becoming more and more impossible for world leaders to ignore the inseparable well-being of people and the environment, and that the status quo of treating the Earth's natural systems as endlessly extractable and exploitable is causing mass extinctions and climate change. With much energy, attention, and funding towards ecological restoration efforts, it is important that these well-intentioned efforts are not being driven by underlying destructive settler colonial logics, and that instead they are ethically guided by *best available sciences*, including Indigenous and Western sciences.

Settler colonialism is made of structures and processes, land management being one of them (Bacon, 2018; Wolfe, 2006). Whyte (2018) explains how "*settler colonialism is a form of domination that violently disrupts human relationships with the environment*" (p. 125). Ecological restoration can be understood as one of the many land management processes that organizes relationships between people and the environment. Situating settler colonial land management practices, like mainstream ecological restoration, within settler colonial theory illuminates how these practices can cause *eco-social disruptions* by creating barriers in the relationships between Indigenous peoples their homelands (Norgaard 2014a). In the context of the United States, after the initial invasion of Euro-Americans and the violent forced dispossession of Indigenous peoples from their homelands, institutions like the United States Forest Service continue eco-social disruptions by enforcing policies that attempt to dictate how Indigenous peoples can/can't engage with their homelands (Norgaard 2014a). Situating ecological restoration within the larger context of land management in the United States (and in

settler states around the world) illuminates how ecological restoration acts as another settler land management practice causing eco-social disruptions and inflicting colonial ecological violence on Indigenous peoples and their homelands.

This thesis situates the practice of ecological restoration in Indigenous studies and settler colonial studies, to discuss ecological restoration as furthering the settler colonial project of dispossession, or as a practice with decolonial possibilities. I will first summarize some of the critical conversations happening in the mainstream field of ecological restoration, and then turn to Indigenous studies and articulations of ecocultural revitalization for pathways forward from settler colonial land management paradigms. Through this literature review I will build a framework to explore the questions of this thesis. I will make a case for the importance of addressing persistent settler logics in land management, and the imperative for collaborative ecological restoration to turn to Indigenous values and leadership for pathways forward.

Critical conversation in the field of ecological restoration

Ecological restoration, understood broadly, is a set of land management practices to restore and maintain ecosystems in the face of the mounting destructive and deadly impacts of unsustainable development and climate change. While diverse cultures throughout the world have land management traditions and practices that consider and support the integrity of the socioecological systems in which they live, ecological restoration here is understood as a land management practice that took form in the mid-20th century in American and Australian conservation traditions (Jordan & Lubick, 2011). These practices were founded in a recognition by conservationists of the value of ecosystems and the need to maintain and restore them in the face of growing ecological destruction (Jordan & Lubick, 2011). By the 1990’s, ecological restoration was a main subset of land management practices in the United States. The Society for

Ecological Restoration (SER), recognized as a source of expertise in the field, was formed in 1988, and their mission is to *advance the science, practice, and policy of ecological restoration to sustain biodiversity, improve resilience in a changing climate, and re-establish an ecologically healthy relationship between nature and culture*[9] In recent years there has been a robust conversation in SER's journal, *Restoration Ecology*, about the how the field of ecological restoration is dominated by Western and colonial cultural values, and some of the impacts these values have on Indigenous communities and communities of color around the world (Benyei, Arreola, & Reyes-García, 2019; Dickson-Hoyle et al., 2021; Evans & Davis, 2018; Fox & Cundill, 2018; Hall et al., 2021). Following is a short overview of some of these conversations, which will be relevant to further topics throughout this thesis. This overview will conclude with recent calls to address settler colonialism in ecological restoration. At that point I will turn to Indigenous environmental studies for articulations of pathways forward in decolonizing ecological restoration.

Ethically bridging Indigenous and Western ecological knowledge

Opinion and research articles written in the journal Restoration Ecology investigate underlying Western cultural values in ecological restoration (Evans & Davis, 2018; Hagger, Dwyer, & Wilson, 2017; McDonald et al., 2019; Rohwer & Marris, 2016). For example, the notion of restoring an environment to a "pristine" or "pre-human contact" state has been common in the history of mainstream ecological restoration (Murdock, 2016), and reflects the nature/culture dichotomy of Western epistemologies that underlies western science and conservation practices. Prominent in these reflections was a need to move beyond a Western epistemological human-nature separation construct and to consider socio-ecological ecosystems (Fernández-Manjarrés,

[9] Https://www.ser.org/page/MissionandVision

Roturier, & Bilhaut, 2018), as well as the contributions and buy-in from local communities (Fox & Cundill, 2018).

Part of this evolution of the field of ecological restoration is a growing recognition of Indigenous sciences and management, often called *Traditional Ecological Knowledges,* and a call to include them in ecological restoration practices (Berkes, 2012; Benyei et al., 2019; R. Kimmerer, 2011; R. W. Kimmerer, 2012; Long et al., 2018) While there is this growing interest in incorporating Indigenous sciences into restoration and other sustainability efforts, misunderstandings about the nature of Indigenous knowledge, and an unawareness of the colonial tradition of extracting and appropriating Indigenous knowledges, have led to inappropriate attempts by non-Native practitioners to take Indigenous knowledge and incorporate it into dominant western land management frameworks (David-Chavez & Gavin, 2018; Norgaard, 2014a). Narratives and practices of *incorporating, integrating, or combining* knowledge systems have been critiqued for perpetuating the appropriation and extraction of Indigenous knowledges (Johnson et al., 2016; Watts, 2013).

Distinct from Western ecological knowledge, Indigenous ecological knowledges are *more than a body of knowledge* that can be applied like a set of rules or practices in other places (Norgaard, 2014a) Indigenous ecological knowledges, which include Indigenous sciences, are inseparable from Indigenous culture and spiritual responsibilities (Cajete, 2000), and therefore are a *way of life*, rather than just abstracted knowledge about how to live (Macgregor, 2004 p. 79, Norgaard, 2014b). Indigenous sciences are described by Johnson et al (2016) as *multi-contextual systems of thought*, *action and orientation applied by Indigenous peoples* in their places, developed over millennia, and inclusive of methods that are also used in Western science:

classifying, inferring, questioning, observing, interpreting, predicting, monitoring, problem solving, and adapting (in Henri et al., 2021, p.5).

One emergent theme in these discussions addresses the appropriation problem and describes ways to create *bridges* between Western and Indigenous sciences, instead of *incorporating* Indigenous sciences into a dominant western paradigms (Dickson-Hoyle et al., 2021; Johnson et al., 2016). The *bridging* of Indigenous and Western sciences explicitly recognizes the importance of respecting Indigenous knowledge sovereignty and leadership and not replicating colonial power imbalances that privilege Western science and leadership as the ultimate decision maker and epistemology (citations) Practices of *weaving* or *bridging* Indigenous and Western knowledge systems acknowledge the value of the contributions of diverse knowledge systems, positions them as equals, and encourages these knowledge systems to come together in consensual, respectful ways that transcend extractive traditions of white, western, and colonial cultures (Johnson et al., 2016; Long, Lake, & Goode, 2020).

Discussions about how to respectfully bridge Western and Indigenous knowledges into forest landscape restoration, and specifically in regard to restoring pre-colonial fire regimes and forest composition (R. W. Kimmerer & Lake, 2001; Nikolakis, Roberts, Hotte, & Ross, 2020; Stevens-Rumann et al., 2017) are particularly relevant to this thesis. Indigenous fire management has been used over millennia and continues to this day despite numerous forms of violent fire suppression from Euro-American colonization and subsequent land management agencies (Huffman, 2013; R. W. Kimmerer & Lake, 2001). Many diverse Indigenous cultures around the world can be considered *fire-dependent cultures:* “Analogous to fire-dependent species, many indigenous peoples and Tribal communities are fire-dependent cultures, having adapted to and been influenced or affected by the fire regimes of their landscapes (Lake, 2021 p. 30). In fire-

prone ecosystems, *cultural fire regimes* (the intentional use of fire by Indigenous peoples) work alongside with *natural fire regimes* (lightning ignitions), contributing to the overall pyro-diversity of the landscape (Huffman, 2013; Lake, 2021; Long et al., 2018). The objectives of cultural burning are diverse across diverse Indigenous cultures around the world, and include cultural, spiritual, ceremonial, subsistence, utilitarian, and economic objectives (Eriksen & Hankins, 2014; Lake, 2021).

The disruption of these cultural fire regimes altered forest composition and fire regimes to such a magnitude that it is visible in tree-ring data (Taylor et al., 2016). Restoring these cultural fire regimes is an important part of Indigenous cultural revitalization and sovereignty, as well as for the overall health of fire-dependent landscapes (Huffman, 2013; R. W. Kimmerer & Lake, 2001; Marks-Block & Tripp, 2021). The same land management agencies that suppressed and discounted Indigenous fire stewardship are now realizing the ecological destruction of sustained fire suppression and are turning to those very Indigenous communities and fire practices for pathways forward for restoring fire to the landscape (Vinyeta, 2021). Examples of Indigenous and non-Indigenous land management partners coming together to restore fire to the landscape are found across the globe (Bilbao, Mistry, Millán, & Berardi, 2019; Eriksen & Hankins, 2014; Nikolakis et al., 2020). Many of these publications describe the possibilities and challenges of bringing together Western and Indigenous sciences and practitioners for restoring Indigenous fire stewardship to the landscape, and address a range of topics such as funding challenges, structural barriers, cultural differences and working cross-culturally, and persistent and dominant colonial values (Baumflek et al., 2012; Long & Lake, 2018; Marks-Block & Tripp, 2021; Stevens-Rumann et al., 2017). I will now focus specifically on the ways that *colonial*

values are being addressed in mainstream ecological restoration conversations, as well as in fire restoration collaboratives.

Persistent colonial values in ecological restoration

Returning to critical conversations in the field of mainstream ecological restoration, there is a growing awareness that the field is operating largely within a dominant western science and cultural paradigm containing *colonial values* that create barriers to Indigenous and other local community-led restoration efforts (Long & Lake, 2018; Marks-Block & Tripp, 2021; Mauer, 2021; Wehi & Lord, 2017). Scholars and practitioners describe how western science-dominated approaches to restoration are exclusionary (Trisos, Auerbach, & Katti, 2021), can inflict colonial ecological violence (Mauer, 2021), and are limited in their ability to find solutions to address the socioecological problems created by colonialism in the first place (Corntassel & Bryce, 2012; Long & Lake, 2018; Marks-Block & Tripp, 2021).

Describing persistent colonial mentalities in ecological restoration highlights not only ongoing injustices to Indigenous communities, but also a recognition that strategies to restoration grounded solely in Western science and culture will not be as successful as approaches that respectfully include the contributions of a plurality of sciences and approaches (Long & Lake, 2018; Trisos et al., 2021; Wehi & Lord, 2017) One example is how Frank Lake and Jonathan Long (2018) describe *colonial mentalities* (that ignore Indigenous management) as one of the factors that create “socio-ecological traps”, or self-reinforcing conditions that create a cycle of harming people and the environment. They describe that “because tribally focused restoration strategies generally align with broader strategies suggested to restore national forests in the region, they can foster both tribal well-being and ecological sustainability” (p. 1). This identification of colonial mentalities as an ongoing injustice to Indigenous peoples, as well as a

degrading factor for socio-ecological health has led to calls for *decolonizing ecological restoration* (Mauer, 2021, Trisos, Auerbach & Katti, 2021). Trisos et al (2021) calls on ecologists to recognize the ongoing power imbalances of colonialism and Euro-American cultural centricity in ecology and to commit to decoloniality, which they define as *actively undoing those systems and ways of thinking* (p. 1205). Mauer (2021) contends that processes of ecological restoration that don't support Indigenous self-determination nor face underlying settler colonial structures will inflict colonial ecological violence. In their work interviewing 75 Indigenous and non-Indigenous fire managers about constraints for prescribed fire expansion, Marks-Block and Tripp (2021) contend that *settler colonial inequities, like the control of land tenure, must be addressed*.

There is a growing call within the dominant field of ecological restoration to stand up to persistent colonial values and settler colonial processes, structures, and logics in ecological restoration. While this is hopeful, pathways forward from within that very same dominant field of ecological restoration are limited. Indigenous studies scholars warn that engagement with issues of settler colonialism and decolonization must center Indigenous people's articulations and pay attention to the conditions of settler colonialism, or else these very processes of solidarity run the risk of replicating settler colonial and other modes of domination (Snelgrove et al., 2014). In other words, in their efforts to become more equitable and respectful partners with Indigenous communities, Non-native ecological restoration practitioners may not actually address the underlying power structures that they are benefiting from, and in turn, end up upholding and replicating them. Approaches that are based in western logics of superiority are inherently limited in their ability to stand up to those very same destructive logics they rely upon (Jacob et al., 2021). Indigenous feminisms scholars speak to the limitations of western

frameworks to address the harms of settler colonialism, and the need to center Indigenous articulations for pathways forward (Jacob et al., 2021, p 2). It is here that I will turn to Indigenous studies for articulations about pathways forward from settler colonial ecological restoration.

Centering Indigenous articulations and disrupting settler logics

This final section will introduce some of the Indigenous studies theories that will be drawn upon throughout this thesis to understand Indigenous studies articulations of *ecologies* (K. Whyte et al., 2019), how settler colonialism operates as an eco-social disruption (Norgaard, 2014a), and how even well-intentioned conservation efforts can inflict colonial ecological violence (Bacon, 2018). This section will conclude with Indigenous ecocultural revitalization and ways that collaborative ecological restoration can support these efforts.

Settler colonialism and ecologies

> "Within settler colonialism, the most important concern is land/water/air/subterranean earth... Land is what is most valuable, contested, required. This is both because the settlers make Indigenous land their new home and source of capital, and also because the disruption of Indigenous relationships to land represents a profound epistemic, ontological, cosmological violence. This violence is not temporally contained in the arrival of the settler but is reasserted each day of occupation," (Tuck & Yang, 2012, p 5)

With land being the most important concern of settler colonialism, the United States government land management practices' are understood as ongoing functions of dispossession of the settler colonial state (Middleton 2010; Richmond et al., 2013; Whyte, 2016;) Indigenous communities have long had to negotiate the complex settler colonial structures and agencies which occupy their ancestral lands. (Long & Lake, 2018; Norgaard, 2014; Richmond et al., 2013; Long et al 2016; Diver 2016;) Working with Karuk tribal members, Norgaard et al (2014) describes the negative health, cultural, and spiritual impacts that result from the *eco-social disruptions*, or institutional and cultural barriers, that the Forest Service poses to the Karuk Tribe

to engaging in their cultural land management practices. Leaf Hillman describes land management agencies as ongoing settler colonial violence:

> "Every project plan, every regulation, rule or policy that the United States Forest Service adopts and implements is an overt act of hostility against the Karuk people and represents a continuation of the genocidal practices and policies of the US government directed at the Karuk for the past 150 years. This is because every one of their acts- either by design or otherwise- has the effect of creating barriers between Karuks and their land." (Leaf Hillman, in Norgaard et al 2014, p 52).

Understanding land management agencies in the context of settler colonialism foregrounds the ongoing settler occupation of Indigenous lands, and the ways that this occupation is reasserted through ongoing practices that create barriers between Indigenous peoples and their homelands, and therefore, barriers to their cultural and religious practices. Even though land management agencies constitute a form of occupation that is perhaps not as overtly violent as original settler invasions, the function of maintaining dispossession persists, and thus the violence against Indigenous life and land continues (Simpson 2017, p. 46)

With *control over,* and *alteration of* land being central to settler colonialism, Whyte et al (2019) describes settler colonialism as having its own *ecologies*, which are violently inscribed upon already existing Indigenous ecologies:

> "For a territory to emerge as a meaningful homeland for settlers, the origin, religious, and cultural narratives, ways of life, and political and economic systems (e.g., property) must be engraved and embedded into the waters, soils, air, and other environmental dimensions of the territory. That is, *settler ecologies* have to be inscribed so settlers can exercise their own governance systems," (p 158).

Ecologies include the arrangements and relationships of human and non-human beings, plants, spiritual and inanimate entities, and landscapes that operate purposefully for survival and flourishing in a particular place (K. Whyte et al., 2019, p.159). These ecologies include *epistemologies* that dictate the arrangements of relationships between humans and non-human beings. Watts (2013) writes how Euro-western frameworks of understanding the world are based

on an epistemological-ontological divide which separates humans from the rest of the natural world. and only grants humans agency. Understood this way, through settler colonialism, Western epistemologies that separate humans from the natural world are inscribed onto a landscape. This imposition of settler ecologies violently disrupts the arrangements of relationships based of Indigenous ecologies and attempts to rob more-than-human beings of their agency and relationships.

Bacon (2018) describes this ongoing settler colonial disruption of Indigenous ecologies as *colonial ecological violence:*

> "By foreclosing the possibility of relationships with and responsibilities to ecologies, land management under settler colonialism contributes to physical, emotional, economic and cultural harms. I contend that these eco-social disruptions generate colonial ecological violence, a unique form of violence perpetrated by the settler-colonial state, private industry, and settler-colonial culture as a whole." (p. 64).

Bacon offers the term *colonial ecological violence* to "allow for a broad analysis of the diverse ways settler colonialism disrupts Indigenous eco-social relations, and generates specific risks and harms for Native peoples and communities" (2018, p 5). This thesis takes up the call from Bacon to analyze ways that colonial ecological violence operates in even the most well-intentioned places, such as ecological restoration**.** Ecological restoration that does not attend to underlying settler logics will continue to inscribe settler ecologies onto the landscape and inflict colonial ecological violence. Furthermore, land management practices that are based only in Western science and cultural paradigms miss important contributions from Indigenous sciences and will ultimately not be as effective (Wehi & Lord 2017, Lake & Long 2018). In uncovering and disrupting settler logics, it is important to remember that analyses of settler colonialism run the risk of reifying those very same structures, and thus must turn to Indigenous articulations for pathways forward (Jacob et al., 2021).

Ecocultural revitalization

For many Indigenous peoples throughout the world, restoration of land and culture are inseparable (Corntassel & Bryce, 2012; R. Kimmerer, 2011, Simpson, 2018). *Ecocultural restoration* is a term sometimes used by Indigenous restoration practitioners and partners that deliberately incorporates cultural aspects into ecological restoration (Senos, Lake, Turner, & Martinez, 2006). Dr. Robin Wall Kimmerer uses the term *reciprocal restoration* to describe how restoration activities support the mutual well-being of Indigenous peoples, place, and culture:

> "Reciprocal restoration is the mutually reinforcing restoration of land and culture such that repair of ecosystem services contributes to cultural revitalization, and renewal of culture promotes restoration of ecological integrity. Based on the indigenous stewardship principle that "what we do to the land we do to ourselves," restoration of land and culture are inseparable" (Kimmerer, 2011, p. 258)

The Karuk Tribe Department of Natural Resources describes their work as Eco-cultural Revitalization, defined on their website as:

> "The Eco-cultural revitalization efforts of the Karuk Tribe are centered around fulfilling the responsibilities we have as Karuk people to all our living relations, ancestors, and descendants. Since time immemorial Karuk people have remained steadfast in our commitment to this land and its resources.[10]"

Despite the ongoing colonial ecological violence from settler land management institutions, Indigenous peoples around the world are maintaining and revitalizing their cultures and relationships with their homelands. In the United States, many Indigenous peoples were forcefully removed from their homelands, disrupting the relationships of *Indigenous ecologies* for those communities in profoundly violent ways. Therefore, it is important to emphasize that eco-cultural revitalization efforts are as diverse as the millions of Indigenous peoples around the world, and will be defined by each tribe, community, family, and even individual in their own ways.

[10] https://www.karuk.us/index.php/departments/natural-resources/eco-cultural-revitalization

The barriers to these diverse ecocultural restoration efforts persist in a myriad of forms of *settler ecologies*: from land management institutions that outlaw or restrict Indigenous management practices or access to ceremonial places (Bacon, 2018; Norgaard, 2014b), to education systems based in western culture that devalue Indigenous knowledges and act as a form of forced assimilation (Jacob et al., 2021), to extractive land management practices that destroy landscapes, pollute waterways, and accelerate climate change (LaDuke, 1999).

Settler colonialism, based in destructive logics of white supremacy and motivated by systems of extraction like capitalism are destroying the earth, and ultimately harm everyone (Jacob, 2016). Indigenous feminisms scholars explain that "Indigenous centered examinations of the hidden values in Western Institutions is necessary to understand the damage inflicted up all people, and the environment, by actions and decisions based on white-settler values that at times intersect with heteropatriarchy and other forms of oppression. In this way, Indigenous values can be reclaimed and recentered in the institutions that serve Indigenous peoples, and all peoples on Indigenous homelands," (Jacob et al., 2021, p. 10). As Indigenous cultural values are based in Indigenous homelands, efforts that seek to stand up to the violence of settler colonialism should support decolonization, understood here as the repatriation of Indigenous land (Jacob et al., 2021; Tuck & Yang, 2012). These decolonial possibilities exist within collaborative ecological restoration, so long as they are forms of collective action that stand up to destructive settler logics and center the articulations of Indigenous peoples and cultural values for pathways forward (Jacob et al., 2021).

IV. DISCUSSION AND FINDINGS

Introduction

Understanding how settler colonialism operates through ecological restoration is important. Yet Snelgrove, Dhamoon, and Corntassel warn that, "without centering Indigenous peoples' articulations, without deploying a relational approach to settler colonial power, and without paying attention to the conditions and contingency of settler colonialism, studies of settler colonialism and practices of solidarity run the risk of reifying (and possibly replicating) settler colonial as well as other modes of domination" (Snelgrove et al., 2014, p. 1). Indigenous feminisms scholars speak to the limitations of western frameworks to address the harms of settler colonialism, and the need to listen to Indigenous articulations for pathways forward:

> "Consistent with Hoover (2018) and Vickery and Hunter (2016), we further contend that settler societies' substantial knowledge gaps stem from their reliance on western liberal logics and imagined superiority, resulting in a cycle of domination that damages Indigenous peoples and the land… Therefore, we argue that healing the land and restoring the health of Indigenous peoples are inseparable goals (Hoover et al. 2012). We must turn to Indigenous values and cultural teachings for meaningful solutions," (Jacob et al 2021, p. 2).

Guided by Indigenous feminisms to honor Indigenous cultural teachings, my work begins by centering the experiences of Karuk practitioners in collaborative ecocultural revitalization efforts. Our conversations began with the question, *what does it mean to you to restore an environment?* This first section is based on those conversations. The following sections will focus thematically on ways that settler colonial logics and modes of domination show up in Western-based approaches to ecological restoration. The final section will be a discussion about pathways forward for collaborative ecological restoration that supports Indigenous ecocultural revitalization and stands up to the violent processes of settler colonialism.

Ecocultural Revitalization and Karuk ecologies

This chapter opens with a quote from Vikki Preston speaking about *what it means to restore a landscape.*

> *"True restoration for me would be able to have a community of weavers and have a community of gatherers who have a resource that perhaps their family, perhaps they've been tending for a very long time, since time immemorial, for decades, and they want to tend it how they want to and they're able to do that. They are able to burn it, they are able to gather it, they are able to do all those things. Like true restoration would be satisfying those gatherers, those people, those families, to do that and pass on that knowledge and have it be like a really regular thing, and have it be completely accessible for them to do. And then be able to use those resources and continue to come back every year or however much they need to come back to it. So, I guess my idea of what would be a baseline for restoration would be satisfying those cultural knowledge bearers, and satisfying those Native families who need to go to these places because that's what they've been taught to do, that's who their so-and-so's have told them that that's what they need to do, and those are the places that they need to go, and this is where we've always gone, and these trees have been here for a long time, and that this grove needs to be taken care of. I think that knowledge transitioning through the years is a lot of the baseline for a lot of our ideology here." – Vikki Preston*

The people I spoke with shared how Karuk ecocultural revitalization involves spiritual, cultural, and political elements, elements that are often not included in Western approaches to ecological restoration. This excerpt from my conversation with Vikki touches on many of the themes that were present throughout the conversations I had with Karuk ecocultural revitalization practitioners about *what does it means to restore an environment*: **Inherent responsibilities as Karuk people, human services for ecosystems, managing with fire, honoring cultural knowledge bearers, passing down knowledge through generations, learning from moving through the landscape, and restoring Karuk people to their places**.

When I had these conversations in 2019 and 2020, I asked people about ecological and ecocultural *restoration.* In conversations since then I have learned that the Karuk Department of Natural Resources is using the term *Ecocultural Revitalization.* The following chapter contains

both terms, which is reflective of the time that the conversations were had. This chapter also includes a description of the shift from *restoration* to *revitalization.*

Pikyav and inherent responsibilities as Karuk people

> *"The most ultimate feeling that I feel as you ask me that question is that I'm fulfilling my inherent responsibility as a Karuk person….the Creator has set down a stringent set of laws to live a long and prosperous life. Everything we do, is geared towards that mechanism. All our world renewal ceremonies are geared towards that." -Ron Reed*

When asked, *what does it mean to you to restore a landscape,* Ron Reed described his inherent responsibility as a Karuk person to fulfill the laws set out by the Creator. Like Ron, many people I spoke with talked about their responsibilities as Karuk people to care for and restore the balance of the world. In the Karuk language, *píkyav* means "fix it" and is described on the Pikyav Field Institute's website:

> *"The Karuk word píkyav means "fix it," and refers to the Tribe's continuing ceremonial and diurnal efforts to restore the earth and its creatures to harmonious balance. This is our inheritance, passed down from generation to generation through the teachings of the First People, the ikxaréeyav. Our oral traditions recount the formation of plants, aquatic species, land formations and other resources created and given to us to utilize and manage. These gifts are given with conditions: we understand the reciprocal responsibilities that are attached to this act of largesse, and the traditional laws given to us by the ikxaréeyav remain the basis for our management techniques, and the ceremonies that frame them. These practices must be and are kept alive and perpetuated through our legal bind and moral obligations to our benefactors. Like our ancestors before us, the Karuk Tribe is committed to passing its traditional ecological knowledge to the next generation."* [11]

Caring for, fixing, and putting the world back in balance are integral to Karuk culture and homelands. These spiritual responsibilities have been passed down for countless generations. As described in the Karuk Tribe Department of Natural Resources Eco-Cultural Resources

[11] https://www.karuk.us/index.php/departments/natural-resources/eco-cultural-revitalization/pikyav-field-institute

Management Plan, ecosystem management and the roles of Karuk people in caring for and renewing the world are hardly new concepts.

> "*Ecosystem management is not a new concept to the Karuk Tribe of California. Traditional land uses have intertwined with natural ecosystems for thousands of years (Fredrickson 2004). Our cultural environmental management practices inherently sustain biodiversity by working with ecological processes and fostering habitat complexity which maintain populations of plants and animals by enhancing the productivity of forest, grassland, and aquatic ecosystems* (Lake 2007)."- (Karuk Tribe, n.d., p. 6).

Human services for ecosystems

Dr. Frank Lake described how ecological restoration from Indigenous perspectives can be understood as a continuance of long-term human interactions with the landscape.

> *"That its, very often a continual human investment. And for Indigenous people it is fulfillment of spiritual and cultural responsibilities. And whatever ways we do that legally, politically, economically, to facilitate that continued process. Restoration isn't an end point, it's a lifetime intergenerational approach. Particularly when we're looking at restoring old growth redwoods that are like 900-1100 years old, or oaks that live up to 400 or 500 years old. It is going to take a transference of knowledge to do the right kinds of treatments and spiritual practices to reach a condition of a stage of functionality and production and abundance. And you know, it is just not going to be something when your 4- or 5-year funding runs out you've restored it, you can take down the orange plastic netting around it and you can say, ya know, 'restored.' No, it is going to be taking that down, and there's a process that maintains the functionality of that site as its restoration." - Dr. Frank Lake*

Dr. Lake describes how Indigenous spiritual and cultural practices are vital processes in long-term, ongoing restoration and maintenance of landscapes. The cultural use of fire is one example of these processes, or what Bill Tripp calls a *human service for ecosystems* (Tripp, 2018). These human services for ecosystems, like cultural burning, are an integral part of a place, and are vital to the ongoing well-being of that ecosystem. Therefore, from Indigenous perspectives, ecological restoration can't be conceived of as short-term, one-and-done projects. A 4-to-5-year project with a set end date is insufficient to account for the ongoing human services for ecosystems of Indigenous sciences and management. From an Indigenous sciences

and management perspective, ecological restoration activities are part of revitalizing and sustaining the *ongoing human investments* that are based in spiritual responsibilities.

Like Dr. Lake, people I spoke with about ecological restoration described time scales as reaching back to the time of the First People, connecting with the present, and reaching far into the future. I imagined a connection between those time scales as the transference of knowledge of spiritual responsibilities that people described; spiritual responsibilities given to Karuk people by the Creator and passed down through countless generations. Recall the quote from Vikki that opens this chapter, speaking about the transference of knowledge being passed down as a baseline for restoration. Another example of this connection and transference of knowledge between generations was when Dr. Lake described how part of restoration for him is *"to have my grandchildren to be my effectiveness monitors, and to see fulfillment of what I enact today with knowledge and approaches for landscape restoration and resources, and those cultural practices, so that we can all be beneficiaries."* I began to understand how the transference of knowledge and continuation of responsibilities to care for the landscape is *part* of an ecosystem, just as much as any other process and relationship between species. People also shared how this transference of knowledge between generations requires supporting cultural knowledge bearers, a theme we will visit again later in this chapter.

Flourishing for all beings

Another theme that arose during conversations about ecological restoration was about restoring the landscape to a flourishing state of abundance. Leaf Hillman describes how Karuk ecocultural revitalization efforts aim to return the landscape to a productive state, where plant and animals are thriving to such a degree that they may be harvested:

> *"When I say restoration, what I'm referring to…means to restore the landscape to a productive state. And by that, I mean where subsistence resources are available at a*

harvestable and a sustainable level. So, when we look at large landscapes we consider all of the resources that are part of that landscape, the diversity…. Some people say, 'well, we want to restore it to what we call pre-Columbian times or pre-European contact…' All of that stuff isn't that important to me… people I think want to use that sort of reference point because they associate that time with a time where resources were able to sustain people in this place. And while that is my criteria, I am not a purist in that sense of looking at it. I'm more practical in thinking of what it means to survive in this place today. And what it means to have resources that are available, that are productive, and sustainable. That I can go harvest acorns, I can go harvest fish, and I'm not harvesting an endangered species, and I'm not picking up the last acorns that the squirrels need to survive the winter. Because there's this level of sustainable abundance that equals a harvestable surplus of these resources. So, that's my definition, and some people might think that is a pretty steep climb. But I don't think it's unreasonable."- Leaf Hillman

Leaf explains that a goal for ecological restoration is that Karuk people will be able to harvest acorns, fish, and other cultural resources to a level that sustains them, as they have done since time immemorial. Listening to Leaf, I understood that the goal of restoration is not based around returning the landscape to a state based on a fixed moment in time, as may be incorrectly assumed by non-Native ecological restoration practitioners who hear about Indigenous ecocultural revitalization efforts. Rather, the goal is about restoring the landscape to a state of *sustainable abundance*, today, and into the future. This sustainable level of abundance, in which Karuk people can harvest resources is not a one-way form of resource extraction. Rather it is a way of management that considers the thriving of all other beings on the landscape. Similarly, when describing how Karuk culture and land management is not based on colonial ideas of private property or resource extraction, Lisa Morehead- Hillman described how in Karuk culture there are responsibilities that families and villages have to care for certain places in order to ensure that they are thriving enough to be able to harvest from them.

"You have a way of rights and responsibilities for a place. And you also have the right to have your fishery here, that belongs usually to a family or a village, but you also have the responsibility. You only have a right to harvest if you follow the rules and the laws and the customs which have to do with you know, keeping and maintaining the runs and the balance of the world as well as water quality, etc. But also improving upon, or helping, making improvements in a way that they can flourish even more. Not just like, 'oh I'm

only going to harvest enough to keep them going…' That's not the way it is. We've got to ensure that whatever it is that we're trying to manage is, their whole families of, that belong together, whether its plants or fish, or water, those families that need each other, they all need to be thriving in order for you to even consider taking from them." – Lisa Morehead-Hillman

Lisa highlights how in Karuk culture there is a responsibility to make sure that ALL beings are flourishing: people, water, plants, fish. Lisa speaks about the well-being of families of fish, plants, and even the water. I heard how these beings are more than *resources*, they are *relations*, to whom Karuk people have a responsibility to care for.

Kathy McCovey's (Archeologist/Anthropologist, Cultural Practitioner, Karuk Tribal member) description of restoration also includes the well-being of plants and animals to a level such that there is a sustainable abundance so that she may go out and gather.

"For me it means being able to go out and gather. It means, having enough trees that have enough diversity that the trees themselves can withstand fire. Fire has been really hard on our forests, all those years of non-burning when people said we shouldn't be burning. Our people said we should be burning, and they were putting out every fire. And now we have climate change. So, we have these overstocked forests. We need to do something in these forests. We have the highest diversity of plant species in the continental United States here in Northern California, and if there's an opening something is going to fill it. The tribal people dictated what was going to be filled by the use of fire. This whole area was managed. There were so many people. There are very few places I go nowadays that I don't find artifacts within the stand. Because I know what I am looking for. So, to me, ecological restoration is for the animals, for the birds, for the bugs, for the fungus, for the trees, everything. We have a human construct, but they have a natural construct in which they can survive. And now it's even more important to be careful about what we do because with climate change coming, I'm seeing in the last couple years, and it was predicted that this would happen, that our plants are going to bloom earlier than the birds and the animals and the bees aren't ready for them. There is going to be a disconnect between the environment and those in the environment that are non-human that live and utilize that environment to procreate and to live. So, there's a real danger coming at us right now. "- Kathy McCovey

Kathy explains how Karuk people managed the landscape with fire to maintain a balance of vegetation and fire regimes across the landscape. She describes how the suppression of Karuk

fire stewardship from the Forest Service has impacted the health of the forests, and how the health of the forests is inseparable from the health of all living beings in Karuk homelands. Kathy highlights the urgency to revitalize Karuk cultural burning in the face of climate change. She speaks to the stressors that many non-human species are facing with the changing climate and highlights how her homelands are their homelands as well. When listening to Kathy speak about the need to revitalize Karuk fire management and care for her homelands and all the beings that live there, I heard how the responsibility to use fire is foundational in Karuk culture and homelands. In fact, everyone I spoke with shared about revitalizing Karuk fire management in our conversations about ecological restoration.

Fire dependent cultures, fire dependent places

Dr. Lake describes how many Indigenous peoples around the world have *fire-dependent cultures:* "Analogous to fire-dependent species, many indigenous peoples and Tribal communities are fire-dependent cultures, having adapted to and been influenced or affected by the fire regimes of their landscapes" (Lake, 2018) in (Lake 2021, p. 30). In fire-prone ecosystems, *cultural fire regimes* (the intentional use of fire by Indigenous peoples) work alongside with *natural fire regimes* (lightning ignitions), contributing to the overall pyro-diversity of the landscape (Huffman, 2013; Lake, 2021; Lake & Christianson, 2020). The objectives of cultural burning are diverse across diverse Indigenous cultures around the world, and include cultural, spiritual, ceremonial, subsistence, utilitarian, and economic objectives (Eriksen & Hankins, 2014; Lake, 2021 p 30). Dr. Lake writes that "documented reasons for American Indian fire use include but are not limited to hunting, crop management, pest management, range management, fireproofing, clearing areas for travel, clearing riparian areas, basket materials, and fuelwood*,"*(Lake, 2021, p.32).

In an article published in The Guardian, Bill Tripp describes the profound significance of fire in Karuk culture:

> *"Fire itself is sacred. It renews life. It shades rivers and cools the water's temperature. It clears brush and makes sufficient food for large animals. It changes the molecular structure of traditional food and fiber resources making them nutrient dense and more pliable. Fire does so much more than western science currently understands."* – Bill Tripp, The Guardian Sept 16, 2020

Ron Reed also described how fire is more than just an integral part of the landscape, rather, it is an integral part of the interconnected well-being of Karuk people and their homelands.

> *"Fire is the start all end all with our religion. It carries our prayers to the great Creator in the smoke. It creates a near optimal levels of management for the resources we call our relations. That provide food, clothing, shelter, but much more importantly, the mental and spiritual awareness of how we raise our family and live our everyday life. That's our religion in a nutshell. And if we don't have the proper landscape attributes, we are unable to practice our world ideology. We're unable to provide for the next generation, which creates magnitudes of social stressors that is passed down to our children as toxic stress…. So, we can sit here and talk about what we need to do on the landscape, but if there isn't a spiritual awareness, if there's not a spiritual connection with the landscape, if there's not a spiritual connection with inherent responsibility, if there's not a connection spiritually with the environment, that's a spiritual attribute that cannot be replaced." – Ron Reed*

Speaking to the significance of fire in Karuk religion, Ron highlights how spiritual responsibilities and a connection with the landscape are imperative in the restoration of fire in Karuk homelands. Listening to Karuk practitioners speak about fire, I understood how for Indigenous peoples of fire-dependent cultures, restoring fire to the landscape is so much more than just *getting fire on the ground.* It is a revitalization and fulfillment of religious responsibilities that have been violently interrupted by settlers and settler colonial institutions.

Ron described how without the ability to use fire and fulfill spiritual responsibilities, Karuk people and places suffer. The settler colonial disruption of Karuk peoples' relationship with fire can be understood as *colonial ecological violence*, described by Dr. Jules Bacon:

> "By foreclosing the possibility of relationships with and responsibilities to ecologies, land management under settler colonialism contributes to physical, emotional, economic and cultural harms. I contend that these eco-social disruptions generate colonial ecological violence, a unique form of violence perpetrated by the settler-colonial state, private industry, and settler-colonial culture as a whole." (Bacon, 2019, p. 64).

When Euro-American settlers invaded Karuk homelands and enacted fire suppression, genocide, and forced assimilation, they disrupted the cultural burning practices that had been a part of Karuk culture and their homelands since time immemorial. As settler colonialism is an ongoing structure and not an event, this violent eco-social disruption of Karuk fire stewardship continues through federal fire management that outlaws and restricts Karuk burning practices (Vinyeta, 2021, Bacon, 2018, Norgaard, 2014a).

As I listened to people speak about the interconnected well-being of Karuk people and places, their responsibilities to their homelands and the use of fire, and the ongoing eco-social disruptions from Western land management practice, the limitations of Western science and cultural approaches to ecological restoration became clearer. While there is a lot of promise in respectful collaborations between Indigenous and Western sciences and land management, many Western approaches carry with them settler logics that end up causing further violent eco-social disruptions (Bacon, 2018, Jacob et al., 2021). These violent settler logics of Western approaches to ecological will be explored in the following chapters. For now, we will continue hearing from Karuk practitioners about ecocultural revitalization in their homelands.

Eco-cultural revitalization

Everyone I spoke with shared powerful accounts of revitalizing their responsibilities to care for their homelands in the face of unspeakable loss and ongoing violence of settler colonialism. For many Indigenous peoples around the world, restoration of land and culture are in separable (Corntassel & Bryce, 2012; R. Kimmerer, 2011; Simpson, 2018). *Ecocultural*

restoration is a term sometimes used by Indigenous restoration practitioners and partners that deliberately incorporates cultural aspects into ecological restoration (Senos et al 2006). Dr. Robin Wall Kimmerer uses the term *reciprocal restoration* to describe how restoration activities support the mutual well-being of Indigenous peoples, place, and culture:

> "Reciprocal restoration is the mutually reinforcing restoration of land and culture such that repair of ecosystem services contributes to cultural revitalization, and renewal of culture promotes restoration of ecological integrity. Based on the indigenous stewardship principle that "what we do to the land we do to ourselves," restoration of land and culture are inseparable" (R. Kimmerer, 2011, p. 258).

As a part of settler ecologies in the United States, many Indigenous peoples were forcefully removed from their homelands, disrupting the relationships of *Indigenous ecologies* for those communities in profoundly violent ways by forcefully moving people far away from their homelands. Therefore, it is important to point out that eco-cultural restoration efforts are as diverse as the millions of Indigenous peoples around the world, and will be defined by each tribe, community, family, and even individual in their own unique ways.

The Karuk Tribe Department of Natural Resources describes their work as Eco-cultural Revitalization, defined on their website as:

> "The Eco-cultural revitalization efforts of the Karuk Tribe are centered around fulfilling the responsibilities we have as Karuk people to all our living relations, ancestors, and descendants. Since time immemorial Karuk people have remained steadfast in our commitment to this land and its resources."[12]

Bill Tripp explained the significance of the word *revitalization* over *restoration:*

> "*We prefer to use Ecocultural Revitalization. The reason being that the Karuk People don't need to be restored to this place as much as we need our intended relationships with this place revitalized in order for our presence here to be meaningful. In that sense, we still maintain our relationships with place, but our attention currently gets drawn to building relationships with other people and their neocolonial systems. Which in turn takes away from our very purpose for being and leads us further away from revitalizing our ecocultural connection as a coupled human/natural system as time passes.*" *– Bill Tripp*

[12] https://www.karuk.us/index.php/departments/natural-resources/eco-cultural-revitalization

Bill describes how *revitalization* emphasizes Karuk people's *relationships* with their places, and that the focus is on strengthening those relationships. I understood Bill as saying that even as Karuk people are in their homelands, their intended relationships with their homelands are hindered by constantly having to deal with neocolonial systems and the barriers to cultural management that they impose.

When speaking about the degradation of relationships between Karuk people and their homelands, the threat of traditional management being lost, and the urgency to support Karuk knowledge bearers to revitalize cultural management practices, Bill shared how much of his time and energy is drawn away from these efforts to deal with neocolonial bureaucracy:

> *"In the mean time I spend my time sitting in a chair talking to the Forest Service, or in Sacramento talking to CalFire executives. In many cases it seems like they aren't really listening. They are checking a box. They say, "yeah we've talked to tribes, we considered their input and now this is what we are going to do." It's frustrating when results are not meaningful to us as the forever people of this place." – Bill Tripp*

The local, state, and federal entities that restrict Karuk traditional management are examples of the ongoing invasion and occupation of settlers and settler colonial systems in Karuk homelands. The persistent outlawing of Karuk fire practices by these entities inflicts colonial ecological violence on Karuk people and homelands and is an extension of the forced assimilation and genocidal aspects of settler colonialism. Recognizing the ongoing structure of settler colonialism illuminates how the ecocultural revitalization of fire is more than just getting *fire on ground*, but it is part of broader movements to revitalize Indigenous culture and sovereignty (Marks-Block & Tripp, 2021).

Given the ongoing structure of settler colonialism, what role, if any, can settler colonial institutions play in supporting Indigenous-led ecocultural revitalization? What is required of them to come to the collaboration table despite the persistent inequities and injustice of settler

colonialism? The following sections will hear about Karuk ecocultural revitalization focusing on *fire* and *basket weavers*, and ways that non-Native partners have supported those efforts.

Revitalization of fire

As described above, the revitalization of Karuk fire stewardship is "a critical component of a broad movement towards tribal sovereignty through cultural revitalization (Hillman and Salter 1997, Simpson 2011; Carroll 2015)" in (Blocks 2020 p 26). A powerful example of ecocultural revitalization in Karuk homelands is the return of fire to Offield Mountain as part of Karuk World Renewal Ceremonies. As described in the Karuk Climate Adaptation Plan:

> *"Since time immemorial fires have been set on Offield mountain with the full moon in August as part of the World Renewal Ceremonies. Ceremonial ignition in August set the stage for a fuel limited fire safe system in advance of a season with great potential for high severity, high impact events, creating protection for village sites below. August fires also provided protective cooling to riverine systems at the peak of summer temperatures, triggering upstream salmonid migration and cooling the system for fish runs already in the river. In the face of a century of fire exclusion and the changing climate it is not possible to put fire on the landscape in all locations at this traditional time. However, a combination of geologic features, topography, traditional knowledge, and the existence of remnant stands and ceremonial ignition sites as information stored in the landscape can be utilized to strategically return fire at the landscape scale, even in the face of 100 years of fire suppression. On Offield Mountain a combination of geologic, ecological and topographic features can be used as a mechanism to return to this historical fuel limited regime"* (Karuk Tribe, 2019, p. 122).

Fires set during World Renewal Ceremonies fulfill spiritual responsibilities, generate smoke to cool the rivers to support migrating fish, and create fire breaks to protect villages from large fires. The Karuk Climate Adaptation plan includes plans and pathways forward for restoring this ceremony of utmost socio-ecological importance to Karuk people and homelands. The Somes Bar Integrated Fire Management Project, a collaborative project with the Six Rivers National Forest and others in the Western Klamath Restoration Partnership, includes thinning and fuels treatments to prepare for the safe return of fire to Offield Mountain in the face of over a century of settler land management.

The Karuk Tribe is the leader in these collaborative efforts to return fire to Karuk aboriginal territory and Offield Mountain. Since 2007, The Western Klamath Restoration Partnership has brought together the Karuk Tribe, federal, nonprofit, and other community partners to restore fire at a landscape scale in the western Klamath mountains region. Karuk traditional ecological knowledge guides this landscape scale return of fire and brings together Indigenous and Western sciences and management. Leaf Hillman describes the role of Karuk traditional ecological knowledge in the Somes project:

> "*The role is at the center of the Some Bar project. Traditional ecological knowledge is the basis and the center. It's our point of reference. So anywhere along the process, in the planning, development of this project, and the implementation. Where there's ever a question, kind of a baseline fundamental question, then we always stop and ask ourselves, 'is this consistent with, is this in keeping with, or would this in some way be contrary or conflicting with the principles of our traditional ecological knowledge?' That's what we agreed on when we began this project." – Leaf Hillman*

Leaf speaks to not only the central role of Karuk traditional ecological knowledge in the Somes Bar Project, but to the success of the collaboration in upholding their agreements to respect Indigenous sciences and management.

> *"I think to see the commitment of the partners, through this span of time, has really been refreshing to me personally. And has, and in some sense, yeah you could say, well, it was our expectation for this project for sure. But that expectation hasn't been dashed over the course of 4 or 5 years now, is something that is a little bit, I'll say it, it's new to me in my experience. And I have quite a bit of experience working in collaborative partnerships trying to use TEK as that principle that guides what we do on the ground. And this certainly falls outside of my range of past experience. pleasantly, and hopefully optimistic about the future."* - Leaf Hillman

Leaf alludes to how past collaborations have not been successful, but that this one is cause for optimism, thanks to the commitment of the people at the table. Analisa Tripp Collaborative Stewardship Program Manager, Karuk Tribe Department of Natural Resources, Karuk tribal member) concurs with this perspective as she speaks to the significance of such a

partnership between the Karuk Tribe and the United States Forest Service, given the ongoing legacy of colonial ecological violence enacted by the USFS.

> "*The work we've been doing with the Forest Service has been really kind of groundbreaking, and also really inspirational because of the history that we're coming from….In Karuk ancestral territory, Six Rivers National Forest, as well as Klamath National Forest, and at that time you know, people were still living, obviously on those lands when they were constructed. So, people were forcibly pushed from their homes. Homes were burned down. So, this is the history we are coming from, right. So, to be at the place we are now where we are able to work together collaboratively is just really cool*" *– Analisa Tripp, Karuk Media video*

The Western Klamath Restoration Partnership is a powerful example of collaborative ecological restoration that acknowledges the role of colonialism in land management, and honors Karuk traditional ecological knowledge as a pathway forward. Speaking in a video about the collaboration, Forest Service partners specifically acknowledge the harms caused from settler colonialism:

> "*We're doing this project to reignite past ways of managing the landscape that had existed for generations, and these are management methods that have kind of been lost in the last 150 years due to cultural and physical genocide, and we would like to bring that back"- Michael Padian, Archeology Technician, Six Rivers National Forest, Karuk Media (2020).*

Instead of ignoring the ongoing role of colonialism and genocide, these Forest Service staff acknowledge a responsibility to do things differently, and to respect Karuk culture and religion.

> "*our whole collaborative is really working towards bringing back fire and restoring some of the practices, and a big part of that is cultural burning, and some of the religious practices that include fire, and allowing those again…..Forest Service and just federal laws have really stifled the religious freedom of the tribes in this area because fire has been outlawed for so long and so it's time to bring fire back and work together to do that…coming here and getting to work with WKRP, I realized that these places and working with living traditions that there's a lot that the Forest Service needs to do in collaboration with tribes to be better stewards of these landscapes, and I think that WKRP is a great model for how we can strive to do better with working with tribes*"- Jennifer Dyer, Heritage Program manager, Six Rivers National Forest, Karuk Media video (2020)

In the face of degraded socio-ecological conditions from settler colonial land management and the growing threat of climate change, partners in the WKRP have come together around shared goals of revitalizing Indigenous cultural fire stewardship. Genocide and colonialism are named as main factors causing the degraded state of the landscape, while Karuk traditional ecological knowledge is honored as pathway forward. Returning to the call of Indigenous feminist scholars (Jacob et al., 2021), the return of fire to Offield Mountain and the ecocultural revitalization supported by the WKRP collaborative are examples of pathways forward in healing the harms of settler colonialism. To close this chapter about Karuk ecocultural revitalization we will hear about supporting basket weavers as another example of ecocultural revitalization and highlight some more of the themes and values that Karuk ecocultural revitalization practitioners shared.

Basket weavers as ecocultural revitalization

So far, we have heard some of the responses to the question *what does it mean to you to restore a landscape?* Some of the themes presented so far are: *Pikyaviish and responsibility, supporting the flourishing of all beings, fire, and the interconnected well-being and revitalization of Karuk cultural practices and Karuk homelands.* When I asked Vikki Preston, (Karuk tribal member, Cultural Resources Technician III) *what does it mean to you to restore a landscape,* she spoke a lot about basket weavers. Listening to Vikki speak about the importance of basket weavers in her life, culture, and on the landscape, I heard many of the themes that were common throughout all of my conversations about ecocultural revitalization. I am including large excerpts from our conversation so that readers can listen to Vikki talk about basket weavers and the themes about ecocultural revitalization that she shares.

"*And that really is what a lot of restoration is for me is, is thinking about why I do a lot of the work that I like to do, and what interests me. A lot of that comes from people who have taught me how to do these things. And from people who have gone before me and people who have been around and who I still work with and teach me a lot of what they know, and a lot of this information I feel like in our community has been passed down by a lot of cultural bearers in our community, and this kind of sense of taking care of this place, a lot of those conversations at least as long as I've been around and at my age, a lot of these conversations come back to what this place needs to be healthy again, and that kind of means to me that this imbalance, in many ways that we're working with now, but also that this place has still, there's still a lot of the people here and these places are still here, and these environments are still here. But there is a lot of work to do to shift them back into a place that is able to sustain our people like how we would ideally like it, our people being the Karuk people that live here, the Native people that live here, at least in our community with our neighboring tribes too, you know whether that be interactions or trade. I'm also Yurok, and so what that means as a person who cares about all these places along the river. Because even though there is Karuk territory there's also the trade of redwood up and down the river, or shells from the ocean, or juniper berries from farther inland, and all those far stretching places that we also care about, because those things also come into our ceremony, come into our bodies, and into our traditional use, it's like things that aren't always here also. A lot of our traditional management is this network of communication and interaction we have with all of the tribes in our area that we've interacted with since time immemorial. Whether that's obsidian trade from faraway, or abalone trade on the coast and stuff. It's kind of like this rebuilding, this restoration of those networks, those relationships that we have with other families and tribal folks, that will really strengthen our relationships in the broader sense…"- Vikki* Preston

Echoing those quoted earlier in this chapter, Vikki speaks about restoring the environment to a state a sustainable abundance that can support Native communities. Speaking to a regional and relational scale, Vikki shares how her vision of restoration includes rebuilding the networks of relationships up and down the river with other tribes and Native communities, and the important role that cultural resources have in trade and ceremony. She also shares how knowledge about what is needed to restore the landscape comes from cultural knowledge bearers passing it forward to current and future generations. Some of these cultural knowledge bearers she speaks of are basket weavers. Vikki shares about the importance of basket weavers in her life, the community, and the landscape.

"*At the heart of what I've learned is from a lot of the basket weavers in my life, who move through the land a lot…. a lot of things I've learned have been from basket weavers and just moving around and gathering and doing their thing and looking at their places consistently throughout their whole lives….Growing up and going to the river, and going to the mountains, and gathering and checking places out for years, and going way high up into the high country for bear grass and then bringing that all back down and cleaning it and then making a basket…One basket can be encompassing of multiple ecosystems and places and gathering trips… One basket is just like inclusive of … what it takes to be to be a functioning person in this area is to be able to sustain multiple places, and to be able to have this communication and visitation of places that are important to you, and this tending of these places so it can give you what you need to get through, whether that be the experience for our mind, and body or your soul, or whether that's the actual physical materials for your baskets to cook with or to carry your babies. And then the management that you go back to, sometimes those trips are just to burn or to cut back brush, and that's all you're going to do there… you're not actually going to take anything. You're going to just tend it for now so that it can be healthy in the future for various outcomes, for various positive outcomes for the place and for yourself.*"- Vikki Preston

Vikki shares the how basket weavers' deep ecocultural knowledge comes from moving through and having a consistent relationship with the landscape. She speaks about the responsibility of basket weaving, how there are multiple places that a basket weaver tends to, and that these places and responsibilities can encompass diverse ecosystems throughout a broader landscape. Echoing once again the responsibility to tend to a place and support the flourishing of plants, animals, and ecosystems, Vikki shares how basket weavers may go to a place and just take care of it and not take anything. In talking about the physical and spiritual experience of tending, weaving, and utilizing the woven item, Vikki speaks to the interconnected well-being of Karuk people, cultural resources, and places. She continues by underscoring the importance of basket weavers as cultural knowledge bearers and the lessons of respect she has learned from them:

" I think that basket weaving has really taught me a lot about respecting places and respecting the circles of knowledge that you've learned this information from. When I think of a lot of this restoration, I think of the elders who need these places to be taken care of so that they can go…. And a lot of the elders being like "you need to do this work because I can't right now, or I can't anymore" or "this is my place, but I need help

taking care of it" and it really teaches you about the community effort that is needed to restore places. I think that, for me, literally the whole restoration process is like elders who are like "you need to go out and do these things" and it's like, you're right, I do. And you learn throughout the process of doing it…and then the weaving and the gathering that you can really experience the why you need to be doing this. It's taking care of you and taking care of the land, and its wielding this cultural knowledge that you know, you're able to store and carry and create these things that are highly functional, and they're a strong part of our community still" - Vikki Preston

Listening to Vikki speak about basket weavers, I heard how by listening to elders share what is needed to take care of a landscape, new basket weavers are fulfilling responsibilities, learning in the process, and being a part of knowledge being passed onto current and future generations. The process of basket weaving takes care of the land, takes care of people, and passes knowledge forward. Visualizing elders and younger basket weavers on the landscape, I understood how this process of passing knowledge forward to future generations is just as much a part of the landscape as the basketry plants, and the cultural fire regimes that tend them. Understanding that basket weavers are an integral part of the landscape demonstrates that supporting cultural knowledge bearers is paramount to ecocultural restoration.

The Karuk Tribe, neighboring Yurok Tribe and Hoopa Valley Tribe, and academic partners are placing basket weavers at the center of ecocultural restoration projects and related research (Marks-Block, Lake, Bliege Bird, & Curran, 2021). One recent study with Karuk and Yurok basket weavers highlights how increased tribal sovereignty over fire management improves not only socioeconomic well-being of weavers and tribal communities, but benefits the landscape as a whole (Marks-Block et al., 2021).

"Compared with many non-tribal restoration initiatives focused upon conservation and hazardous fuel–fire risk reduction, California Indian initiatives primarily aim to restore socio-ecological relationships with ecocultural fire-enhanced species for cultural, ceremonial, and subsistence use. Because their practices were partially responsible for the historical fire regime, burning practices of indigenous and place-based fire-dependent cultures may be more effective at restoring the desired reference landscapes that

> conservation organizations and public land agencies intend to re-create (Kimmerer 2011; Lake 2013; Bliege Bird and Nimmo 2018)" (Marks-Block et al., 2021, p. 16).

The research cited above is another example of Indigenous cultural management leading the way in collaborative research and restoration, and how supporting the role of Indigenous basket weavers and cultural knowledge bearers in the landscape is imperative to healing the socio-ecological harms of settler colonialism.

Karuk people in their places

Vikki describes a vision of restoration that includes the basket weavers as part of the landscape:

> "*I think a lot of my baseline is the restoration of those, the functions of those people in the landscape, and that part of this area isn't just taking a snapshot of what plants and materials are there, its including that weaver in that snapshot, and being like, these are the people that need to be here and are wanting to be here… the people that are there gathering are a part of that ecosystem, a part of that landscape, just as much as the way the ridge is facing, or the plants that are there, and the animals that help pollinate the plants, it is also the people that are there coppicing and burning and tending those places and bringing back new weavers to teach about that place*." *– Vikki Preston*

Vikki describes a snapshot or vision of restoration that includes the socioecological role of humans in the landscape, much like in her art that we saw earlier.

(art by Vikki Preston)

Vikki's snapshots of restoration show how not only are Karuk weavers are a part of the landscape, but their *actions of tending and teaching new weavers* are an integral part of the landscape as well. Like Bill Tripp described earlier, cultural fire, as used by basket weavers and cultural fire practitioners, are human services for the ecosystems. I think about the definition of *Indigenous ecologies* from Whyte et al (2019) and see in Vikki's description and art of basket weavers as part of the landscape a powerful example of Karuk ecologies, and Karuk ecocultural revitalization.

Karuk responsibilities and interactions with the landscape, like those of basket weavers are an integral part of Karuk ecologies, that have supported the flourishing of human and more-than-human beings for millennia (Lake, 2007; Anderson, 2005; Marks-Block & Tripp, 2021; Taylor et al., 2016). In Karuk homelands and globally, the disruption of Indigenous stewardship

practices and the imposition of destructive and extractive settler colonial land management practices is threatening the life-giving systems all beings rely on. If settler colonialism is the violent removal of Indigenous peoples and their cultural stewardship practices from their homelands, then healing the harms of settler colonialism requires revitalizing Indigenous stewardship practices in their homelands. As Analisa Tripp explains, Karuk places and people go hand in hand.

> "*But, for me, another really huge goal is just like, returning Karuk people to their places. Cause like, 98% of our territory is Forest Service land. And remaining is private land, and I don't know what percentage of that belongs to the Karuk Tribe, but not 50% I don't think. So just being able to have a say and ownership legally and practically is a huge goal for me. And I think for the Tribe in general. So, and yeah, I think that should be a goal anywhere that there is ecological restoration work happening. Because places and people go hand and hand. You can't remove one from the other.*"
>
> *- Analisa Tripp*

The Karuk Tribe's department of Natural Resources is leading the way in revitalizing cultural fire practices in Karuk aboriginal territory and are becoming recognized internationally for their efforts (Vinyeta, 2021). And yet as described earlier, they are still working in the context of colonial land management structures that dictate what happens on their homelands (Long & Lake, 2018; Marks-Block & Tripp, 2021). Analisa describes how 98% of Karuk ancestral territory is stolen land managed by the Forest Service. While collaborative land management agreements have been made between the United States Forest Service and the Karuk Tribe, there are still a myriad of local, state, and federal regulations, as well as inadequate funding structures that hinder the Tribe's efforts to reinstate cultural burning practices at the pace and scale needed to restore the role of fire to the landscape (Marks-Block & Tripp, 2021). Working within existing colonial land use structures and simply permitting access or resource harvest to cultural practitioners like burners and weavers is not sufficient to support ecocultural revitalization efforts (Long & Lake, 2018; Marks-Block & Tripp, 2021). In their work

interviewing 75 Indigenous and non-Indigenous fire managers about political constraints and material conditions that facilitate and constrain prescribed fire expansion, Tony Marks-Block and Bill Tripp presented the following findings and recommendations:

> "To expand prescribed and cultural burning and create fire-adaptive communities, polycentric governance bodies must grapple with a divestment from fire suppression and the haphazard construction of settlements across California. Specifically, Tribal fire managers articulate that major structural changes in political economy, land use, and legal frameworks are required [77]. Along with increasing funding, reparations are necessary to address settler colonial inequities in the current distribution and control of land tenure, and Tribal sovereignty over fire management must take precedence over centralized state regulatory powers [154]" (Marks-Block & Tripp, 2021, p. 16).

Tripp and Marks-Block highlight the need to not only divest from the costly fire suppression apparatus and invest more in collaborative, landscape scale restoration of cultural fire, but they also contend that settler colonial inequities, like the control of land tenure, must be addressed. This need is echoed in Analisa's quote above, where a big goal for ecocultural revitalization is having more of a say and ownership about what happens on Karuk homelands. Analisa continued by describing how the WKRP has been helpful in moving that process of returning Karuk places to Karuk ecocultural management:

> *"I see the WKRP as a way to kind of work towards those goals as well, aiding in that process for ourselves anyway. As well as the Tribe gaining more ownership and access to land managing decisions, as well as implementation and hopefully future ownership of our land in a meaningful way would be really cool. Like a Karuk National Forest, that just like we get to have would be really cool, and if that happened in my lifetime, I would not be mad. That would be super cool. And we're getting there. So, another big goal and a big result that we're already seeing is building capacity, capacity building for the Karuk Tribe, so that's been super cool to see, our departments grow… And we've had a lot of success in our department and it is still growing, and the new wildlife division and all these other programs... And I hope when WKRP, or when Somes Bar is done, and when Offield is done, WKRP, not just WKRP but all this work that the Tribe's been doing will continue. So, I hope that happens. I guess then to answer your question, WKRP is like a good starting point for all these larger things, but it's definitely helped to spark some things so that's been really cool.*" *– Analisa Tripp*

Analisa describes how the WKRP has been a partnership that has helped add momentum to the revitalization of Karuk traditional management of Karuk homelands. Hearing about this partnership that brings together Indigenous people and settlers, I am reminded of teachings from Indigenous studies scholars that decolonization, understood as the repatriation of Indigenous land and life, cannot be a settler-led or settler articulated process (Snelgrove et al., 2014; Tuck & Yang, 2012). Partnerships and solidarity between Indigenous peoples and non-Native peoples and institutions can achieve shared goals, yet as we will hear in examples in the following chapters, these partnerships run the risk of replicating settler colonial power (Snelgrove et al., 2014; Tuck & Yang, 2012). Speaking to this tension in collaborations to increase cultural burning Marks-Block and Tripp (2021) explain,

> "Karuk and Yurok Tribal members recognize the persistent hegemonic power held by the US government, yet believe possibilities exist for inserting relational forms of thinking into federally-mediated self-governance institutions and collaborations (Carroll 2015). Although there is a threat of cooptation (Nadasdy 1999), participants in these collaborations believe that cultural burning helps build alliances and solidarity from non-native communities that will contribute to long-term victories against colonial governance. Karuk wildland fire leader Herman Albers states that 'we have 1.2 million acres that we want to treat and restore, and we can't do it alone. If we are trying to do it ourselves it's going to take too much time' (Muldavin, 2019: 03:39 - 03:48)" (Marks-Block, 2020 p. 27).

The excerpt above highlights the shared stake Native and non-Native peoples have in their survival in the face of climate change and landscapes degraded by settler colonial fire suppression, as well as the possibilities for having collaborations that are based in relationality and respect instead of replicating settler colonial power dynamics. Listening to the people I interviewed speak about the Western Klamath Restoration Partnership, I heard how these collaborations are not easy, and come with years of building trust and working through failures. I am reminded of what Leaf Hillman told me about how while the WKRP is remarkable, it is not a

model that can simply be picked up and replicated elsewhere. Karuk traditional fire knowledge that guides landscape restoration of fire in the WKRP is a place-based, relational way of interacting with the landscape. Leaf told me that similarly, the success of the collaboration comes from also being place-based, and relational. In this way we can see how Indigenous values of relationality and being place-based are present, respected, and contributing to the success of the landscape scale restoration efforts of the WKRP.

Grounded in an understanding that pathways forward from settler colonialism will not be found within Western knowledge systems, this first part of my work centered Karuk articulations of what it means to restore their homelands in the face of ongoing settler colonial occupation and the shared threat of climate change. While the WKRP is not a model that can simply replicated elsewhere, there are important lessons in these collaborations about *what it means to restore an environment*, and how non-Native peoples can support these Indigenous-led efforts. These will be discussed further in the *Discussion* section of this chapter. Healing the harms of settler colonialism requires not only centering Indigenous (and other communities harmed by settler logics) articulations of pathways forward, but it also requires uncovering, and standing up to harmful settler logics (Jacob et al., 2021). This will be the focus of the next section of my work: Settler Ecologies and Ecological Restoration.

Settler Ecologies in Ecological Restoration

While settler logics, and their devastating impacts to Karuk people and homelands were front and center in the conversations I had about *what it means to restore an environment*, these settler colonial logics are largely absent in mainstream, Western science-based discussions about what it means to restore an environment (Snelgrove et al., 2014; Trisos et al., 2021; Wehi & Lord, 2017). The definition of ecological restoration that I learned in a course at the University of Oregon is: *Ecological restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed*.[13] I read that sentence again many times during the writing of this work, and have been struck by how cold and impersonal it is compared with the stories that Native people shared with me about what it means to them to restore their homelands. In the widely used definition of ecological restoration above, the words *degraded, damaged, destroyed* are passive, anonymous. Who degraded, damaged, and destroyed the ecosystem? Why? Whose homelands and relations were degraded, damaged, and destroyed? In contrast, the Karuk practitioners I spoke with were explicit about how Euro-American settlers violently invaded and degraded, damaged, and destroyed their homelands. They were explicit about how these homelands include language, religion, relationships, relations, and responsibilities. The absence of such specifics in Western articulations of restoration works to obscure the fact that this invasion, and eco-social disruption not only happened in the first place, but that it still continues today. The absence of such specifics also forecloses the possibility of any accountability or reflection for those that benefit from the ongoing occupation of Indigenous homelands, namely, settlers. Obscuring settler colonialism serves to uphold settler colonialism.

[13] definition from the Society of Ecological Restoration

Frameworks situated within settler epistemologies are incapable of addressing the profound socioecological harms of settler colonialism (Jacob et al., 2021). Ecological restoration is no exception. Settlers and settler colonial land management practices based in white supremacy, capitalism, and beliefs grounded in a human-nature separation and hierarchy have wreaked socio-ecological havoc in Karuk homelands and beyond. Ecological restoration that does not respect Indigenous science and management, does not acknowledge settler colonialism as an ongoing form of violence to socio-ecological systems, nor contends with their own complicity in settler colonialism will not be successful in assisting in the recovery of ecocultural landscapes that have been degraded, damaged, or destroyed. In fact, ecological restoration that fails to take a decolonial approach will likely further inflict colonial ecological violence (Bacon, 2018; Jacob et al., 2021; Mauer, 2021).

The following chapters will focus on just that: how settler logics show up in collaborative ecological restoration and cause violent eco-social disruptions between Karuk people and their homelands. Through experiences of Karuk practitioners, we will hear about how different aspects of settler ecologies: human-nature separation belief, terra nullius, settler environmentalisms, and white supremacy show up in collaborative ecological restoration and hinder Karuk led ecocultural revitalization efforts. A figure of these settler logics, examples of how they show up in collaborative ecological restoration, and their impacts is included in the Pathways Forward chapter. This figure demonstrates how the web of settler ecologies is woven with interrelated logics and belief systems that inflict colonial ecological violence against Indigenous peoples and harm the ecosystems that all beings rely on.

Settler Ecologies as Human-Nature Separation and Museum Restoration

> *"European restoration is for them; well, the word pre-contact even means devoid of contact by people. Actually, it is not like a wilderness, it is a place affected by people as well as all of these other things… So yeah, a lot of that is restoring the responsibility that people have to place*"
>
> *-Vikki Preston*

The quote above from Vikki introduces one of the main themes that arose in my conversations with Karuk practitioners about non-Native led ecological restoration: the human-nature separation belief of Western, Euro-American cultures, and the impacts these beliefs have on Karuk people and homelands. Why do these human-nature separation beliefs matter in collaborative ecological restoration efforts? We will hear in this chapter examples of how ecological restoration based in settler ecologies, such as a belief in humans as separate from nature, creates barriers to Indigenous people and their homelands, and hinders ecocultural revitalization efforts. We will also hear about how this belief limits land manager's understanding of cultural landscapes and cultural use species and can result in the destruction of culturally significant places. We will see how ecological restoration based in settler ecologies and an underlying belief of human-nature separation threatens Indigenous sovereignty, furthers the settler colonial project of dispossession, and inflicts colonial ecological violence.

Snapshots demonstrate profound differences in worldviews about humans and nature

Continuing our conversation about differences in Western and Indigenous worldviews in land management, Vikki Preston described two different snapshots of a landscape, one with Indigenous management and one with just plants and animals.

> "*I think a lot of my baseline is the restoration of those, the functions of those people in the landscape, and that part of this area isn't just taking a snapshot of what plants and materials are there, it's including that weaver in that snapshot, and being like, these are the people that need to be here and are wanting to be here… the people that are there gathering are a part of that ecosystem, a part of that landscape, just as much as the way the ridge is facing, or the plants that are there, and the animals that help pollinate the*

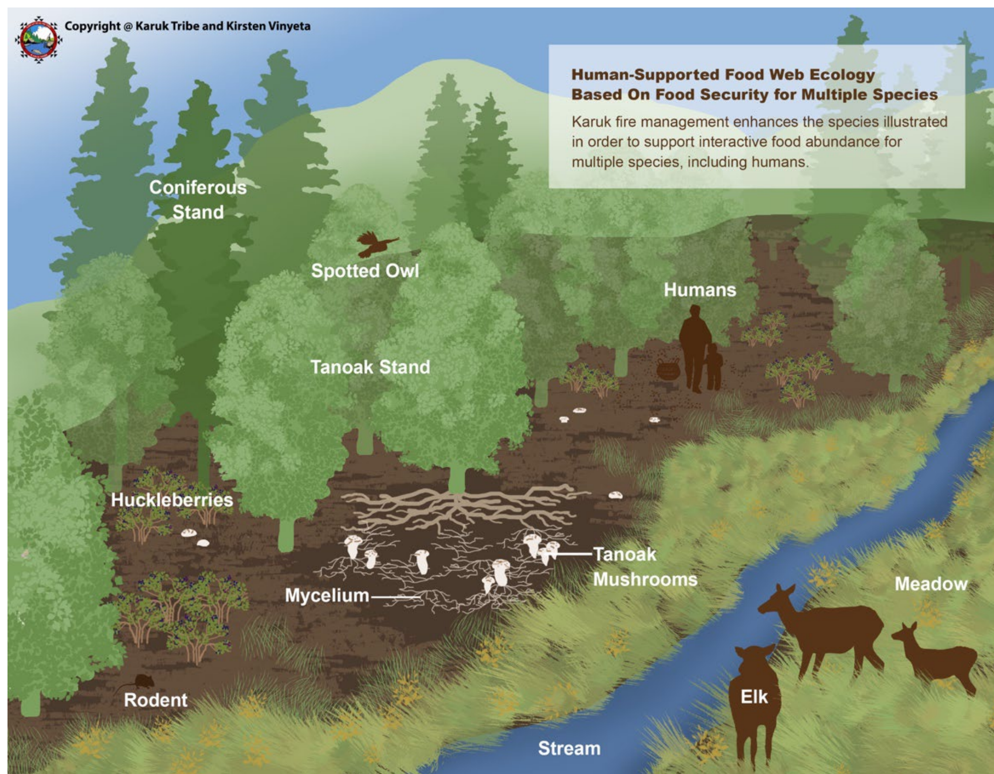
plants. It is also the people that are there coppicing and burning and tending those places and bringing back new weavers to teach about that place, " Vikki Preston

As described in the Society for Ecological Restoration's latest 2019 edition *International Principles and Standards for the Practice of Ecological Restoration* (referred hereto as SER standards) the term *baseline* is often used in two different ways in the field of ecological restoration – either as the condition of a site at the beginning of a restoration project, or a description of the ecosystem prior to degradation (Gann et al., 2019). Baselines, once determined, are used to monitor the effectiveness of restoration actions. Related to baselines are *reference models*. *Reference models* are developed to set goals for restoring a specific site and ecosystem and are based on multiple sources of information to describe future desired conditions (Gann et al 2019). Ideally reference models are based off of the approximate condition of a site had degradation not occurred, yet also recognize that ecosystems change in response to changing conditions and that it is not possible to return to an historic state. (Gann et al., 2019). As described in the SER standards, "*Importantly, reference models should be based on the specific ecosystem attributes to be recovered, and account for both ecological complexity and temporal change"* (Gann et al., 2019, p. 26).

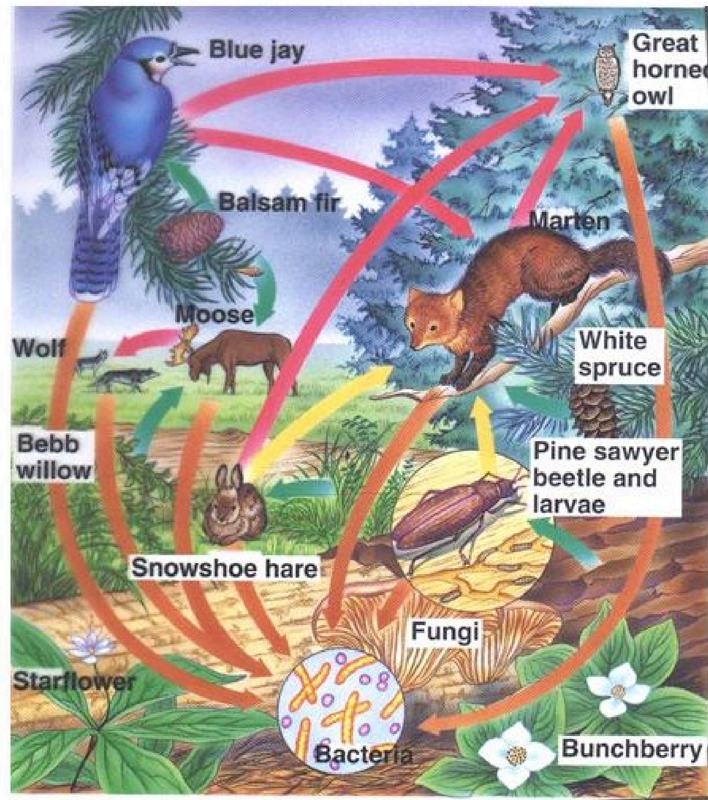
Weavers as a part of the landscape could be included in both definitions of baselines. For example, understanding weaver's *historical roles* in the landscape before the socio-ecological degradation and violence of colonization, *and* that bringing back new weavers will revitalize weaver's knowledges and socio-ecological roles. Weavers included in a baseline can also be used to measure the *present role* of weavers on the landscape and could include indicators such as the ability of weavers to access their sites, gather needed materials, and pass knowledge forward to future generations. Returning to the definitions of *reference models*, weavers and their roles on the landscape could also be included in developing a reference model for the goals of

restoration actions. Weavers are after all, *a part of the ecosystem.* Vikki's quote underscores that it is not just the actions of coppicing and burning that are a part of the landscape, but also the acts of passing knowledge forward to future generations. All these actions are a part of the ecosystem.

Vikki contrasted the snapshot of a baseline with weavers to a snapshot of the landscape with only plants and materials. The snapshot without people speaks to the ways that many ecological snapshots, models, or diagrams *do not* include Indigenous peoples and management as part of the ecosystem (Bang et al., 2018). Below are two diagrams of Forest Food Webs, one includes people, the other doesn't.



(Source: Kirsten Vinyeta for the Karuk Tribe Department of Natural Resources)



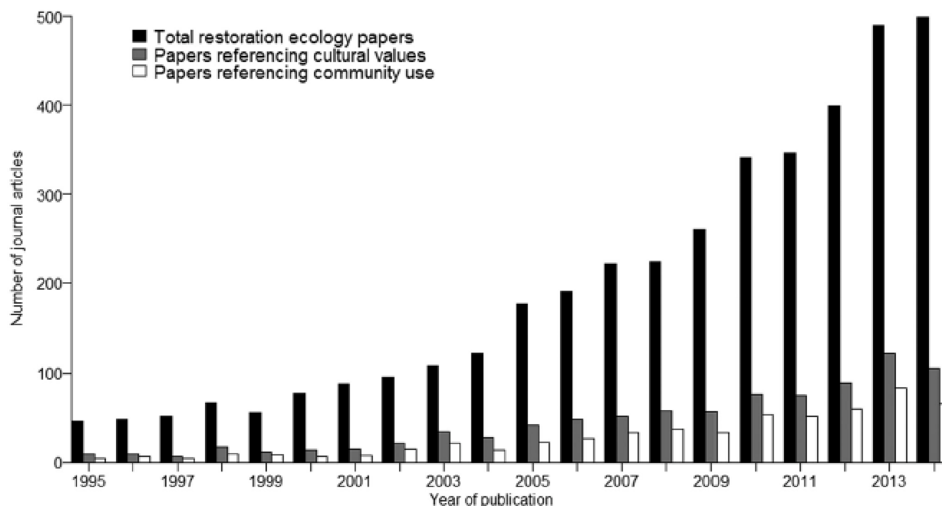
(Source: https://courses.knox.edu/envs101/evergreen.JPG)

These diagrams represent different worldviews about the role of humans in a landscape: humans as visitors, or as residents with integral roles. In their work discussing Indigenous and Western sciences, authors in Bang et al., (2018) describe a Google Image search they conducted looking at the role of humans as part of ecosystems.

> "This sharp difference in orientations is easily demonstrated through a quick Google Image search of the term 'ecosystem.' In one search, about 98 percent of the illustrations Google returned did not contain human beings and about half of the remaining images depicted schoolchildren as existing outside the ecosystem ("observing it" through a magnifying glass, for example). Despite the efforts of ecologists, environmental historians, and American Indian sciences and philosophies, the dominant cultural view continues to suggest that people are not part of ecosystems. U.S. policies clearly reflect the belief that earth, energy, animals, and plants exist solely as resources for human betterment" (Bang et al., 2018, p. 5).

Images or conceptualizations of an ecosystem that don't include Indigenous peoples and management like the ones described above are not uncommon in the field of ecological

restoration. Priscilla M. Wehi and Janice M. Lord examined the inclusion of Indigenous peoples and cultural values in ecological restoration projects in New Zealand and around the world (Wehi & Lord, 2017). Through a content analysis of 3,907 peer-reviewed journal articles about ecological restoration or restoration ecology published between 1995-2014, they found that Indigenous values were seldom included in ecological restoration projects, and that references to Indigenous cultures were generally historical (Wehi & Lord, 2017). The chart below shows their findings of papers referencing Indigenous cultural values and community use as part of the total number of papers published.



(Wehi & Lord, 2017, p. 1114)

Discussing their findings in New Zealand and internationally, Wehi and Lord (2017) contend that, "ecological restoration runs the risk of being another form of colonial hegemony, where the needs and aspirations of Indigenous people are overwhelmed by a dominant conservation ethic that places humans outside of nature," (p. 1115). What does this dominant conservation ethic that places humans outside of nature look like in action? And what does it mean for Karuk ecocultural revitalization efforts?

Museum restoration as colonial ecological violence

Like the global survey of Wehi & Lord (2017), Dr. Frank K. Lake spoke about how many professionally trained ecological restoration practitioners are generally unaware of the socio-ecological roles that Indigenous peoples have in their environments and their ecocultural management traditions.

> *"A lot of the Western academically trained ecologists, even those who get their professional ecologist certificates think of restoration as 'oh we've restored the species composition, some of the ecological process part of it', but then they don't understand that that part takes human nurturing too… restoration shouldn't be a museum showcase. 'This area has been restored, please stay on trail. Please do not gather or pick plants.' - Dr. Frank Lake*

Like Vikki's description of a snapshot that only includes plants and animals, Dr. Lake describes how Western-trained ecologists tend not include *human nurturing*, or *Indigenous management* as part of a restoration project's ongoing maintenance. Like Dr. Lake, other interview participants discussed that while Indigenous traditional ecological knowledge is gaining attention from non-native ecologists and land managers, they often do not view it as an integral, ongoing part of an ecosystem.

What do restoration projects look like that have underlying colonial values based in a human-nature-separation ideology and an unawareness of Indigenous management? Dr. Lake described the outcome as *museum restoration.*

> *"When are you going to have the placard that says, 'This area has been ecoculturally restored. Please facilitate tribal access, and when seeing families gather, thank them for their ecological service to this system's wellness.' Something like that. And people didn't even think about having a sign like that. Let's not make restoration another museum where, thanks for your contribution, you restored that great forest or that wetlands, and you even told us what basket plants to plant, and the willow species or what species should be retained after the thinning and burning. And now you just have to look at it. Well, why can't we be beneficiaries of that? Change the narrative of what restoration is, especially as a coupled socio-ecological process."- Dr. Frank Lake*

The two placards described above: *Stay Out* versus *Eco-Cultural Restoration* are powerful representations of two different types of restoration projects based in different worldviews. Dr. Lake describes how a Western approach of creating a "stay out of the restored area", *museum-like* restoration project would deny access to Native families to fulfill their responsibilities of managing and caring for their places. While there may be cases where it makes sense to limit access to newly restored areas to protect sensitive plants and animals, it is important to recognize how this idea of "museum restoration" is part of a culture and legacy of European settler colonial land management that separates people and nature (Wehi & Lord, 2017, Bang et al., 2018). These cultural ideas have their roots in the Euro-American ideal of pristine, people-less places, and the preservationist belief that nature is left best untouched, untrammeled by humans (Cronon, 1996).

If we understand ecological restoration as a land management process that shapes eco-social relations, we see a "museum restoration project" as another manifestation of settler ecologies that ignore Indigenous management and attempt to inscribe settler ecologies on to the landscape. The denied access, or eco-social disruption, to Native peoples and their places that results from a *keep-out Western ecological restoration project* is a form of colonial ecological violence. As Bacon (2018) writes about colonial ecological violence, contemporary forms of land management do the work of eco-social disruption without explicitly intending to commit violence (p. 63). Even though there isn't the intent to cause harm, the very act of reorganizing how people can or cannot interact with their homelands is a form of eco-social disruption (Norgaard, 2014a). Situating a *museum restoration* project within the larger process of settler colonialism and land management, we can see how it is based in, and further inscribes *settler ecologies* onto the landscape.

It is important to acknowledge that settler ecologies not only enact colonial ecological violence against Indigenous peoples, but that approaches that hinder tribal stewardship are also limited in their abilities to address complex socioecological problems. Long & Lake (2018) name *colonial mentalities* that ignore Indigenous management as one of the factors that create "socio-ecological traps", or self-reinforcing conditions that create a cycle of harming people and the environment. They describe that "because tribally focused restoration strategies generally align with broader strategies suggested to restore national forests in the region, they can foster both tribal well-being and ecological sustainability" (Long & Lake, 2018, p 1).

Understanding colonial mentalities as contributing to socioecological traps is echoed in Indigenous feminisms teachings, which describe how settler logics that separate humans from nature result in practices that harm everyone, Indigenous and non-Indigenous alike (Jacob et al., 2021). This is certainly the case in Karuk homelands where settler ecologies based in human-nature separation, a fear of fire, a devaluing of Indigenous knowledge systems, and extraction of natural resources have led to the degraded landscapes people are working to restore today. Listening to people speak about the impacts of *museum style* restoration, I heard how the underlying worldviews that guide ecological restoration matter in the ways that they influence relationships between people and the environment.

People I spoke with shared more examples of how the Western cultural belief of human-nature separation showed up in land management. In the next section we will hear experiences of how this human-nature separation belief shows up in archeology, and how the imposition of these settler ecologies not only limits possibilities for ecocultural revitalization of ecocultural landscapes but can also lead to degradation of places of ecocultural significance.

Human nature separation belief in archeology surveys for landscape restoration

What might a land manager, trained in Western ecological traditions with an underlying belief in human-nature separation miss about the landscape? Bill Tripp describes how the landscape holds information that a non-Native person may not be able to understand.

> *"There's information everywhere. There's information in the fact that you're walking up a ridge and whoa look at that, there's one really big tanoak tree as far as I can see. Well, what does that mean? That means something. There's information there about people and place. And not everyone can interpret it. It takes an Indigenous person that understands ceremony and resource use and all that, you know to truly interpret that stuff. The typical anthropologist, archeologist isn't going to get there,"*- Bill Tripp

Bill's comment speaks to the differences between Indigenous and Western sciences, in that Indigenous sciences come from long-term observations and relationships with specific places, rather than a set of universal rules or models that can be applied anywhere. As described in more depth in the *Extraction, Appropriation, and Disrespect* section, many people I spoke with shared how non-Native people working in Karuk homelands view Indigenous sciences *as less than* Western sciences. People also spoke to the assumption they've witnessed that Western approaches to science are completely objective and not influenced by cultural values. As many scholars of the sciences explain, Western science does not happen in a values-free vacuum, and Western science practitioners are social beings carrying with them their own worldviews, biases, etc. (Vinyeta 2021, Medin & Bang, 2014). For example, the scientific method of Western science is a valuable tool in understanding complex relationships in the environment. However, if the individual asking the questions and making the hypothesis is starting from an assumption that humans didn't have, and don't continue to have a place in the ecosystem, they are going to be missing a very important part of that ecosystem. The stories Karuk practitioners shared with me about Western-trained archeologists illuminated how western approaches to archeology were not only embedded in larger set of cultural values about human's role (or lack thereof) in the

environment, but also how these approaches were limited in being able to understand, and therefore responsibly steward, ecocultural landscapes. Returning to Bill's comment above, *the landscape has information about people and place,* information and connections that many archeologists will be unable to understand because they are not of that place or are not trained in the socioecology of that place.

Kathy McCovey worked for decades as an archeologist with the US Forest Service and shared many examples of Western approaches to management being at odds with Indigenous ecocultural approaches to management. In one story about working in the Sierra National Forest she shared how Western-trained archeologists didn't understand that the trees on the landscape were part of a cultural use site, or part of a larger cultural landscape. Instead, they were only concerned with isolated artifacts, such as milling stations. In the passage below she described reviewing the cultural resources at a site that was going to have a timber harvest with non-Native land managers and another Native archeologist.

> *"And we were out at an archeological site, it was an old one, and it was one of those great big rock outcrops that they used down south to crush the seeds, their milling stations. And as we were there recording the milling station, I looked at her and I said, "aren't these trees part of the archeological site?"... She looked at me, she smiled, and she laughed. But we didn't say anything else because we both knew they are part of the archeological site. They (milling stations) are there because of the trees. But in the society that she and I have to function in now they separate things. They separated that milling station from the trees around it. We were in there because they were going to do a harvest in there. So, they were harvesting trees, but they weren't trying to associate the trees with an archeological site. They just wanted to deal with the archeological, that rock."*- Kathy McCovey

Kathy describes how she and the other Native archeologist saw the ecocultural legacy of Indigenous peoples in that landscape, and how the milling stations were there because of the resources provided by the surrounding trees. Not understanding that the trees are a part of the larger cultural landscape led the Forest Service to harvest those trees, destroying an ecocultural

resource and foreclosing the opportunity for the Indigenous peoples of that area to return and restore gathering and stewardship practices. While this particular instance happened decades ago and outside of Karuk aboriginal territory, Kathy shared how Forest Service archeologists who are supposed to be protecting and enhancing cultural resources still don't understand the ecocultural nature of the landscape and continue to have an influence on decision making that impacts cultural resources in Karuk homelands.

> *"The foresters were denying our existence as people that needed to get resources from the woods. What has also been happening lately, in 2020, the Forest Service will bring archeologists from the cities…theses archeologists don't recognize our artifacts, they will go in now and do surveys and don't recognize what our people have utilized. They will not see the Karuk artifacts. And they will also say that all of the mining, the hydraulic mining on the river has destroyed all of the Karuk sites. But that's not true. So, they are sending these archeologists that are supposed to protect cultural resources but the archeologists don't know what they are looking for so they do not protect our cultural resources because they can't identify them. Because they haven't been trained."* – Kathy McCovey

The Forest Service has a responsibility to protect and enhance cultural resources on the stolen lands they now manage. And yet, these archeologists haven't been trained to identify Karuk cultural resources. Furthermore, Kathy points out that these archeologists have a belief that *all Karuk sites were destroyed* hydraulic mining. Statements like this suggests an underlying belief by these archeologists that *there aren't any more cultural sites or cultural resources* of value to the Tribe, which couldn't be further from the truth. This belief, that there aren't cultural sites or resources of interest to the Tribe, is certainly evident in the forester's comment that Kathy described as "*denying our existence as people that needed to get resources from the woods.*"

We can unpack some of the settler logics and Western cultural belief systems that may be informing these comments from the Forest Service foresters and archeologists. First, a Western cultural belief that humans are separate from nature is evident in that these land managers

weren't trained to see the landscape as an ecocultural landscape. Second, we see traces of the settler colonial logics of *terra nullius*, the belief that landscapes were a pristine wildernesses prior to human settlement, and that Indigenous people's interactions with the landscape were minimal.

These western cultural beliefs that humans and nature are separate, along with the settler logic of terra nullius, influence land management decisions (Norgaard, 2014a). Settler colonial logics of a human-nature separation and terra-nullius make it difficult for people to see the larger ecocultural landscapes like the trees and milling stations that Kathy describes. Furthermore, these settler colonial logics become imposed on the landscape when they are employed (knowingly or not) by people with power, i.e., land managers. As we heard from Kathy, these decisions restrict access to cultural sites and resources by the very denial of their existence, or worse, end up destroying them. Listening to Kathy and others speak about the violence of these belief systems against Karuk people and homelands I came to understand how when these belief systems are enacted on the landscape, they promote the settler colonial logic and project of *erasure*.

If the archeologists are unable to see Karuk artifacts on the landscape, if they are unable to see the continued use of ecocultural resources on the landscape, they will make assumptions that *they aren't there anymore.* When the forester *denies the existence of Karuk people and cultural practices on the landscape* they reinforce the settler myth that, the settler colonial project of dispossession and forced assimilation is complete. These worldviews that guide land management practices can be understood as part of settler ecologies, imposing themselves on the landscape for the benefit of settlers, at the expense of Indigenous ecologies and people (K. Whyte et al., 2019). When left unchecked and uninterrupted, these settler logics further discourse and actions that support the settler colonial project of *dispossession and erasure.* Thankfully,

there are land management collaboratives, like the WKRP, that acknowledge the violence of settler colonialism and respect and support Karuk traditional ecological knowledge. Below we will hear some examples of what this looks like in the field of archeology.

Analisa Tripp worked as Archeology Technician for the Karuk Tribe of Natural Resources for over 5 years and shared experiences of Indigenous and Western knowledge systems working well together, as well as situations where Karuk TEK still isn't respected by certain National Forests.

> *"I really appreciate being a part of incorporating traditional ecological knowledge into our work, the archeological survey for WKRP. Which is totally new to Six River National Forest…So we have been very lucky thus far to have archeological crew members who have been really gung-ho about incorporating tribal knowledge and traditional ecological knowledge and viewing the larger ancestral territory as like a large cultural landscape, (something) that we're not always thinking about when doing archeological work. We're so concerned with site polygons being constrained to boundaries, site boundaries. If we just find one thing out of like a site boundary than its an isolate, but we're really being able to move away from that and realizing it's not an isolate, it's part of the larger story and our people have been here forever. – Analisa Tripp*

Compare this excerpt with the story that Kathy shared earlier about the non-Native archeologists just looking at the milling stations, and not understanding the connections with the trees and other ecocultural resources across the landscape. Analisa shares how through collaborative work with the Six Rivers National Forest, they are working together to approach archelogy in a new way that correctly views the landscapes as a cultural landscape, instead of isolated objects. She shares one example of what this new approach looks like:

> "*Being on the tree-marking crew, we got to actually help make those decisions on the ground. So that was really cool to be able to see it from that perspective. I really appreciate that about WKRP, our being able to do all these interdisciplinary things that are very related, but a lot of people wouldn't think about having an archeologist out marking trees to be able to make it in a way that, make the landscape in a way that would kind of restore it to its former use and function. And not just for like, restoring it, but to make it so that we can use it into the future for future generations." – Analisa Tripp*

Analisa shared how tribal archeologists have been involved in making decisions about which trees to thin and which trees to maintain. This is work that Western- trained archeologists typically don't get to do, likely due to flaws in Western archeological assumptions about what constitutes a cultural landscape. The interdisciplinary, multicultural approach to archeology that Analisa describes facilitates and encourages ongoing ecocultural revitalization, or the human services for ecosystems that we heard about earlier. Recall the example above from Dr. Lake about *museum restoration*, a restoration project that doesn't facilitate, and in fact may impede, the ongoing ecocultural management by Indigenous peoples. Analisa describes how they are not restoring just for the *sake of restoring*, but that they are emphasizing *use and function* for future generations, a powerful contrast to museum restoration.

This new approach to archeology is part of the work in the Somes Bar Integrated Fire Management Project, and is described in the Cultural Resources Specialist Report (Karuk Tribe Department of Natural Resources). An excerpt from this report, which speaks directly to points in the discussion above, is included in the box below:

> The broader vision for the WKRP planning area is to enable restoration of cultural burning practices on Offield Mountain and in the adjacent landscape, utilizing tenets of TEK as an indigenous science that works together with Euro-American models of science, hence revitalizing our cultural responsibilities to this place, and protecting the Karuk people from the loss of our cultural identity.
>
> Cultural resources are recorded in a manner that reflects Tribal values and perspectives. In addition to identifying historic properties, the Archaeological/Cultural Resources crew identify evidence for how the land was used and managed in the past, with a view to revitalizing those practices in their traditional places.
>
> The cultural resources identified and TEK expressed through this project provide a living memory of human use and responsibility in context of place and can help us realize the stories of the past in the formulation of our contemporary future. By reconnecting the human role to the whole landscape, we can strengthen the spiritual, subsistence and management practices that the place calls the people to perform.
>
> Cultural Resources Specialist Report- Somes Bar Integrated Fire Management Plan, p 7

The worldviews that guide ecological restoration matter in the ways that they organize relationships, interactions, and hierarchies between people and the environment. The human-nature separation worldview is inconsistent with what this landscape needs for ecocultural revitalization, and the interconnected well-being of Karuk people and place. Chook-Chook Hillman (Karuk Indian) describes how the wilderness ideal based in a human-nature separation runs counter to Indigenous management of providing human services for the ecosystem:

> *"You have all these wilderness societies and groups that just have these hard stances, and they view restoration as often like, humans not having a role on the landscape. Don't even be there, basically. Keeping people out of places. And we're like, "no, humans belong on the landscape, we're part of the landscape." And so, I think that those kind of folks view themselves as separate to the landscape, you know like, " I'm going to go out to the wilderness, I'm going to go out to it," you know, be in it for a moment, leave no trace. Well, we need to kind of leave some traces, not of garbage, but of doing good work…never treading on these landscapes isn't helpful, and neither is destroying these landscapes." – Chook-Chook Hillman*

As we will see in the following chapter, this belief persists in even the most well-intentioned restoration partners. Persistent beliefs which in turn create even more eco-social disruptions and barriers to the interconnected well-being of Karuk people and homelands.

Settler Ecologies: Genocide Forests and Settler Environmentalisms

> *"You know what I ended up saying? This is a genocide forest. The only reason this forest is here is because of genocide. And if we're not going to take more of these firs out, we are not moving the landscape the way it needs to go. This will just be a mess, and not much will be done. The firs will continue to kill everything else that is here, and this will never be an Indian work area again." – Chook-Chook Hillman*

The previous section explored ways that Western worldviews rooted in a belief about *human-nature separation* influence the practices and principles of ecological restoration, and some of the impacts that has for Karuk ecologies. The human-nature separation belief is just one

of the belief systems that inform settler ecologies (Bacon, 2018, Gilio-Whitaker 2019). This next section will examine at a related element of settler ecologies, settler environmentalisms. The opening quote from Chook-Chook is a preview to the following discussion about how settler environmentalists, even well-intentioned allies, can impede Karuk ecocultural revitalization.

I draw from Dina Gilio-Whitaker and Dr. Jules Bacon's work to inform my understanding of settler environmentalisms. In Dr. Bacon's discussion on *colonial ecological violence*, Bacon describes mainstream environmental movements as follows:

> "Mainstream environmental movements – particularly those with wilderness, conservation, preservation, and reform frameworks – are epistemologically bound up with settler colonialism. They rely on Western science and law as their foundation for identifying and addressing environmental concerns, and in general exhibit no explicit concern for social justice, nor any acknowledgment of Indigenous peoples as contemporary members of the world, but rather frame their arguments around generalized human mismanagement of the Earth's natural resources" (Bacon, 2018, p.61).

While these environmental movements are well-intentioned, they are *epistemologically bound up with settler colonialism,* or *situated within settler ecologies.* In her book *As Long as Grass Grows*: *The Indigenous Fight for Environmental Justice, from Colonization to Standing Rock (*2019)*,* Dina Gilio-Whitaker describes how the preservation movement's roots are bound up in white supremacy and settler colonialism, and traces that preservation lineage to current mainstream environmentalism:

> Born from the Manifest Destiny ideologies of western expansion, the preservation movement was deeply influenced by a national fixation on the imagined values of white superiority…those legacies carried forth into twentieth century environmental organizing. The result was a contentious-sometimes openly antagonistic-relationship between modern environmentalists and American Indians," (Gilio-Whitaker, 2019, p. 92).

As Dr. Bacon and Gilio-Whitaker explain, settler environmentalisms are influenced by deep-rooted belief systems: white supremacy, Western science superiority, human-nature separation. These belief systems underlie actions that inflict colonial ecological violence on

Indigenous peoples and homelands. This next section will focus on how settler environmentalisms manifest in and affect collaborative restoration projects. Specifically, we will hear from Karuk people's experiences with settler environmental partners around decision making about thinning Douglas fir trees as a part of ecocultural revitalization of fire in Karuk homelands. These instances are examples of how settler environmentalisms are a form of settler ecologies attempting to inscribe themselves onto Karuk ecologies through the practice of ecological restoration. In the following section I explore the following questions: Are collaborative restoration actions furthering the settler colonial project of dispossession and control over land? Are restoration actions another form of eco-social disruption?

Douglas fir trees and settler environmentalisms

The people I spoke with described interactions that took place while working with environmental, non-Native partners on collaborative restoration projects. Multiple people described controversy about removing Douglas fir trees in the Somes Bar Integrated Fire Management Project (referred hereto as the Somes Bar project). The project area for the Somes Bar Project includes places of indescribable importance to Karuk people, including Katamiin, where *Pikyavish* World Renewal Ceremonies are held each September (USDA Forest Service PSW Region, 2018, p. 6). As mentioned in previous chapters, many people I spoke with shared that the Somes Bar Project comes after decades of failed collaborations and mistrust with the Forest Service. The Somes Bar Project is considered by some as a step in the right direction in that it is based in, and supportive of, Karuk sciences and management.

The Somes Bar project was designed collaboratively by the Six Rivers National Forest, Karuk Tribe Department of Natural Resources and other partners in the Western Klamath Restoration Partnership to implement landscape-scale fuels reduction actions (like thinning

Douglas fir trees) to protect communities from large wildfires and to set the stage to safely implement prescribed fire, and ultimately, support the revitalization of Karuk fire stewardship.

As Chook-Chook Hillman describes in the quote that opens this chapter, the reason the Douglas fir trees in question are in their present location and in need of thinning is because of settler colonialism and genocide. Euro-American invasion, genocide, forced assimilation, and settler land management practices violently interrupted Karuk fire stewardship, and Douglas fir trees grew into areas that were previously maintained as meadows, and oak and pine woodlands (Lake, 2007; Anderson, 2005; Norgaard, 2019; Taylor et al., 2016). Without the regular disturbance of fire, Douglas fir trees grow quickly above slower-growing oak trees, suppressing their growth as well as the growth of understory grasses, forbs, and shrubs. As outlined in management plans by the Karuk Tribe's Department of Natural Resources and in the Somes Bar project, a first step in revitalizing Karuk fire stewardship and restoring these cultural landscapes is to thin Douglas fir trees in order to be able to safely reintroduce fire (USDA Forest Service PSW Region, 2018).

People I spoke with shared how some environmental partners of the Somes Bar project didn't want to remove the large Douglas fir trees because they were *big* and could be potential future habitat for the endangered Northern spotted owl. Situating this interaction within a framework of settler and Indigenous ecologies, I understood these interactions as the non-Native partners being influenced by *settler environmentalisms*.

Settler environmentalists bring with them beliefs about what is best for the landscape, as well as a belief that they are entitled to have a say in how it is managed. As we will hear below, from the perspectives of settler environmentalists, removing large Douglas fir trees is bad, Northern spotted owl is the primary species of focus, and the less human interaction with the

landscape the better. There are certainly more beliefs at play here in settler environmentalisms, but we will unpack those later. For now, we will focus on how an emphasis on retaining large Douglas fir trees and a sole focus on Northern spotted owl are examples of settler environmentalisms at odds with Karuk ecocultural revitalization efforts.

Big trees, but none of them are old

> *"And so, we all went out and reviewed the mark. And in their mind, they're stuck on this word 'big', "big tree.' 'Big, big big big big.' But none of them are old. You know. None of them are old. And so, we ended up having this really heavy moment…cause the unit was like a quarter mile above my great grandmother's home village. And you could just see, you can look at the ground and aspect, slope…you can read what has happened there throughout the last 200 years…and it was just this big flat, there were a few remnant grass populations, there's artifacts, you know. Flats don't exist here especially upslope very much, and so you can see the amount of work that had been done in there, pre-contact…."*- Chook-Chook Hillman

In describing an interaction between partners reviewing trees to be thinned, Chook-Chook highlights how settler environmentalisms have a limited perspective about what is needed to restore what is in fact, a cultural landscape. The environmental partner described in the quote above is stuck on the *big Douglas fir trees* and does not want them to be removed. This person is bringing with them the belief that large Douglas fir trees should not be logged, likely related to their work in other parts of the region to stop commercial logging operations of mature and old-growth forests. The environmental partner likely does not see the legacy of settler colonialism on this landscape, and that the reason there are many Douglas fir trees on the landscape is because of fire suppression and an interruption of Karuk fire stewardship. They are bound by their worldview and settler ecologies, missing the full picture of the complex social-ecological processes of this place, and the role they play in it.

To see that larger, socio-ecological picture of the landscape, Chook-Chook describes how by looking at the landscape you can see what has happened over the last 200 years of

colonization and the violent suppression of Karuk fire stewardship. Lake and Christianson (2020) describe Indigenous fire stewardship as "the use of fire by various Indigenous, Aboriginal, and Tribal peoples to modify fire regimes, adapting and responding to climate and local environmental conditions to promote desired landscape, habitats, species and to increase the abundance of favored resources to sustain knowledge systems, ceremonial and subsistence practices, economies and livelihoods" (p. 1).

Prior to colonization, this area near Chook-Chook's great grandmother's home village was maintained by low to mid severity fires intentionally set by Karuk people. This frequent, planned burning would have killed young Douglas fir trees, cleared the area of understory brush, and maintained the fire-adapted pine, oak, and meadow habitats. Along with fulfilling spiritual responsibilities, this use of fire promoted the growth of food, medicine, and basketry plants (Anderson, 2005, Lake, 2007). With colonization and fire suppression, the interruption of Karuk fire stewardship enabled Douglas fir trees and shrubs to grow into these areas, causing drastic changes and harm to Karuk people and places. Chook-Chook emphasized that it requires a human and fire relationship with the landscape to maintain the open meadows and diverse hardwood and pine landscapes.

When I spoke with Dr. Lake, he described a similar encounter with environmental partners reviewing marked Douglas fir trees to be thinned:

> "*We were out there one day with the fish and wildlife service, the wildlife bird biologist, and even that environmentalist person are like, 'well we don't want to log out this bigger fir because it is unoccupied suitable spotted owl habitat.' ….And some of us that were there were like, 'but listen, there's an artifact over there, the historical trail is another 100 yards over on that side on the flat before it breaks down off the ridge. Everything here is a legacy management area that has these big pines, sugar pines, a big ponderosa over there that probably was a root tree in that soft red clay, the opening that used to be here I'm sure has, you know, trailing blackberries and Indian potatoes and yerba buena tea, and now it's a closed canopy, multi-structured edge thing.' – Dr. Frank Lake*

Like Chook-Chook, Dr. Lake describes how they are in a cultural landscape, shaped through millennia of Karuk fire stewardship. Elements of this cultural landscape are the artifacts, trails, fire-resistant pine trees, remnants of meadows and openings that were maintained by fire, and the relationships and responsibilities that Karuk people have to these places. These are all a part of Karuk ecologies that were not apparent to the partners that were viewing the landscape within the worldview of settler environmentalisms.

Listening to these accounts, I understood how the web of relationships and responsibilities of Karuk ecologies, and the amount of violence they have endured from the imposition of settler ecologies, were not apparent to the environmental partners. The worldview through which the environmental partners are understanding the landscape, and what the landscape needs to thrive, is seen through a Western cultural lens.

While settler environmentalists have been allies to Indigenous peoples in standing up to extractive settler ecologies, there are elements of settler environmentalisms that cause colonial ecological violence (Bacon, 2018, Gilio-Whitaker, 2019). The interaction around marking Douglas fir trees to be thinned for the reintroduction to fire, and the environmental partners resistance to it, provides a powerful example of settler environmentalisms inflicting colonial ecological violence on Karuk people and places by putting up barriers to Karuk ecocultural revitalization. In the following sections we will look further into settler environmentalisms, their roots in settler colonialism and white supremacy, and the impacts they have on Karuk people and places, and ultimately, everyone who now calls those places home.

Single species management and cultural indicator species

The northern spotted owl (NSO) is federally designated threatened species whose populations have declined over the past century due to timber harvesting and habitat loss, as they

prefer forest stands with mature and old growth trees, standing snags, and a multi-layered canopy with a diversity of tree species (Franklin et al., 2000). In recent decades, the barred owl has become a predator of the spotted owl, further threatening an already imperiled species. The enlisting of the Northern spotted owl as an endangered species in the 1990's reduced the amount of mature and old growth forests that could be logged on public lands, seen as a win for environmentalists, but a major blow to the timber industry and the communities that relied on the timber economy (Carrol & Dillman, 1995). The spotted owl became a symbol of the battle between environmentalists and the timber industry, and that tension remains today.

Yet, Chook-Chook explained how the Karuk Tribe's work to remove Douglas fir trees is an important step in ecocultural revitalization and is not a part of the same timber extraction practices that drove northern spotted owls to the brink of extinction.

> *"I don't want to weaken the endangered species act, because I believe there's a place for spotted owls on the landscape. There always was, when we were managing the place. But then they're talking about well, you can never take down a 40% canopy...There's all these rules, which in most cases I'm happy for, but in my case I'm not here to destroy the land. I'm here to revitalize and restore this place, and I need more flexibility, you know what I mean, without gutting an ESA (Endangered Species Act)."*- Chook-Chook

Chook-Chook explained to me how the requirements to maintain a certain percentage of tree canopy cover for potential northern spotted owl habitat makes it difficult, or near impossible, to remove the amount of Douglas fir trees needed to support the revitalization of Karuk fire stewardship and oak, pine, and meadow habitats. Not having the flexibility to remove Douglas fir trees is a barrier to reintroducing cultural burning and ecocultural revitalization efforts.

Even though the northern spotted owl is not a traditionally managed species, the Karuk Tribe Department of Natural Resources' management plans consider NSO habitat loss and fragmentation as part of the larger picture of the ecosystem that needs to be restored and brought back into balance with the restoration of cultural fire (Karuk Tribe Department of Natural

Resources, 2018, p. 5). Furthermore, management plans informed by Karuk traditional ecological knowledge consider and care for many additional species and habitats that are often overlooked by Western land management agencies. For example, the recently published Climate Adaptation Plan is centered around 22 cultural indicator species. As Bill Tripp explains, "These species have stories to tell, lessons in terms of how to get back to traditional management. They serve as indicators of relationships, responsibilities and of when and where to burn." (Karuk Tribe, 2019, p. 58).

Similarly, The Cultural Resources Specialist Report for the Somes Bar Integrated Fire Management Project explains how the Karuk Tribe plans for the NSO, along with additional focal species that are based in Karuk Traditional Ecological Knowledge.

> *"At the same time as aligning with ancestral practice, the design of the current project needs to fit the current condition of the landscape and the current regulatory context. As can readily be seen, TEK considerations do not involve single species management, but whole landscape improvement -for the collective benefit of the people, the animals, and the plants. It would not be realistic to analyze and study for all species across the landscape. This project therefore makes use of the 2012 planning rule, which introduced the idea of a limited number of "Focal Species." Since involving all aspects of TEK in our initial pilot projects would be too complex, a few were selected to begin to formulate a story of human re-emergence in accepting the people's collective responsibility in a contemporary future. The focal species selected are those that are either directly regulated by laws such as the Endangered Species Act, associated with water quality regulations, or founded in TEK as being foundational in our human/fire relationships. Some of them are regalia species in Tribal ceremonies. Regalia species are crucial to tribal people through ancestral tradition."* (Karuk Tribe Department of Natural Resources, 2018, p. 4)

As explained in the excerpt above from the Cultural Resources Specialist Report, the Somes Bar project not only considers the Endangered Species Act and the NSO, but also the broader health of the entire landscape, and human/fire relationships and responsibilities as guided by Karuk traditional ecological knowledge. A single species management approach based in general guidelines about Northwest Spotted Owl and Douglas Fir trees is missing the

contributions of Karuk traditional ecological knowledges and sciences. Chook-Chook pointed out that it is of course not inherently bad to protect the Northern spotted owl. Rather, the problem comes with applying broad management principles to the landscape that impede ecocultural revitalization efforts and disregard Indigenous knowledges. This is an example of well-intentioned settler environmentalisms imposing settler ecologies based in single species management onto the landscape at the expense of Karuk ecologies. If we understand that settler colonialism is a structure that disrupts Indigenous people's relationships to their environments (Gilio-Whitaker, 2019, p. 108), then we see the settler environmentalists move to block the Karuk Tribe's effort to remove Douglas fir trees is settler colonialism in action.

Check your values

During our conversation about ways that Western cultural approaches to ecological restoration could cause harm to Indigenous peoples and places, Dr. Frank Lake described how some of the management practices suggested by environmental partners (such as a broad stroke of conserving all large Douglas fir trees) are indeed at odds with what is needed to support the biodiversity they are seeking to restore.

> "*Well… what are your values? Oh, biodiversity and conservation? Well, ok, let's look at that right here on the ground. This 120-year-old Douglas fir is capturing the light so that you've lost all your understory diversity, so you don't have your pollinators, you don't have your wildflowers, you don't have the forbs and the grasses. It is also shading out this big oak. And is it old growth you like? Yeah, well this oak is probably 300-400 years old, and this fir is only 120 … So how do you take your principles and put yourself in check when you see what could be done on the ground?…. We have to look at, especially for us conservationists and environmentalists, like, what are our principles? And how do you kind of openly and objectively put that in check or assess that in context of what could and can happen on the ground. Particularly as it is enriched and informed by an Indigenous perspective of a community or people who are directly dependent on that place or that ecosystem."*- Dr. Frank Lake

Dr. Lake describes how even well-intentioned efforts by conservationists and environmentalists that focus largely on the conversation of large Douglas fir trees are actually at

odds with what would promote biodiversity on the ground. While the environmentalists may not want to cut a large Douglas fir tree, that large fir tree is in fact growing amongst a legacy Indigenous management area that prior to settlers arriving was a biodiverse, mixed-oak and pine woodland with meadow openings that were maintained by fire.

Dr. Lake speaks to how Indigenous perspectives of management are founded in an interdependence with the ecosystem, and that those perspectives inform and enrich a western scientific approach to management. I understood what Dr. Lake described as "putting yourself and your values in check" as a reminder that Western science-based land management is just one approach to ecological restoration, and that if it is the only approach utilized, that it can result in bad management.

With an unchecked belief in Western science superiority, some humility from non-Native partners is needed in order to come to the collaboration table and understand that they are working in an ecocultural landscape that coevolved with Karuk people since time immemorial. Not respecting Indigenous leadership and management in restoration projects is not only an act of colonial ecological violence, it is also just bad management. As Wehi & Lord (2017) explain in their research about ecological restoration projects globally, "The failure of most restoration projects to incorporate utilitarian values that fulfill the reciprocity philosophy of Indigenous worldviews contrasts with research findings that active community participation and use of resources increase the long-term success of restoration projects." (p. 1114). Therefore, management situated in settler ecologies and with a disrespect of Indigenous peoples harms *everyone* that relies on these ecosystems.

Outspoken disconnection of settler ecologies

> *"You know, there's this disconnect, of landscape actual use… A lot of the people in the environmental circles that are going to sue over these projects that are not in the*

wilderness, they are not going to use these places for any sort of resource gathering, or to continue their culture or their life, and so it is just this weird thing where they are very outspoken about what needs to happen."- Chook-Chook Hillman

It was not only the non-Native environmentalist partners that were present on the ground that opposed removing large Douglas fir trees. One commenter, working on behalf of a California-based conservation nonprofit organization submitted dozens of comments during the comment period of the Environmental Assessment for the Somes Bar project. The comments span a range of topics, while many voice concerns about the project adversely impacting northern spotted owl habitat.

"Of the non-plantations, only an estimated 61 acres across three focal areas overlap with mid-mature and older stands." If this project is intended to be beneficial to owl habitat, then only plantations 80 years old and younger should be thinned; not mature and late successional stands. The FS should start by dropping these 61 acres. This is a commercial timber sale to benefit industry. If implemented, it will harm the NSO and its habitat. Please disclose how much old growth is being maintained in the 5th field watershed as required by the NWFP," (USDA Forest Service PSW Region, 2018, p.7, p. 391).

This particular comment is suggesting that fir trees older that 80 years old shouldn't be removed. Yet as described earlier by numerous people I spoke with, those 80-year-old trees are in those places because of colonization and fire suppression. While an 80-year-old Douglas fir tree may be *big,* they are not as old as the remnant black oak, tanoak, and other ecoculturally important tree species on the landscape that are at risk of being crowded out by Douglas fir trees. Again, people I spoke with shared that there are of course places for Douglas fir on the landscape, especially the 120+ year old legacy, pre-American colonial invasion ones.

The response posted in the EA explains that no old-growth Douglas fir trees would be harvested, but that harvesting suppressed or co-dominant fir will support cultural trees of interest, improve stand health, and reduce fire risk (USDA Forest Service PSW Region, 2018, p.7, p. 391). The vigilance on behalf of environmental organizations about logging large Douglas

fir trees, and their focus on a single, endangered species (Northern spotted owl) is understandable from the work these organizations do in preventing the Forest Service from doing timber sales in mature and old growth forests. In this way, we can see how one aspect of settler ecologies (settler environmentalisms) is reacting to another aspect of settler environmentalisms (settler extractivism). Settler environmentalists are standing up to what they view as extractive logging activities occurring in the Somes Bar project. Indeed, many Forest Service led projects that include restoration activities are often also large commercial timber sales (Vogler et al., 2017).

When hearing about settler environmentalists telling the Tribe which trees they shouldn't log, it is important to provide some background and point out that the Karuk Tribe's Department of Natural Resources has plenty of experience dealing with Forest Service logging projects in their homelands. In fact, Forest Service restoration projects with timber harvest objectives were nothing new to the Karuk practitioners I spoke to, as described below in the story about the destruction of important cultural places that resulted from the Orleans Community Fuels Reduction Project (OCFR). While thus far in this section we have focused on the impact of settler environmentalisms on Karuk people and homelands, we are going to turn for a moment to the extractive aspects of settler ecologies in collaborative ecological restoration projects. Through the stories of destructive logging in the OCFR, and the environmentalists blocking thinning that the Karuk Tribe DNR desires in the Somes Bar Project, we will see how Karuk ecocultural revitalization, faces colonizing forces from both extractive and environmental settler ecologies.

Extractive settler ecologies in collaborative restoration efforts

Karuk practitioners I spoke with explained to me how the Somes Bar project came to be after failed attempts to collaborate with the Forest Service on ecocultural revitalization projects.

One project, The Orleans Community Fuels Reduction and Forest Health Project (OCFR), came about after three years of planning and collaboration between federal, tribal, state, and local participants (Tripp 2019). The project had similar objectives to its successor, the Somes Bar Project: reduce fuels to prevent wildfire danger, prepare for implementation of cultural burning, and to generate income from the logging to fund restoration efforts. Both of the projects encompassed areas of incredible cultural significance to the Karuk Tribe, and during the planning processes Karuk partners stressed how important it was to take care with logging machinery in these areas. Leaf Hillman described how in the case of the OCFR, the Forest Service's timber targets were what was ultimately leading a collaborative project with ecological restoration goals.

> *"And so, our failures in the past have always been whenever we've managed to hold it together at least through the planning phase, we've done that a few times, it has inevitably blown up in our face. As soon as the decision is signed, then they say ok, collaboration is over. It's been really nice collaborating with you. Thank you very much, signed it, we've made the decision. Now we're going to implement this project. And so, the agency goes about implementing the project the only way they know how. They advertise a timber sale. So, they take and they dissect the project, no matter what you agreed on and what we're going to do… yeah, there's going to be some wood that comes out, there's going to be a timber part of it, there's going to be some burning. Well, how the agency operates is that they know how to get timber out and that has to come first. And so, the first thing they do is put out a timber sale contract. Award that contract to the logger who cuts down the trees and take the logs to the mill. Now comes all the other pieces that are actually part of the restoration of all the other steps that follow. All those things aren't part of a timber sale process. Those are a lot more squishy. And they're reliant on things like, well, how much money did they make off of selling all of those trees. Because based on that, then we're going calculate how much money we can get back, from, how much wood was produced and how much money that generated and then we'll get a percentage of that to come back and invest in things like burning." – Leaf Hillman*

As Leaf explains, despite all the work between tribal, federal, and local partners in carefully planning the project to serve a variety of interests, once the timber contract is signed there is little guarantee that the restoration activities will happen to their full intent and extent. In

prioritizing the timber extraction element of the project above all else, we see an example of how the United States Forest Service is facilitating the settler colonial project of commodification and exploitation of land (Wolfe, 2008, Whyte, 2019, in Marks-Block & Tripp, 2021). This is also an example of extractive aspects of settler ecologies working through, and taking over, a collaborative restoration project meant to honor and support Karuk ecologies as well. Leaf explained how once the logging contract was awarded, the timber harvester came in and used equipment that wasn't permitted in the project's plan and Environmental Impact Statement. Because the project was taking place near important religious places, the Karuk partners stressed that certain areas were to be excluded and protected, and that lower-impact logging equipment would be used. These considerations about equipment and location were explicitly made in the project design.

> *"And so, we specified what would be used…. Says they're gonna use a yoder, this is what's required of the contract. But, it's within the discretion of this timber sale, even though this is under contract, so, you'd think, well here's a contract, and it says right here on the contract stand card that this is what they've got to use for the machinery. The contractor goes to the sale administrator and says, "uh, you know, I don't really have a yoder, I wanna use a yarder, I have a yarder, so can I use my yarder instead?" And he said, yeah, sure. No problem. So, they moved in a yarder. And what does a yarder require that a yoder doesn't? You can't just set up a yarder and start yarding, you have to tie them down because they have a tower, and they have lines that go a thousand yards down a hill…. So where are they going to tie back to? They have to tie back, back behind it…. The only place to tie back to was in an area that's excluded, that wasn't in the unit, that was excluded from the unit, and its actually in a protected zone, in the equipment exclusion one…. But this timber sale admin approved the use of a yarder. Which, you can't use a yarder unless you tie it down. So, by proxy he approved the tie downs which says very clearly in the EA, that's not how it is, this is an equipment exclusion zone. But he approves it. And so immediately they're cutting trees adjacent to the priest's trail. A trail that is recorded and is on the national register of historic places. It's a sacred trail. So, the contractor's falling trees adjacent to the sacred trail. Tying the machine down to it." -Leaf Hillman*

Leaf notified the Forest Service District Ranger that the logging operator was using equipment that was specifically excluded in the Environmental Impact Statement. This

equipment (a yarder) was damaging incredibly important cultural areas that had been explicitly marked and included in an exclusion zone to be protected from logging activities. The District Ranger said that once the logging contract was signed, they couldn't interfere. After trying to go through the channels of the Forest Service, Karuk activists and allies created a roadblock to stop the logging and destruction of ceremonials trails and culturally important trees. After trying to work with the Forest Service on a different plan of action, The Karuk Tribe eventually sued the Forest Service for violating the National Historic Preservation Act (Tripp 2019). As a result, the project was slowed and eventually moved forward, but much of the important ecocultural revitalization work that the Tribe had been wanting to pursue in collaboration with partners was not pursued.

This story of the OCFR is a powerful example of how extractive settler ecologies are also at play in collaborative restoration projects. While we are mainly focusing on settler environmentalisms in this section, I felt it was important to pause and hear some of the background of how the Somes Bar project came to be. As a non-Native person that doesn't live in Karuk homelands, it is easy for me to look at the current Federal-Tribal collaborative efforts and take for granted all the work that Karuk people have done (and still do) to resist the destructive actions of settler land management agencies. Settler environmentalists like the ones mentioned earlier likely do not bring with them an understanding of Karuk people's ongoing resistance to the many facets of settler colonialism. Perhaps some humility, and respect for Indigenous experiences and knowledge in resisting settler colonialism would make these settler environmentalists better partners in collaborative restoration efforts. Perhaps it would help settler environmentalists see the larger picture and make them less likely to battle an Indigenous-led ecocultural revitalization effort over individual Douglas fir trees.

Responsibility

Listening to interview participants speak about the challenges to get buy-in from environmental partners to thin Douglas fir trees, I saw the Karuk Tribe's ecocultural revitalization work having to navigate between different settler land management paradigms: natural resource extraction on one side, and conservation/preservation on the other. The push and pull between management paradigms based in extractive or environmentalist settler ecologies both miss and impede upon Karuk traditional management, which has been an integral part of the landscape since time immemorial. Chook-Chook speaks to these different facets of settler land management, and describes how both have a level of disconnection to the landscape:

> *"But I think that separating yourselves, whether you're the forest service and this is just your job and you're here to get timber and there's numbers and there's money…, and then just move onto another forest and do whatever, there's no connection there. And then the environmentalists, 'I just believe you shouldn't cut a tree…' They're still missing the point about the connection, and so that's why, in Karuk culture, nothing is less than or greater than anything else. And humans aren't better than anything else…We're not owed anything from the earth…We're not owed anything, and if anything, we owe a responsibility because we got hands….we owe that responsibility back to the earth and back to all its inhabitants…. and manipulating fire, is the thing that we have over the animals. If you strip away all the other things, that's like, that's the thing that we have as a tool in our toolbox. And so, it's gotta be used. And, as humans we can't view ourselves as disconnected from the land. And a lot of people have lost their connection to the land." Chook-Chook Hillman*

Chook-Chook underscores that Karuk management is grounded in Karuk culture, and a responsibility to use tools, such as fire, to take care of the earth and its inhabitants. He describes an ongoing interaction or interconnection to the landscape in Karuk culture, contrasted with the disconnection he sees in both environmentalists and foresters. Once again, the human-nature separation belief in settler ecologies is apparent in both environmental and extractivist approaches to land management. As we heard in the previous chapter, these belief systems matter in the ways that they organize relationships between people and the natural world, or in

the example we see below, in the ways that they prevent the relationships between people and the natural world.

Genocide Forests

In the next quote (a longer version of the quote that opened this chapter) Chook-Chook situates the decision to remove or not to remove Douglas fir trees in the broader context of colonization, fire suppression, encroaching conifers, and violence to Karuk people and homelands.

> *"You know what I ended up saying? This is a genocide forest. The only reason this forest is here is because of genocide. And if we're not going to take more of these firs out, we are not moving the landscape the way it needs to go. This will just be a mess, and not much will be done. The firs will continue to kill everything else that is here, and this will never be an Indian work area again. And what I ended up, the straw that ended up breaking their back and having them go along with my direction…I had to talk about Indian people in animal terms. And I said, 'look at all this Indian habitat destroyed. Indian habitat you know. Foraging and nesting habitat right here for Indians. It's been destroyed, and we're not going to restore that at all…' and for some reason talking about ourselves as animals made it click for them….It was like this weird break through. Oh, Indian habitat. Yeah. Clear. Indian Habitat. And now it's been destroyed and now you're calling it owl habitat when it never was….there is a place for fir in our landscape, there's a place for it. But not low to river and in places like that…. I said you could core every one of these trees, I can guarantee you, you know how old they are? They're probably 75 years old. They're probably 80. But because of the soil type and aspect and lack of fire, genocide is why they are here. This is just a genocide forest…."* – Chook-Chook Hillman

Chook-Chook spells out to the environmental partner many important points to break through their viewpoint embedded in Settler ecologies, and to see the landscape and its current state from an Indigenous ecologies framework. The over-emphasis on the area being habitat only for animals (specifically, Northern spotted owl) by the environmental partner exemplifies their worldview and limited understanding of this place. Describing the area as *Indian Habitat* finally broke through the western human-nature separation worldview to the partner by spelling out that Karuk people live in and rely upon on this landscape. In this human-nature separation belief is an underlying assumption that Native people no longer have connections to their places. This

assumption has very violent implications. Not viewing Karuk homelands as *Karuk homelands*, is a settler colonial assumption that the settler colonial project of dispossession is complete. Chook-Chook powerfully describes how genocide and dispossession are ongoing through the imposition of management based in settler environmentalisms that prevent ecocultural revitalization of these forests. *Indian habitat*, he points out, has been *and is still* under threat of being destroyed from the imposition of settler colonial land management. Unless Karuk people can do their work to revitalize the landscape with tree thinning and fire, it will continue to be destroyed by fire suppression, or preservation.

Dr. Frank Lake similarly situates the environmental partners' actions in the context of settler colonialism and genocide:

> "*Yes, you think of yourself as like a really in-tune, social justice, equitable person but this is your philosophy and your politicized view on it, and this is what you are promoting on the ground with that. Whether you are an environmentalist or conservation league representative, or that conservative wildlife biologist, this is what your view and understanding or misunderstanding of it is perpetuating on the ground. And you know, not to be angry at you but just to call it out. This is the consequences of your approach, and you think you are patting yourself on the back being pretty good, you know. But you're conserving it to death as a genocide forest, that's the reality of your promotion and what you're wanting to facilitate."*- Dr. Frank Lake

Settler environmentalists operating within settler ecologies will shape the landscape based on their worldviews. "Conserving a place to death" is an example of settler ecologies being inscribed upon Indigenous ecologies. It is an example of settlers asserting their power over Indigenous life and homelands, or in other words, settler colonialism in action. "Conserving a place to death" will disrupt Karuk traditional fire stewardship and deprive the landscape, and all beings that rely on it, of what it needs. "Conserving a place to death" is a profound eco-social disruption (Bacon, 2018), and part of the larger genocidal settler colonial project of dispossessing Indigenous peoples from their homelands.

White possessive logics

Throughout my work I am building an understanding of the some of the underlying beliefs in settler ecologies. The belief that *land is best left untouched* was explored in the previous chapter about *museum restoration,* and is also apparent in the discussions about settler environmentalisms in this section. As discussed earlier, this western cultural belief that land is best *left untouched* is based in early American preservationists, who upon seeing lands stewarded by Indigenous peoples for millennia assumed that they were untouched wildernesses, and that it was best if these lands were *preserved untouched* (Cronon, 1996). This foundational settler environmentalist belief is based not only in a western culture human-nature separation belief; it was also informed by white supremacy (Bacon, 2018; Gilio-Whitaker 2019). White supremacy shows up not only in the eugenicist influences of the early American environmental movement (Allen, 2013) but it also shows up through an implicit assumption that western knowledges systems are superior to Indigenous knowledge systems (Medin & Bang, 2014; Bang et al., 2018) Racist beliefs about Indigenous peoples and a disregard for Indigenous sciences are beliefs woven into the web of settler ecologies and settler environmentalisms, and as such show up in collaborative restoration activities.

Since the web of beliefs in settler ecologies is woven with white supremacy, there are deep-seeded settler environmentalist beliefs about who should have control over decision making about land, or simply, who should have control of land and territory. Chook-Chook touched on this dynamic while describing working with white environmental partners:

> *"I've been packing wood in the mud, it's been raining for months now. And I'm just working out here in the woods. Steep ground. I'm just working to fulfill my responsibility to this place. You show up to come put in your two cents. And you've got the right. And you've got the privilege to do that. Because of the situation we're in. But it is really frustrating……Do you not see? Me just out here grinding, I've got one home. You know what I mean? I've got one home. And then you're going to tell me how that home should*

be and how that home should look. Because you're the boss, right? I'm just playing in your world. You know? Like, clearly that's how they view it. Maybe not consciously, but subconsciously, they have a position of power over what happens in our land. And so, they are one of the good ones. But they still get to be a decider of what happens here. And that's just this weird dynamic that I find hard to reconcile." Chook-Chook Hillman

Listening to Chook-Chook speak to how settler environmentalists have an assumed authority over what happens in Karuk homelands, I saw an example of how *white possessive logics* are another element of settler ecologies and settler environmentalisms. Dr. Aileen Moreton-Robinson (2015) describes how white possessive logics operate in reproducing white ownership in settler colonial states:

> "It takes a great deal of work to maintain Canada, the United States, Hawai'i, New Zealand, and Australia as white possessions. The regulatory mechanisms of these nation-states are extremely busy reaffirming and reproducing this possessiveness through a process of perpetual Indigenous dispossession, ranging from the refusal of Indigenous sovereignty to overregulated piecemeal concessions. However, it is not the only way the possessive logics of patriarchal white sovereignty are operationalized, deployed, and affirmed. I use the concept "possessive logics" to denote a mode of rationalization, rather than a set of positions that produce a more or less inevitable answer, that is underpinned by an excessive desire to invest in reproducing and reaffirming the nation-state's ownership, control, and domination. As such, white possessive logics are operationalized within discourses to circulate sets of meanings about ownership of the nation, as part of commonsense knowledge, decision making, and socially produced conventions." (p xi-xii)

In Karuk territory, land management agencies, mainly the United States Forest Service, are the primary regulatory mechanisms that maintain settler possession of territory and exercise control over Karuk homelands. I suggest that the ways that environmental non-profits assert their power over decision making in Karuk territory can be understood as operating under *white possessive logics,* a set of assumptions that they have the right and the power to do so.

In my conversation with Chook-Chook, I also heard how along with the entitlement and authority that comes from white possessive logics, many settler environmentalists have a

complete unawareness of their positionality as settlers operating on Indigenous lands. Bacon (2018) describes this dynamic:

> "Even deeply committed environmentalists with a stated commitment to place often have difficulty when it comes to questions that touch upon the settler-colonial structuring of those very places they are committed to. This results not only from widespread erasure but also from the settler-colonial roots of US environmentalism. These roots and their lasting impacts are important if sociology wishes to have a better understanding of the way settler colonialism structures eco-social relations. Thinking of eco-social disruption as purely the product of aggressive extraction, or capitalist expansion is not sufficient" (p. 61).

Situated in settler ecologies, the underlying belief systems of settler colonialism motivate the actions of settler environmentalists. Left unchecked, the actions of settler environmentalists will also cause eco-social disruptions, as seen in the disruption of the revitalization of Karuk fire stewardship and the promotion of genocide forests. Motivated by unchecked white possessive logics and white supremacy, settler environmentalists may in turn further the settler colonial project of dispossession and harm the ecocultural systems that all beings depend on. Understood this way, settler environmentalists are complicit in settler colonialism unless they are actively working on decolonizing efforts. This is another example of how without a decolonial approach, collaborative ecological restoration, situated within settler ecologies and frameworks, will be another colonizing force, harming people and the landscape (Mauer, 2021).

Authors of the article, "Indigenous Cultural Values Counter the Damages of White Settler Colonialism" offer a way forward. They explain that equity and justice are not possible within settler colonial frameworks, because those very frameworks are built upon (and limited by) destructive logics that render land and people as lacking spirit, less than human, and inherently rapable (Jacob et al., 2021 p. 1). It is not possible to confront the socio-ecological violence of settler colonialism using settler colonial approaches, just as it is not possible to restore a place without respecting and supporting the ecocultural revitalization efforts of

Indigenous peoples. Indigenous feminist teachings offer that in order to counter settler colonial violence and open up new possibilities for healing the earth and all beings, that environmentalists must honor Indigenous ways of knowing and being (Jacob et al., 2021).

Chook-Chook shared with me how eventually the environmentalist partners had breakthroughs and were able to see the ecocultural forest through the big Douglas fir trees. They changed their position from a strong opposition to logging large trees to a more nuanced understanding of what is needed to restore the ecocultural landscape. While this is positive, Non-native people working in ecological restoration have a responsibility to be self- reflective, to learn about settler colonialism, to read Indigenous environmental studies, and to understand the cultural worldviews they are bringing with them. The labor of teaching settlers about the harm they are causing shouldn't fall on Indigenous peoples. I will discuss shifts towards being more respectful allies in ecological restoration in the final chapter.

Settler Ecologies: Extraction, Appropriation, and Disrespect

> "*Well, TEK is so popular right now. It's such a popular term. And what does it mean? For so many people it means different things. You can just like, plop TEK on something and be like, look we're incorporating other perspectives or whatever. And it's like, yeah you could say that. But what does TEK mean to you in this context*?"
>
> *– Analisa Tripp*

> "*It's also just, expatriating yet another thing. It's the land. It's the material goods. It's the women. It's the education. And now, here we're going to take your ecological knowledge and the Forest Service is going to own it, so they can say with a good heart, yep, we've done all this restoration and we've incorporated traditional knowledge into it…There's so many different layers of this act of 'removing the human'…. ecological restoration that doesn't even include the fact that the landscape has always been a place where we have lived, and we live here because of our relations, every single thing you see around you, we have this kind of relationship that is not extractable…."*
>
> *- Lisa Morehead-Hillman*

There is growing interest from non-Native people and land management agencies in Karuk science and management, particularly pertaining to cultural burning practices. I asked Karuk practitioners about how Karuk traditional ecological knowledge (TEK) is engaged with by non-Native partners in collaborative ecological restoration. Since the time of conducting these interviews I have learned that many Karuk practitioners use *Indigenous science and management* instead of traditional ecological knowledge to reflect the non-static, active, and evolving nature of Indigenous knowledge production and management systems (Rossier, 2019, p. 444). Because the language used during interviews was largely about *Karuk traditional ecological knowledge*, that term will be used throughout this chapter along with Indigenous science and management.

While in the first section of this chapter we heard about how Karuk science and management was central to and engaged with respectfully in the Western Klamath Restoration Partnership, many people I spoke with shared how Karuk science and management is often approached inappropriately or disrespected by non-Native partners. These opening excerpts are an introduction to some of the themes this chapter will explore.

Analisa Tripp speaks to the way agencies can inappropriately claim they are incorporating tribal perspectives and alludes to the fact that TEK is often misunderstood or taken out of context. Lisa Morehead-Hillman speaks to how the taking of Indigenous traditional ecological knowledges by the Forest Service is another part of settler colonial theft of Indigenous life and land. Based on the conversations I had with Karuk practitioners and relevant literature, this chapter will discuss how Karuk science and management is *discredited, downplayed, erased* (Vinyeta, 2021), and *appropriated* from non-Native partners in collaborative ecological restoration projects. At stake in this violent, racist treatment of Karuk science and management is

not only the well-being of Karuk people and culture, but also the very integrity of ecological systems.

Traditional Ecological Knowledge and Knowledge Sovereignty

> "Traditional ecological knowledge involves "relationships between knowledge, people, and all Creation (the 'natural' world as well as the spiritual)…TEK is viewed as the process of participating (a verb) fully and responsibly in such relationships, rather than specifically as the knowledge gained from such experiences. For Aboriginal people, TEK is not just about understanding relationships, it is the relationship with Creation. TEK is something one does″
>
> - Deborah McGregor 2008, 145-146. (in Norgaard 2014 a, p 7)

> "non-Native agency practitioners and western scientists have assumed that this "knowledge" of how to burn the forest or how to manage the fisheries can be described by Karuk people, shared in various agency processes and then applied by multiple actors in different contexts. Underlying this assumption are two very different understandings about the nature of knowledge. While the non-Native world sees "people" as separate from "nature," and "knowledge" as an abstraction that can be transferred across generic landscapes or multiple "users," Karuk knowledge of the landscape is inseparable from the practice of Karuk culture. For Karuk knowledge is embedded in and emerges from the practice of traditional management. Knowledge and management are about culture. Part of understanding why knowledge cannot be readily "picked up and used" by other agencies has to do with the nature of indigenous knowledge not as a static, one size fits all rulebook or recipe book for actions on the landscape, but rather how that knowledge is generated through an ongoing process that involves not only observations and actions over time, but moral and spiritual components as well as 'social license' of knowledge practitioners. Thus, traditional knowledge is fundamentally part of management, and management is centrally about Karuk culture, identity, spirituality and mental and physical health." (Norgaard 2014a p 3)

The Karuk Traditional Ecological Knowledge and the Need for Sovereignty report (cited above) includes recommendations about how to appropriately engage with the Karuk Tribe and Karuk traditional ecological knowledge in collaborative land management.[14] As mentioned in the excerpt above, the report discusses ways that non-Native partners have tried to appropriate Karuk traditional ecological knowledges and apply them in other settings. Importantly, the report situates this appropriation in the larger context of settler colonialism and genocide.

[14] See Karuk Knowledge Sovereignty Report (Norgaard, 2014a).

> "It has been said that if one looks at the arc of colonialism in North America,colonial power in the 1700 and 1800s was mobilized through the direct taking of lives and land from Native people, during the 1800s and 1900s colonialism operated through the usurpation of minerals and lands, and for the most recent fifty to one hundred years colonialism has operated via the *extraction of Native knowledge*. While the connection between knowledge extraction and genocide is very real, the extraction of knowledge and ideas from Tribal communities looks very different than other forms of 'taking' or 'harm.' This fact has created great confusion on behalf of non-Native agency members and research scientists concerning the seriousness of the situation. Unlike the "taking" of life, land and mineral wealth, in most cases knowledge is taken by 'well meaning' people who are trying to 'do the right thing' " (Norgaard 2014b, p. 16, emphasis added).

These *well-meaning people who are trying to do the right thing* are embedded in a larger system of settler colonialism. While the Forest Service, non-profit organizations, and non-Native individuals are increasingly interested in Karuk science and management, they are often carrying unexamined, unconscious belief systems that are intertwined with settler logics, such as white supremacy, heteropatriarchy, terra nullius, a human-nature hierarchy and separation (Bacon, 2018). As Indigenous feminist scholars explain, "Settler colonial logics and processes attempt to eradicate Indigenous values and presence. We argue that in doing so, those logics render both the environment and people, particularly Indigenous women, as lacking in spirit, as less than human, and as valueless and inherently rapable" (Jacob 2021, p. 1). Settler colonial logics render Indigenous sciences and management *as inferior, yet also as something that can be extracted for the benefit of settlers.*

Settler traditions of discrediting, downplaying, erasing, and appropriating

The legacy of settlers appropriating, as well as discrediting Karuk management and cultural knowledge bearers runs deep. Vinyeta (2021) demonstrates how throughout the 20th century the USFS claimed they were using *best available science* to make their forest management decisions, and yet they were ignoring Indigenous fire management and a growing number of non-Native people recognizing the value of fire on the landscape. She describes how

the USFS "discredited, downplayed, and erased Indigenous peoples and knowledges in ways that invoke tropes of the 'Indian savage,' the 'Vanishing Indian,' and the concept of 'Terra Nullius.'" (p 1). Vinyeta's work is powerful in demonstrating ways that settler logics motivate land management decisions, and not necessarily the *best available* science as they may claim. This chapter will build off of Vinyeta's analysis of *discrediting, downplaying, and erasing* and continue the work of uncovering underlying settler colonial logics in collaborative ecological restoration, specifically regarding the disrespectful, racist, and appropriative treatment of Indigenous science and management and cultural knowledge bearers.

Discredited: The profound disrespect of cultural knowledge bearers in settler ecologies

In her work tracing the legacy of fire suppression in the United States Forest Service, Vinyeta describes how the USFS employed racist tropes about Indigenous peoples and framed them as inferior and unreliable sources of knowledge (Vinyeta, 2021). This section is based on my conversation with a Karuk practitioner about racism she experienced working with the USFS and other land management partners, as well as ways that Karuk science and management was discredited.

In the previous chapter we heard about how cultural knowledge bearers and the transference of knowledge through generations are an integral part of ecocultural restoration, and the interconnected well-being of Karuk people and the landscape. In the excerpt below Kathy McCovey shares how her knowledge about the landscape comes from Western and Indigenous sciences and management:

> *"I've spent 40 years working for the Forest Service. I was born and raised in Happy Camp California. My great grandfather was a forester, my grandfather was a forester, my uncle was a forester, and I'm a forester. Happy Camp California is a small timber town. I grew up with the smell of those burners, and the smell of logging trucks carrying fresh cut timber from the forest to the mill, which is not very far, it's about a mile and a half from where I live. And we'd wake up in the morning and it would just be smoke filled*

Happy Camp with the smell of the teepee burners. And I'm a gatherer. I've always gathered. My earliest memories are being with my grandmother sitting at the top of Ishi Pishi falls, there's a wood bench that was built around a white oak tree, and all the women and children would watch our men dipnet down at the falls, that was our food. My grandfather hunted, and fished, and gathered in the forest, as did my grandmother. And I was raised by my grandmother and grandfather. And so, my weekends were filled with trips out in the forest to gather hazelnuts, pinenuts, we used to shoot the pinecones out of the trees, and take the pinenuts, the sugar pinenuts back to the garage and lay them out and let them dry. When they dried the bracts would fall open. So, we used to eat the pinenuts. My world is, being out in the forest and in the mountains. I was taught by my grandparents how to survive. And my people how to survive in the forest by utilizing the forest and its resources. But I also have another side of me which is a scientist. And I've been trained a lot in, I've gone to school for almost 10-15 years, so there are different parts of my personality and my mindset that allows me to look at things and think about them a little differently than your average forester." – Kathy McCovey

Along with her ecocultural knowledge, Kathy started her decades-long career of working for the Forest Service at the age of 17, where she worked in silviculture, fire, engineering, and archeology. She studied forestry in college and got a degree in Archeology and Anthropology. She now works for the Karuk Tribe on Climate Change assessments, and other projects such as a Forest, Fire, and Cultural Consultant for the North Coast Resources Partnership/California Indian Environmental Alliance.

Others I interviewed spoke to how much they've learned from working with Kathy, and described her as *a wealth of knowledge,* and *really cool.* Despite being a well-respected cultural knowledge bearer with a breadth of experience and education in land management, Kathy shared experiences of Karuk traditional ecological knowledges being discredited, as well as numerous instances of racism and sexism towards her.

"*You know one time, this is how bad it is, one time I was at a Forest Service meeting. It was here in Happy Camp. I'm the archeologist. And, in Six Rivers National Forest which is right next door, the archeologist pays attention to cultural resources, but also cultural use plants and stuff. So, we're at this meeting, they're talking about this project, and all I said was, "I think it is a good project, I think manipulating the vegetation to provide resources for the Native people and the community is a good thing." The ID (interdisciplinary team) team leader looked at me and asked me, 'isn't it a conflict of interest for you to be here?' That's how they treat us Indians…. So, I think, you know I*

see the ranger walking by while we're having this meeting, I think, oh, ok the ranger, I'll call him, he'll settle this. He'll tell them why I'm here. I said hey, Ken, could you come here. He looks in the door, and I said, could you tell the people what an archeologist does? He stood there, and he looked in the room for about a minute or two, then he said no, no I can't. I really don't know.' And he walked away. I just shook my head…. I put my head down and I just shook it. Yeah. That happened over at the Happy Camp ranger district to me in 2012." – Kathy McCovey

Kathy describes how the leader of an interdisciplinary team questioned whether or not she should be at the meeting because she is Native and is considering how the project will impact cultural use species, which is in fact part of the Forest Service's legal responsibility to care for resources of tribal interest. Furthermore, when asking her superior to explain to the group how her role as an archeologist is to do just that, he doesn't, enabling the poor treatment against her, gaslighting her, and further alienating her from her coworkers. Along with the disrespect Kathy experienced, an implication of this encounter is that Kathy's coworkers are saying that Native people shouldn't be able to have a say about how cultural resources are managed on their homelands.

She also described how she heard Forest Service staff make numerous racist comments about Native people.

"So that will tell you how those people think about us. And you know the sad part is, is when I was working for them, all I could ever hear them say was bad things about the Native people. Bad things, you know, oh they can't even stack a pile of brush. You know, just consistently looking at us as the other"- Kathy McCovey

Kathy shared another story about being mistreated and disregarded by the Forest Service. Based in her cultural knowledge, as well as her forestry training, she drafted recommendations that were not just focused on how many millions of board feet could be extracted from the forest, but were also considerate of overall forest health and diversity.

"At that time when the Forest Service decided to do a timber harvest, they would rotate to different departments every 10 years. Then a letter would come from congress and the Forest Service to the district and say, next year we want you to pull a couple million

board feet, this is what your target is for this sale year. So, they would go out to these compartments and try to hit that target. Well, the target that I went out to, you could hit the target, but I felt that it would have been ecologically devastating for that area. So, I went out there a few times and I just sat there and looked, and I thought, and I thought. This was in 1989, 1990, and I was doing my plots, and I kinda started putting together what my vision for what that compartment could be in getting timber, but also looking at the ecological state of that compartment, that had been so heavily logged already. It was ¾ plantations. So, I started talking about thinning the plantations and saving the hardwoods and cutting out some of these younger trees that were growing up and killing out the madrone and tanoak, these other species, over shading our oak woodlands and grasslands. We were losing those. So, I came back in and I started putting out some of my ideas to the ID team, which is, a group that we get together, the Forest Service people, and there's a specialist in each of the disciplines, there's a botanist, a biologist, an archeologist, a forester, NEPA, etc. And when they started hearing what I was saying about how we could go in and manage the area, but improve it, they started telling me that I wasn't focused. They started telling me that I wasn't doing the job that I was hired to do and that I needed to step down. Those foresters drug me through the dirt. They said I didn't know what I was doing. And, it got really bad. It hurt me. It hurt me deeply. And it was kind of a mind game too, I felt.

-Kathy McCovey

Fortunately, in her case, Kathy McCovey was able to find an ally in another Tribal forester.

"And so, what I did was I happened to run into a Hoopa Tribal forester, his name was, Wilkinson, and I told him what was happening to me. They were treating me really bad. There was a lot of prejudice against me and what I was saying. And so, I was talking to the Hoopa tribal forester about it, and he said, hey why don't you come over to Hoopa, spend a month over here and work with me. And so, he wrote to the Orleans district ranger John Larson and asked him if I could get a detail to Hoopa for a couple months. And so, I did. And he and I went out, we worked together. By the end of the detail Wilkinson sent a letter back to the Orleans ranger district and said that Kathy McCovey is on top of what is going on. Her prescriptions, they're viable, she is thinking about where we are going in the future. .... That made me feel better."

- Kathy McCovey

Thinking about the overall diversity of the landscape, and the importance of hardwoods, Kathy made recommendations to thin the dense Douglas fir plantations to support the restoration of tree diversity on the landscape. While these prescriptions are what the Forest Service is focusing on *today*, they were rudely dismissed at the time, and Kathy was asked to step down. She shares how people *drug her through the dirt and hurt her deeply.* She was able to spend

some time with Hoopa Tribal foresters and be at another National Forest on a detail, where her forward-looking ideas about forest management were affirmed. Kathy explains how the racism and sexism that she experienced are part of the larger patriarchal, white supremacist systems that are part of settler colonialism.

> *"Those people were trying to make me feel like I was crazy. And that's what they do. When I took classes later, I took some more classes, and one of them I took, was basically Native Americans. And in that class, we learned that it is one of those things that people will do to you, that this society, this white patriarchal society will do to a Native woman. Will try to make them think they are crazy. I mean this goes really, really deep what they did to me."- Kathy McCovey*

The Forest Service's treatment of Kathy, as well the landscape, is another example of the socioecological nature of the violence of settler colonial logics is intertwined with heteropatriarchy, particularly in the ways that they devalue Indigenous life and land, and in particular, Indigenous women (Jacob, 2016; Baldy 2018).

> *"Do you realize, I have to say this, right now the Karuk Tribe is in the Red Cap area where I had the Stride timber sale, they are marking, in 2020, they are marking the same prescriptions that I developed in 1989 and was called crazy for. Yeah, they wanted me to step down."- Kathy McCovey*

Imagine if those at that Klamath National Forest Service meeting would have listened to Kathy over 30 years ago, and started implementing the forest-scale landscape restoration prescriptions that they are embarking on today? How would the landscape be different today? By discounting Kathy's recommendations (which came from Karuk ecological knowledge deeply grounded in place, as well as her years of Western science training) decisions were made to continue an extraction-based form of land management. The way Kathy was treated, and the decision to not even consider her prescriptions for the landscape is an example of how settler ecologies based in racism, patriarchy, and resource extraction are *inscribed onto the landscape.* The landscape continued to be managed in a way that focused on extracting as much timber as

possible, instead of the overall ecological integrity of the forest, as Kathy had recommended. When Indigenous cultural knowledge bearers, and entire knowledge systems, are disregarded and disrespected, violence is inflicted on people and the environment. This is another example of how settler logics motivating land management decisions impact the inseparable well-being of Karuk people and all beings that live on the landscape.

Furthermore, imagine scaling up the impacts of what happened to Kathy. What if this disrespect and disregard of cultural knowledge bearers is happening at decision making tables all over the world? What if the only speakers, and the only narratives that are taken seriously are those of white settlers? What teachings about the environment will be passed forward into the future, and what teachings will be at risk of being lost? This disrespect of cultural knowledge bearers threatens the passage of knowledge forward to future generations. In this way we see how racism and disrespect towards cultural knowledge bearers act as a mechanism of forced assimilation and attempted erasure, a profoundly violent and genocidal aspect of settler colonialism.

Recall from the earlier in this chapter how cultural knowledge bearers are an integral part of ecocultural landscapes, and that supporting cultural knowledge bearers is a key element of ecocultural revitalization. Discrediting and devaluing cultural knowledge bearers, which is rooted in patriarchy and white supremacy, threatens not only Karuk ecocultural restoration, but also the ecocultural landscapes that all beings rely on. In this way, we see how a disrespect and disregard of cultural knowledge bearers, along with the perpetuation of land management based in extractive settler ecologies, ultimately harms everyone.

Discrediting and appropriation of Karuk Traditional Ecological Knowledge and sciences

> *"It is like people envision this tiering system and science is here, and TEK is here…Because if you are talking about science, what we do is also science. TEK is science...So, we have to be clear when we talk about science to make sure if we are talking about western science or if we are talking about our science. So, I don't mind the term TEK, so long as it's not lost on people that TEK is also science. I don't know if there's a better way to say it, people can say, I don't know, Indigenous science, Native science, whatever, but I think it is fair and important that people see it is science. And it's all about that kind of cultural construction, and that is so important. Because it is lost on so many people that the way they think, every day, is a cultural construction. Of how they look at the world is also a product of the culture that they come from. – Leaf Hillman*

This excerpt from my conversation with Leaf Hillman describes how people position Karuk traditional ecological knowledge and science as *less than* western science. He also speaks to how Indigenous traditional ecological knowledges are not viewed as a form of science, when in fact, they are. Dr. Gregory Cajete, author of the book *Native Science* (2000) offers a definition of Indigenous sciences and traditional ecological knowledges:

> "A working definition of 'Indigenous science' is 'that body of traditional environmental and cultural knowledge unique to a group of people which has served to sustain that people through generations of living within a distinct bioregion'. All of this is founded on a body of practical environmental knowledge which is learned and transferred through generations of a people through a form of environmental and cultural education unique to them. Indigenous science is really Indigenous knowledge and may also be termed 'traditional ecological knowledge' (TEK) since a large proportion of this knowledge served to sustain Indigenous communities and ensure their survivability within in the environmental contexts in which Indigenous communities were situated," (Cajete, 2020, p. 2).

The devaluing of Indigenous sciences that Leaf and others spoke about threatens the possibilities of equitable collaborations that draw upon multiple knowledge systems to solve collective socioecological problems that impact all people (Bang et al 2018). As Leaf described above, authors in Bang et al (2018) write about the resistance of some Western, Euro-centric scientific communities to recognize multicultural sciences, such as Indigenous sciences, and instead argue that there is "*one science".* They contend that the resistance to engaging with

multiple sciences (or a heterogeneity of sciences) is wrapped up in Western, Eurocentric ideas of superiority:

> "Resistance to expanding the possibilities of sciences is often driven by the assumption that one "true" science emerged from the history of Western civilization and that Western ways of knowing are therefore inherently superior. (However, even much of what is popularly imagined to be "Western" originated in China or in the Middle East.) Non-Western peoples, as the subjects of Western conquest and colonialism, are even today inevitably read as less able to observe, deduce, hypothesize, experiment, and make sense of their worlds than their European or European American counterparts" (Bang et al., 2018, p. 150).

Since the invasion of Karuk homelands by Euro-Americans and the creation of the US Forest Service, there has been a long legacy of settlers with white supremacist ideologies discrediting Karuk traditional ecological knowledges and sciences (Vinyeta, 2021). The people I spoke with shared how the discrediting of Indigenous knowledge continues today in collaborative ecological restoration settings from non-Native partners. While the racism may not be as overt as it was in the past, it is certainly still present, often from people who identify as progressive environmentalists. Several people I spoke with shared how comments made in the Somes Bar Project Environmental Assessment by environmental organizations called into question the use of Karuk traditional ecological knowledge as a best available science to guide the restoration of fire to the landscape. Below are two examples of such comments:

> *"How is the use of TEK focal species, unprecedented until now, to be validated with this project?"* – (USDA Forest Service PSW Region, 2018, p. 387)

> *"The EA largely relies upon mitigation devices rather than scientifically sound habitat plans in its analyses for sensitive, survey & manage, management indicator, and TEK Focal species. Little or no science is apparently being relied upon for these species—how can the FS claim to use best available science? For all the concern for Pacific giant salamanders stated in the EA, it fails to cite any scientific source for its biology."* (USDA Forest Service PSW Region, 2018, p. 405)

The comments above suggest that TEK needs to be validated by Western science, and that TEK is not considered a best available science. Chook-Chook Hillman speaks to this tendency of non-Native partners to want to use Western science to validate traditional ecological knowledge:

> *"But to me I don't want to use Western science as the thing that gives TEK any credibility. It needs to be on it's own and it is science. And that's the difference. It may be a semantic, in my mind it's not, but a lot of people can view it that way. But I just want it to stand alone. It is TEK. And that's what it is. It is stand alone. And it doesn't need to be gobbled. Or certified. Or whatever. They can be mutually exclusive in my mind."- Chook-Chook Hillman*

Chook-Chook describes how TEK is its own science that doesn't need to be validated by Western science, and indeed, Indigenous and Western sciences can exist in complimentary ways to address complex socioecological problems . As authors in Johnson et al (2016) describe, it is important to consider how to form *bridges* between Indigenous and Western Sciences, and not to try and *synthesize, combine, or integrate* Indigenous knowledge into Western knowledge. As Chook-Chook alludes to, Indigenous and Western sciences can be mutually exclusive, stand-alone systems of knowledge with their own valuable contributions, without one needing to validate or gobble up the other. This clear respect for Indigenous knowledge is important, because as Lisa Morehead-Hillman describes, even if TEK is taken seriously by non-Native partners, it is often only when it serves their best interests or agendas:

> "*And then the people publishing are almost always you know, non-Indigenous people, (who do not) have anything to do with that place or that area that is supposed to be ecologically restored….this kind of racial inequality is supported by just the idea that western science is super important, and, so even though traditional knowledge and traditional ecological knowledge is gaining more attention, it's still put in this, like, 'well, we're doing western science and we're also going to include your TEK, but really we're doing 'real science'' And I've heard that term 'real science' I can't tell you how many times. And so, you know, what is it that they're doing? They're wanting to hear what this traditional knowledge is, take it out of context again, and then apply it to whatever their Western principles are."- Lisa Morehead-Hillman*

The comment above from Lisa Morehead-Hillman also highlights how this discrediting and appropriation of TEK can happen from non-Native people who are not connected to Karuk homelands. As seen in the EA comments above from environmental organizations, this discrediting of Karuk fire practices and traditional ecological knowledge is an example of how non-Native people from afar are able to wield influence about what happens on Karuk homelands. This assertion of the superiority of Western science and discrediting of Karuk traditional ecological knowledge is bound up with ideas of who should have control of land and what happens on it, a key preoccupation of settler colonialism.

The next section will unpack how settler colonial logics of erasure, as well as white supremacy, are used to discredit Karuk traditional ecological knowledges and pose a direct affront to Karuk ecocultural revitalization efforts.

Erasure

Below is another comment from the same environmental organization quoted above, calling into question Karuk cultural burning practices in general, and in the Somes Bar project:

> **"***Even if we were to accept a premise that traditional cultural burning practices were somehow consistent with natural processes, this still doesn't address how 21st century tribally controlled burning practices in the context of the overall dominant American cultural/economic system will contrast with the traditional cultural burning practices before the arrival of the white man. This is reflected, for example, in the stated need to perpetually maintain ridge top fuel breaks and safe egress routes along roads and the use of aerial fire retardants, which are certainly not traditional cultural adaptations to fire. The project does not genuinely represent 'restoration of the landscape to its ancestral state*," (USDA Forest Service PSW Region, 2018, p. 366).

There are many racist and colonial undertones in the comment above. First, the commentor begins with "*even if we were to accept* that traditional burning practices were *somehow consistent with* natural burning practices," implying doubt about the role of cultural burning practices on the landscape throughout history. This comment is reminiscent of the tactics

described in Vinyeta's (2021) work about how the USFS downplayed Indigenous burning practices by invoking the *'vanishing Indian narrative'* and "underestimating the quantity, scale, and impact of Indigenous burning, as well as the role of Indigenous peoples in future land management," (p. 8).

Next, the commentor says that the EA doesn't address the difference between *present day* tribally controlled burning practices and burning practices *before colonization,* or, as they say *before the arrival of the white man*. Why is this commentor concerned with differences between past and present tribally controlled burning practices? Underlying this comment is common racist trope that Native people are frozen in the past, and that the contemporary practices of Native people, adapted to the contemporary world, are considered by white people as *inauthentic*. This trope is seen again when the commentor says that ridge top fuel breaks, safe egress routes, and the use of aerial fire retardant are not *traditional cultural adaptations to fire.*

Does the commentor expect Native people not to adapt to the current conditions of a fire deficit forest and climate change? Are they implying that employing these safety measures would make the restoration of cultural burning practices *inauthentic?* Who are white people to say what is an Indigenous practice and what is not? What does this assumption of authority about who or what is, and who or what isn't *authentic* imply? It implies that those making these assumptions believe they have the authority to define Indigeneity, which is a violent and assimilative mechanism of settler colonialism. Saying that current tribal burning practices are ingenuine, or unauthentic, is akin to saying that Native people are fully assimilated, and that their practices aren't Indigenous anymore, and that the settler colonial project of dispossession is complete.

These statements are tied into larger settler colonial logics of erasure, and when wielded by those influencing land management decisions have real impacts on Indigenous sovereignty as they restrict or outlaw cultural practices. These affronts aren't uncommon between environmental organizations and Indigenous communities (Gilio-Whitaker, 2019). A powerful example is the conflict over the revitalization of Makah whale hunting. Anti-whaling activists succeeded in a court case outlawing Makah whaling practices in 2000, a profound attack on an integral part of Makah culture, and rights and sovereignty. Studying the rhetoric of anti-whaling activists, Alx Dark (1999) found five racist and colonial themes employed by anti-whaling activities. Three of those themes are evident in the EA comment listed above:

- The pitting of "traditional" values against "assimilationist" Tribal values;
- Implications that non-Natives know better what constitutes "authentic" Indian culture;
- That the Tribe's use of technology demonstrates their assimilation, thereby making whaling culturally unnecessary; (in Cantzler, 2007, p. 494).

As seen in the EA comments and the Makah whaling conflict, this racist, colonial rhetoric influences land management decisions and is an attack on Indigenous sovereignty. This rhetoric is furthering the settler colonial project of erasure and forced assimilation.

Many of the people I spoke with shared stories about settler colonial logics and the treatment of Indigenous sciences by non-Native people. Dr. Frank Lake described his professional experiences with settler colonial logics of terra nullius and Indigenous erasure :

> "*A lot of it has been from euro-American, colonial settler, western academic bias of the wilderness narrative that Native people haven't had much of an experience on the landscapes, it was 'natural' (i.e., human-less). And so that kind of colonial settler bias of Indigenous erasure, that led to what was the productive composition and structure and ecology of the forest that were perceived as 'natural'. That's a challenge, particularly when you're like, oh here's an Indigenous perspective on this, (and they say) 'oh I didn't learn that in academic school, I'm a PhD scientist, I don't know that, that's anecdotal', or, 'that's ya know, not relevant, that's just stories.' And it's like, well, why be dismissive of a whole other culture and knowledge, especially one that's forest or fire dependent, that relates to the very processes, ecological processes, but reframe it as the socioecological process that created it over millennia? And, if you're studying that as your reference condition or as a baseline,*

> *then particularly where it's an Indigenous legacy, Indigenous people should be present at the table today as informing that approach… Ya know, its acknowledging the colonial bias, calling out it, dispelling that myth….And then have to say, well, where can I incorporate or integrate Indigenous knowledge or Traditional Ecological knowledge to create that best available science that then would guide restoration as a management practice and effect policy that would facilitate tribal sovereignty and inclusion as the cooperators and the direct beneficiaries of that effort." -Dr. Frank Lake* (parenthetical note for context added)

Dr. Lake speaks to the importance of respecting and ethically integrating Indigenous sciences, along with Western science, to create better informed restoration and management practices that are based in a heterogeneity of sciences and approaches (Bang et al 2018). Furthermore, he speaks to the importance of having Indigenous people at the table as informing that approach, and that restoration efforts should facilitate tribal sovereignty through the revitalization of the socioecological process of Indigenous fire stewardship.

Like the comment in the Environmental Assessment questioning the role of Indigenous fire practices, Dr. Lake shared how ecologists in his field will describe landscapes as *natural,* with an underlying assumption that Indigenous management had no impact on the landscape. He links this to the terra nullius, people-less wilderness narratives of Euro-American colonists, and the way that these narratives lead to an erasure of Indigenous ecocultural management on the landscape. Similarly, Vinyeta (2021) describes how this *minimization* of Indigenous management was a common tactic of the Forest Service:

> "A third tactic was to minimally mention or outright exclude Indigenous peoples from agency discourse, even in landscapes with contemporary Indigenous presence and in which Indigenous burning heavily influenced the distribution of flora and fauna. This narrative relies on the assumption that North America was a pristine wilderness devoid of human influence prior to Euro-American occupation, effectively erasing the role of Indigenous peoples in shaping ecosystems," (p, 9).

All of the comments questioning Karuk TEK and role the landscape were from the same environmental organization. I was curious whether this organization was also perpetuating this minimizing and erasure narrative. I looked at their website to see if they spoke about the many

Indigenous communities whose homeland's they are working in.[15] Looking at their website, they did not mention Indigenous stewardship practices at all, not even on their page about fire and fire suppression. When speaking about the Six Rivers National Forest (which comprises the stolen homelands of Karuk and neighboring tribes) the website didn't mention any Native nations. The only mention of Indigenous peoples was in another national forest, and notably was in the past tense:

> "*Thousands of years before pioneer explorers from the eastern United States entered the area, it was ancestral homeland to five Native Nations (the Yuki, Nomlaki Wintu, Patwin Wintu, Eastern Pomo, and Northeastern Pomo peoples) who lived in harmony with the four-legged, two-leggeds and wingeds*." – Conservation Congress California

According to this organization's website, these lands were homelands to Native people *thousands of years ago*, implying that they are not anymore. One doesn't have to look very far to see settler colonial narratives of terra nullius and erasure. These narratives have real world implications. They are embedded in the larger structure of settler colonialism, and as such are tied to people with power. Bill Tripp explains how these organizations that have underlying beliefs based in human-nature separation and terra nullius have the power to possibly shut down their ecocultural revitalization efforts:

> *"There's still some risk of folks coming together to try and shut this whole process down. Even the folks that are wanting to preserve nature, they've got their belief system founded in a western science thought process that humans are separate from nature. And that is one thing that we need to change"- Bill Tripp*

In a follow-up conversation with Bill Tripp, he describes how the Endangered Species Act and Wilderness designations, while certainly well-intentioned, are emblematic of actions rooted in these belief systems. These settler belief systems and legislation don't recognize that Indigenous

[15] https://www.conservationcongress-ca.org/

peoples and ecocultural management practices are *natural to place*, and as such can act as barriers to ecocultural revitalization.

> *"To get a species listed the United States Fish and Wildlife Service has to consider the species in the context of an 'evolutionary significant unit.' But agencies, environmental groups and conservation entities don't recognize that Indigenous knowledge, practice and belief systems co-evolved with the species being considered. In all reality the fact that our practices have been largely extirpated from the environment is an anthropogenic impact that has contributed to the decline of said species. In that sense, continued suppression of indigenous practices could and should be determined to constitute a "take" determination, instead of the opposite which is currently the case." – Bill Tripp*

Indigenous management is an integral part of the socioecological well-being of the landscape, and settler conservation actions like the ESA and Wilderness designations don't recognize that. Furthermore, the ongoing suppression of Indigenous land management practices is not recognized as an anthropogenic impact further degrading the landscape. This is an example of how when settler colonialism is obscured and unacknowledged, the negative socioecological impacts of settler ecologies are not addressed, and settler ecologies continued to be inscribed on the landscape. In order to consider the larger picture of how to restore a landscape, these underlying settler logics must be addressed, otherwise they will continue to ignore and suppress Indigenous management and continue to be persistent degrading factors on the landscape.

As in the previous chapters about genocide forests and museum restoration, we see yet another example of settler ecologies imposing themselves on the landscape, motivated by underlying beliefs in human-nature separation, terra-nullius, white supremacy, and a possessive investment in whiteness. Settler ecologies, like all ecologies, are not simplistic one-way cause and effect relationships. They are dynamic, interrelated relationships and cause and effect reactions. The belief systems and the structures they create work together to support the flourishing of settler societies and show up in many diverse settings related to land management - from the internalized, to the interpersonal, to the institutional, to the discursive.

In the examples we have heard about thus far, when settler ecologies motivate land management actions, they disrupt Karuk ecologies and Karuk ecocultural revitalization efforts, and act as violent, colonizing forces on Karuk people and homelands. This is why it matters to uncover and resist settler logics in ecological restoration. Otherwise, a process that is meant to heal and restore, full of well-intentioned people, may in fact be inflicting colonial ecological violence, and furthering land management actions that are missing Indigenous sciences, and as a result end up further degrading the environment that all beings rely on.

The final chapter will summarize key themes from these chapters and suggest pathways forward for how collaborative ecological restoration can resist settler colonial logics and support Indigenous ecocultural revitalization.

V. PATHWAYS FORWARD

In a follow-up conversation with Chook-Chook Hillman about the importance of calling out settler logics he reflected on his experiences working with non-Native people and specifically with settlers wishing to be better allies. He shared his observations of how sometimes when white settlers begin to learn about the ongoing violence of settler colonialism, they get mired in guilt and shame, to the point that they get stuck and stop showing up, limiting the possibilities for greater collective action. He spoke about the importance of offering those people *pathways forward,* in terms of actions they can take and ways that they can contribute.

In that conversation with Chook-Chook I was reminded of some of the Indigenous feminisms teachings I had learned, and how they helped me, a white settler, work through my own feelings and move towards a place where I saw that I too had a role to play in standing up to destructive settler logics and supporting Indigenous-led pathways forward. Along with what Karuk practitioners shared about pathways forward for supporting ecocultural revitalization, I will share some of my personal reflections about what I've learned, with hope that it also offers pathways forward for settlers wishing to heal the harms of settler colonialism.

Cycles of healing and cycles of destruction

In her book, *Indian Pilgrims,*(2016) Yakama scholar Dr. Michelle Jacob articulates *Cycles of Healing and Cycles of Destruction.* She describes how *Cycles of Destruction* are fueled by "colonial logics of Indigenous inferiority (that) are used to justify the dispossession of Indigenous homelands and the eradication of Indigenous culture and languages" (p. 7). *Cycles of Healing* are introduced through the honoring of Saint Kateri Tekakwitha by Native and non-Native Catholics, and how Saint Kateri "inspires her devotees to acknowledge the wisdom of Indigenous cultural teachings and reaffirm the importance of Native women as sacred beings"(p.

9). Jacob explains how "The Cycle of Healing does not derive its power from the Catholic Church's decision to canonize Saint Kateri, rather, the Cycle of Healing is powerful because Indigenous peoples lead the cycle by drawing from their own cultural traditions to heal the wounds of colonialism," (p 9). Throughout the book are many examples of Cycles of Healing in action, demonstrating how everyone has something valuable they can offer to support Cycles of Healing and resist the violence of Cycles of Destruction.

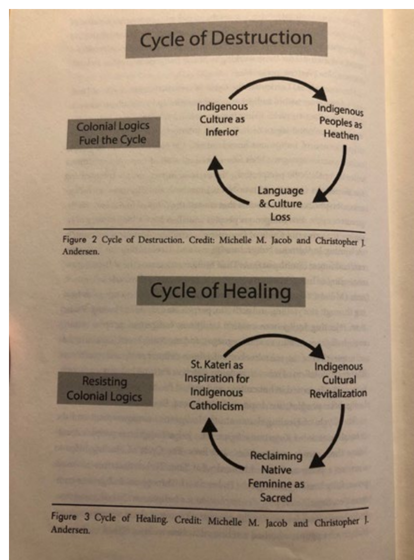


Image from Indian Pilgrims, (Jacob, 2016, p. 7)

During the writing of this thesis I thought a lot about how ecological restoration could be understood through Cycles of Healing and Cycles of Destruction. Ecological restoration endeavors have *good intentions* to care for the earth, and yet as we have seen in examples from this thesis, they are often embedded in *settler ecologies*, and therefore fueled by settler logics. Jacob describes how Cycles of Destruction can be cloaked in good intentions: "Often framed as a mission of benevolence (from a colonizing Catholic perspective) the cycle is, in fact, deeply traumatizing for all peoples (Native and non-Native) involved, dismissive of Indigenous perspectives and accounts that contest the colonial logics and the destructive cycles," (p. 7). Collaborative ecological restoration efforts often involve government land management agencies

that like the Catholic church, have been deeply involved in colonizing efforts and have inflicted unspeakable violence and destruction against Indigenous peoples and the environment.

The diagram of Cycles and Healing and Cycles of Destruction shown above resonated when thinking about *Indigenous and Settler ecologies* (Whyte et al., 2019). *Settler ecologies imposing themselves on the landscape* are perpetuating *Cycles of Destruction*, in that they rely on settler logics and devalue Indigenous lives and land, and that they result in colonial ecological violence towards Indigenous peoples, cultures, and homelands. This is how a process like ecological restoration, that has seemingly benevolent intentions but is motivated by settler logics is actually perpetuating Cycles of Destruction. As Jacob describes, these settler colonial logics, which create gendered violence, racism, and environmental destruction ultimately harm everyone (pp. 153-154). The Cycle of Destruction that is based on settler colonial logics of domination is destroying the earth that all beings rely on. It follows then that resistance to these Cycles of Destruction, as well as guidance for pathways forward, are not going to be found within Cycles of Destruction. This is yet another reminder of the limitations of Western frameworks to address injustices that are largely caused by belief systems and structures founded in those very same frameworks of domination (Jacob et al., 2021).

Indian Pilgrims shows many examples of how everyone can play a part in resisting Cycles of Destruction and enter into Cycles of Healing: From Native Catholics affirming their own cultural traditions through their honoring of Saint Kateri, to non-Native Catholics honoring Indigenous teachings, to non-Native students learning about Indigenous environmental movements and being inspired to take action in their own communities (Jacob 2016).

Authors of the article *Indigenous Cultural Values Counter the Damages of White Settler Colonialism* offer a pathway forward that I understood as being related to resisting Cycles of Destruction, and entering into Cycles of Healing:

> "We invite environmental sociologists, activists, and those working for justice in health, legal, education, and related academic spaces to engage Indigenous cultural values in efforts to challenge the exclusionary white spaces and counter the settler colonial violence that plagues all peoples. Doing so will allow for healing humans' relationships with the environment, our more than human relations, and with each other" (Jacob et al 2021, pp. 9-10).

Hopefully throughout this thesis you have seen that there are *many* opportunities to challenge exclusionary white spaces and destructive settler logics in land management and ecological restoration. I also hope that you were able to listen to what Karuk practitioners shared about *what it means to restore a landscape harmed by settler colonialism.* I hope that you see how there are many opportunities to engage in Cycles of Healing in collaborative ecological restoration.

It is not appropriate for me to talk about the meanings and experiences of Cycles of Healing for Native people in collaborative ecological restoration. I can only speak about what engaging in Cycles of Healing means for me, as well as offer some of what I've learned, in hope that it will be useful for other settlers people wishing to support Indigenous-led ecocultural revitalization. In the remainder of this section I will share what I've learned through listening to Karuk practitioners about how to support Karuk-led ecocultural revitalization efforts, to enter into Cycles of Healing, and to resist Cycles of Destruction.

Relationships, not models

One of the lessons that I learned from Leaf Hillman, is that many people come to see what the Karuk Tribe is doing with collaborative land management and want to understand it as a model

that can be picked up and replicated elsewhere. Leaf reminded me that successful efforts are deeply place-based and rely on the relationships and trust that have been formed over time. The Karuk Knowledge Sovereignty Report speaks to the importance of relationships in bridging cross-cultural differences and working for shared solutions around shared goals.

> "In the face of profound cross-cultural differences in communication, values and worldview it is interpersonal relationships and rapport if anything, that can bridge understanding and facilitate intergovernmental collaboration. Relationships can allow for a willingness on both sides to "go the extra mile" to find solutions. Good cross-entity working relationships matter for achieving successful on-the-ground projects" (Norgaard 2014 P 43, pt. 2).

Non-Native partners should learn and respect the protocols put forth by the Indigenous communities they are working with, such as *Practicing Pikyav* that was introduced in the methodologies section. There are many resources offered by Native people to non-Native people about how to have more respectful collaborations. Below I've included just one example, that is also included in the Karuk Traditional Ecological Knowledge and the Need for Knowledge Sovereignty Report:

- ***Listen and pay attention***
- ***Respect cultural and local knowledge***
- ***Leave pre-conceived research assumptions behind: Have an open heart and mind***
- ***Have personal integrity: Establish trust, be authentic, act with humility***
- ***Have shared goals: Embracing community-driven research in a Tribal context***
- ***Tribes are diverse: Learn about the tribes you are working with***
- ***Plan for sustainability and provide community benefit***

NCAI Policy Research Center and MSU Center for Native Health Partnerships. (2012). 'Walk softly and listen carefully: Building research relationships with Tribal communities Washington, DC, and Bozeman, MT: Authors. P. 16

(from Norgaard 2014b, p 43).

Extractive relationships perpetuate settler traditions of theft, whereas relationship building based in consent, respect, humility, generosity, and listening works towards healing cross-cultural relationships.

Ethical collaborations

Ethical collaborations are those that explicitly recognize the importance of respecting Indigenous knowledge sovereignty and leadership and are attuned to avoiding replication of colonial power imbalances that privilege Western science and leadership as the ultimate decision maker and epistemology. Instead of *integrating* Indigenous sciences into a dominant Western framework, *bridges* are created between the two that respectful and consensual (Johnson et al., 2016; Long, Lake, Goode, & Burnette, 2020).

In this thesis we heard about research collaboratives that include Indigenous and Western sciences, and that were formed to learn with and support Karuk, Hoopa, and Yurok basket weavers (Marks-Block et al., 2021) Another example from the Klamath region is Colleen Rossier's collaborative dissertation work with the Karuk Tribe's Department of Natural Resources and Hupa and Yurok collaborators. The dissertation is titled: *Forests, Fire, and Food: Integrating Indigenous and Western Sciences to Revitalize Evergreen Huckleberries (Vaccinium ovatum) and Enhance Socio-Ecological Resilience in Collaboration with Karuk, Yurok, and Hupa People.* Evergreen huckleberry was chosen as a focal species buy the Karuk Tribe Department of Natural Resources because it is highly valued culturally, nutritionally, ceremonially, and it because it is also an important food for wildlife (Rossier, 2019, p. 140). This participatory research draws from the knowledge of 17 Karuk, Hupa, and Yurok practitioners about huckleberry quality and management practices. The diagram below is just one example of the management recommendations included in this research, and shows how Indigenous burning

practices of frequent, low-severity burns enhance berry production and quality, and promotes overall socioecological resilience of people and place.

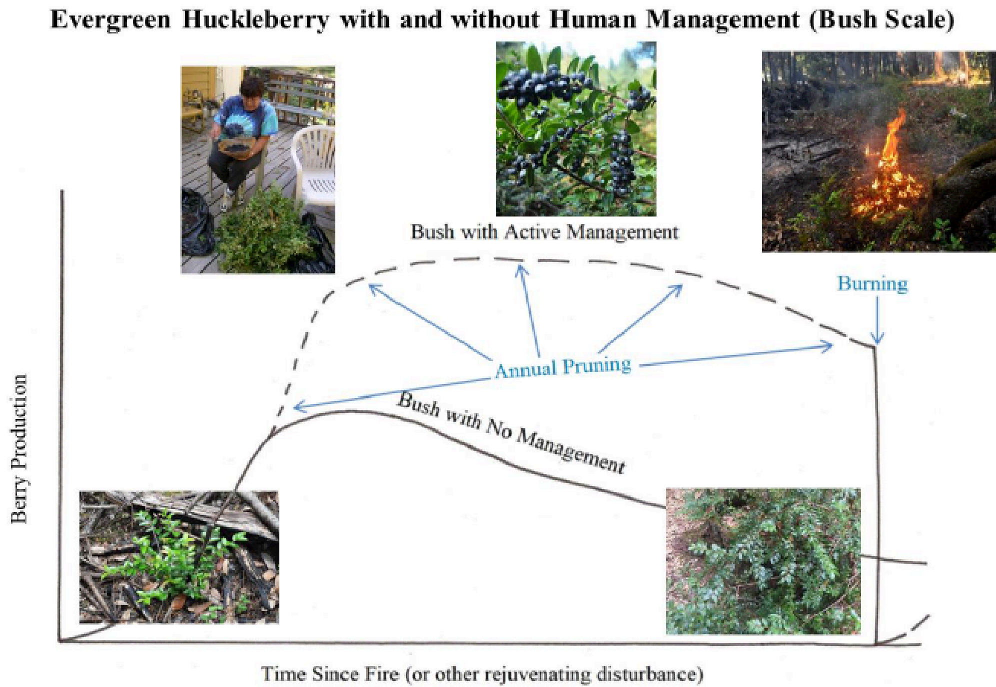


Fig. 2.35. Evergreen Huckleberry Conceptual Indigenous Eco-Cultural Revitalization Diagram. After a fire (or other major rejuvenating disturbance at time 0 on the left), the huckleberry bush grows, and (assuming it has enough light and water), produces berries after two years. It then is likely to decline in production unless managed via pruning, coppicing and burning. Active Indigenous pruning and burning maintains berry production at higher levels than an un-managed bush. This demonstrates the ecological impacts on wildlife and socio-ecological impacts on people.of Indigenous eco-cultural management.

(from Rossier, 2019, p. 325)

This research is a powerful example of an ethical collaboration, with contributions of Indigenous and Western Sciences and supportive of Indigenous ecocultural revitalization efforts. Research like this benefits the socioecological well-being of the whole region.

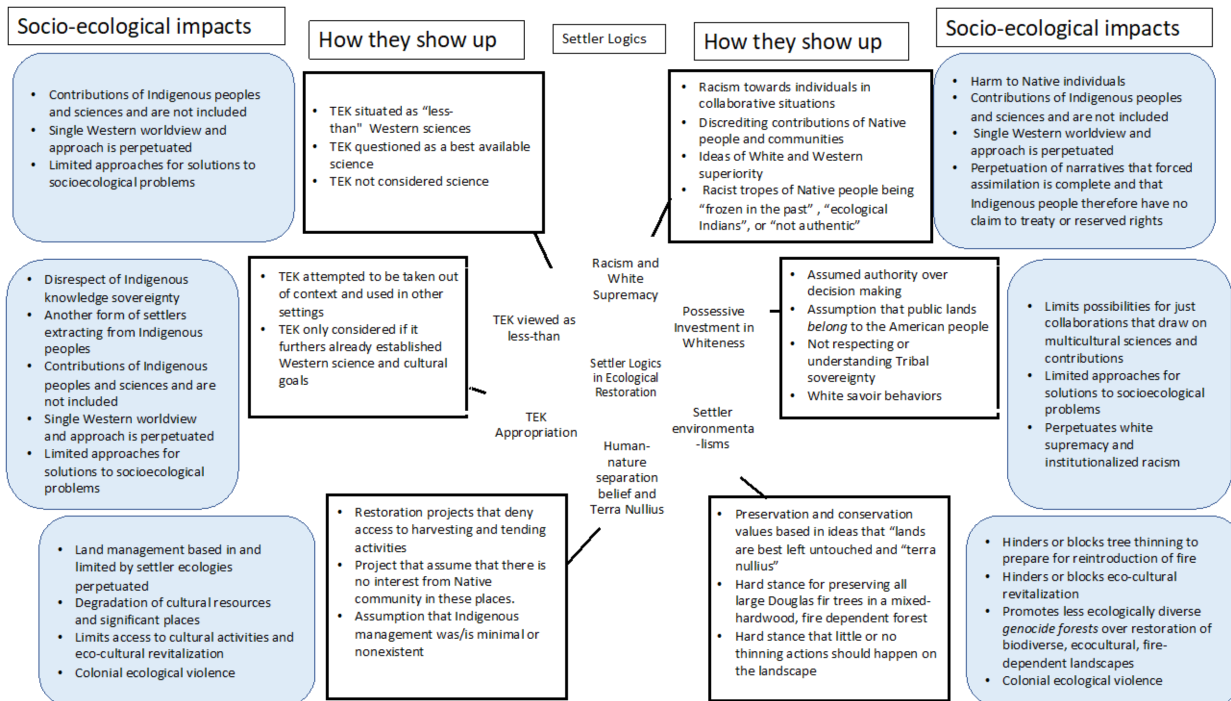
There are many practical guidelines that address how to respectfully and ethically engage with Indigenous sciences in land management (Karuk Traditional Ecological Knowledge and the Need for Knowledge Sovereignty Report, Norgaard, 2014a) climate change initiatives (Climate and Traditional Knowledges Workgroup, 2014), and research (Karuk-UC Berkeley

Collaborative[16]). These guidelines include ethical principles such as *Cause no Harm* and the fundamental right of Indigenous peoples to *Free, Prior and Informed Consent,* as identified by the United Nations Declaration of Rights of Indigenous Peoples (UNDRIP) (Climate and Traditional Knowledges Workgroup, 2014; Karuk-UC Berkeley Collaborative). Again, Individual Tribes and Indigenous communities often have their own collaboration and research protocols, like Practicing Pikyav, that must be respected and followed by non-Native partners wishing to engage in ethical collaborations.

Uncovering settler logics

In order to resist colonial logics, one must be able to *recognize them,* understand the history they come from and how they are perpetuated today. For settlers, this requires education from Indigenous perspectives about settler colonialism, and listening about ways that these systems still impact Indigenous communities today. Through this thesis we were able to listen to Karuk practitioners about their experiences with some of the ways that settler logics show up in ecological restoration practices. The diagram below shows how settler logics can motivate land management actions, and the impact these logics and actions have on Karuk people and homelands. While this list is certainly not exhaustive, it is a beginning to understand how these logics show up, their impacts, and why it is imperative to resist them.

[16] https://nature.berkeley.edu/karuk-collaborative/

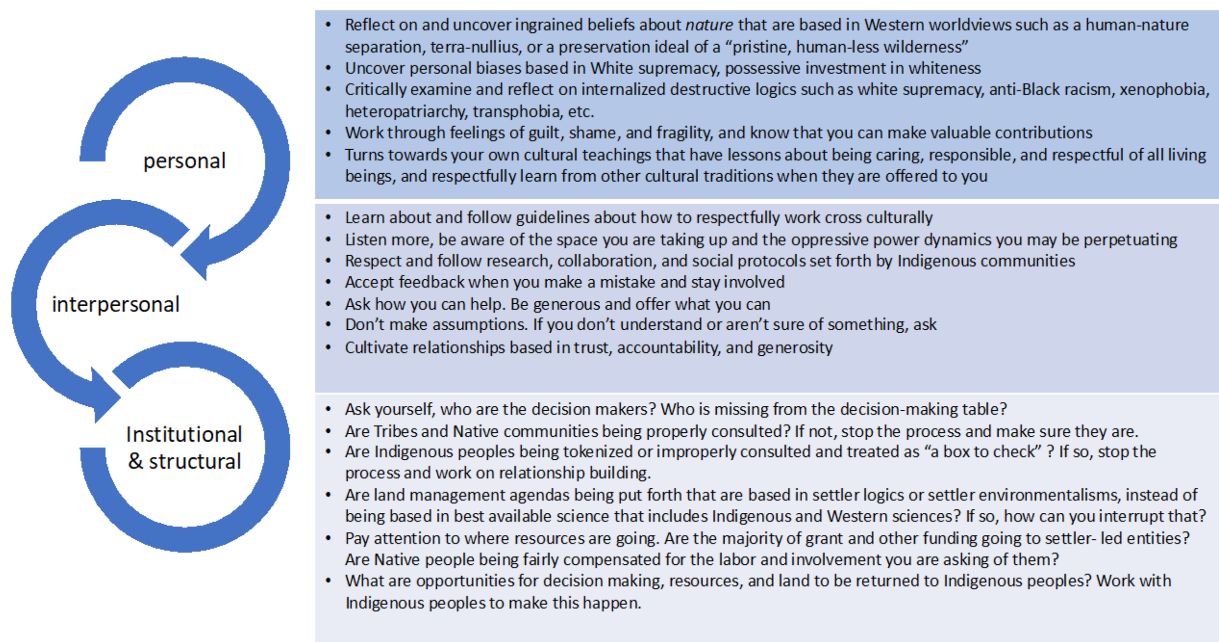


(Figure 1. Settler Ecologies)

The inside circles of figure 1 are the underlying harmful settler logics that were present through the stories that Karuk practitioners shared. The white boxes are examples of how these settler logics manifest in collaborative land management and ecological restoration. The light blue boxes on the outside are examples of the broader socio-ecological degradation caused by these underlying settler logics. In order to respectfully engage with Indigenous peoples and sciences and to address complex socioecological problems, it is imperative to confront these underlying settler logics and actions.

Actions for Resisting Settler Logics

For this next section about resisting settler logics, I borrow a framework from *The Lens of Systemic Oppression* from the National Equity Project[17] that shows how resisting oppressive logics happens on many levels: the personal, interpersonal, and institutional & structural. Below are some examples that I have learned from listening to Karuk practitioners and writing this thesis about ways for settlers to resist settler logics on the personal, interpersonal, and institutional/structural levels:



(Figure 2. Pathways for Resisting Settler Logics)

Along with resisting settler logics on the personal, interpersonal, and institutional levels, it is important to continue centering Indigenous articulations for pathways forward. As reiterated many times throughout this thesis, without centering Indigenous articulations of pathways

[17] https://www.nationalequityproject.org/frameworks/lens-of-systemic-oppression

forward, processes of solidarity between Indigenous people and settlers run the risk of reifying settler power structures, or, of perpetuating Cycles of Destruction.

Authors of Bang et al., (2018) speak to the need to *transform processes that uphold and assert Western epistemic supremacy:*

> "Engagement with Indigenous science requires the knower to recognize, cultivate, and support Indigenous peoples and their efforts to create thriving communities. Non-Indigenous scientists, policy-makers, and institutions (especially nation-state governments and educational institutions in their many forms) need to recognize the powerful historical accumulations and institutional structures that have consistently undermined Indigenous communities and ways of life. Engagement with Indigenous sciences will require commitment to transform processes that uphold and assert Western epistemic supremacy. Importantly, this is not intended to suggest that Western epistemic practices have not been productive or should not continue; rather, we object to the insistence on their singularity," (p. 156).

This need holds true for ecological restoration processes: there is a need to transform approaches that are singularly based in Western epistemologies, to create ethical collaborations that include a plurality of sciences, and to support Indigenous peoples and their efforts to create thriving communities and ecosystems.

Time

When thinking about ecological restoration efforts, consider it a long-term, sustained commitment. Karuk practitioners I spoke with shared how in terms of restoring fire to the landscape, it is going to take a long-term, committed efforts to bring things back into balance. They shared how it took 200 years of colonialism to create the unbalanced socioecological conditions with people, the forest, and fire, and that it will take just as many years and *a continued human investment* to put things back into balance.

Intersectional approach

Settler ecologies include many logics of domination including anti-Black racism, xenophobia, transphobia, ableism, patriarchy, and other logics that render people who don't fit the idealized hetero, male, white actor as *inferior*, *less then*, or *disposable*. These settler logics are dehumanizing, destructive, and perpetuate their own cycles of destruction. Part of healing the harms of settler colonialism is also standing up to these violent logics, and listening to, moving resources towards, and taking the lead from Black folks, Communities of Color, those in the Global Majority, Trans and Queer folk, and other communities that are marginalized by violent settler colonial logics. While this work has focused on Indigenous and white settler ecologies, there are many other voices and leadership that must be respected as well. Without centering the voices of those harmed by settler colonialism, the very same structures of violence and oppression will be continued, and pathways forward from the destructive status quo will be limited. For example, in collaborative ecological restoration, or any other institution or practice, without examining anti-Blackness and listening to Black people, anti-Black white supremacy will continue, and whatever the endeavor is will be missing out on the important contributions of Black thinkers and communities.

Resources

Recent publications examining barriers to increasing Karuk cultural burning practices point to a need for increased and sustained funding (Clark, Miller, & Hankins, 2020; Marks-Block & Tripp, 2021). Settler ecological restoration organizations and individuals can leverage their institutional access and privilege and move funding towards Indigenous-led efforts. One example would be through collaboration on project proposals and grant writing that brings funding to Indigenous-led efforts. Recall from earlier that these collaborations to bring more

resources to Indigenous ecocultural revitalization will not be *cookie-cutter models,* and rather will need to be place-based, built on relationships and trust, and centering the needs of Indigenous practitioners. Settler partners should also be aware that they are not putting resource burdens on Native partners by asking them to do extra or unpaid labor to participate in partnerships, share knowledge and expertise, etc.

Rematriate

When describing the conditions that constrain the revitalization of Tribal fire practices through collaborative prescribed burning efforts, Bill Tripp and Tony Marks-Block identified the following: “land dispossession and centralized state regulations undermine Indigenous and local fire governance. Excessive investment in suppression and the underfunding of prescribed fire produces a scarcity of personnel to implement and plan burns. Where Tribes and local communities have established burning infrastructure, authorities should consider the devolution of decision-making and land repatriation to accelerate prescribed fire expansion” (Marks-Block, Tripp 2021, p. 1).

It is clear that settler colonial land management, driven by settler logics, is failing to ensure the socioecological well-being of the lands they occupy. As described by Marks-Block and Tripp above, if we are to seriously consider the actions need to support the revitalization of Indigenous fire practices and restore fire to the landscape at a meaningful pace and scale in the face of climate change and worsening forest and fire conditions, then the underlying decision-making and ownership of land need to be reconsidered and restructured. Listening to Indigenous articulations for pathways forward from the harms of settler colonialism includes honoring the calls to return Indigenous lands to Indigenous peoples.

Responsibility

One of the biggest things I learned from listening to Karuk practitioners was how Karuk science and management systems come from millennia of fulfilling responsibilities to their more than human relations. I learned how *responsibilities* are a part of *ecologies*, are a part of *ecosystems,* and therefore need to be a part of collaborative ecological restoration from everyone involved. I wondered about what my *responsibilities* are as a settler, as someone who has inherited centuries of harmful land management traditions based in human-nature separation, extraction, white supremacy, and terra nullius. From this research and Indigenous feminisms teachings, I learned that I can reclaim my responsibility to care for the environment and the human and more-than human beings I share existence with, as well as assume the responsibility to actively undo those harmful traditions that I carry with me. I can look into my own cultural traditions and appreciate the lessons about caring for people and the earth, while also uprooting and composting violent traditions rooted in settler logics that perpetuate cycles of destruction.

I have a responsibility to stand up to and resist Cycles of Destruction and settler logics on all levels: the personal, interpersonal, and institutional. I have a responsibility to become a better guest in Indigenous homelands and do things that a respectful guest would do to honor the hosts' traditions; ask for permission, listen, and be generous with my offerings. I hope that some of what I've learned will speak to other settlers working in ecological restoration (and any field) that are committed to resisting cycles of destruction and entering into cycles of healing. I hope that this work is in service of the rematriation of Indigenous lands, and for the continued revitalization of Karuk culture and homelands. I hope this work serves for the liberation of all

beings from the harms of settler colonialism and serves the flourishing of life on this precious earth.

REFERENCES CITED

Ager, Vogler, K. C., Day, M. A., & Bailey, J. D. (2017). Economic Opportunities and Trade-Offs in Collaborative Forest Landscape Restoration. Ecological Economics, 136, 226–239. https://doi.org/10.1016/j.ecolecon.2017.01.001

Allen, G. E. (2013). "Culling the Herd": Eugenics and the Conservation Movement in the United States, 1900-1940. *Journal of the History of Biology*, *46*(1), 31–72. https://doi.org/10.1007/s10739-011-9317-1

Bacon, J. M. (2018). Settler colonialism as eco-social structure and the production of colonial ecological violence. *Environmental Sociology*, *00*(28 May), 1–11. https://doi.org/10.1080/23251042.2018.1474725

Bang, M., Marin, A., & Medin, D. (2018). If Indigenous peoples stand with the sciences, will scientists stand with us? *Daedalus*, *147*(2), 148–159. https://doi.org/10.1162/DAED_a_00498

Baumflek, M., DeGloria, S., Kassam, K.-A., Benedict, M. a., Frelich, L. E., Berkes, F., … Peters, P. (2012). *Habitat modeling for health sovereighnty*. *Journal of Forestry* (Vol. 12). https://doi.org/10.1007/978-94-007-2144-9

Benyei, P., Arreola, G., & Reyes-García, V. (2019). Storing and sharing: A review of indigenous and local knowledge conservation initiatives. *Ambio*. https://doi.org/10.1007/s13280-019-01153-6

Bilbao, B., Mistry, J., Millán, A., & Berardi, A. (2019). Sharing multiple perspectives on burning: Towards a participatory and intercultural fire management policy in Venezuela, Brazil, and Guyana. *Fire*, *2*(3), 1–33. https://doi.org/10.3390/fire2030039

Cajete, G. A. (2020). Indigenous science, climate change, and indigenous community building: A framework of foundational perspectives for indigenous community resilience and revitalization. *Sustainability (Switzerland)*, *12*(22), 1–11. https://doi.org/10.3390/su12229569

Cantzler, J. M. (2007). Environmental justice and social power rhetoric in the moral battle over whaling. *Sociological Inquiry*, *77*(3), 483–512. https://doi.org/10.1111/j.1475-682X.2007.00201.x

Carroll, M.S., & Dillman, D.A. (1995). Community and the Northwestern Logger: Continuities and Changes in the Era of the Spotted Owl (1st ed.). Routledge. https://doi.org/10.4324/9780429042362

Clark, S., Miller, A., & Hankins, D. (2020). GOOD FIRE Current Barriers to the Expansion of Cultural Burning and Prescribed Fire in California and Recommended Solutions, 1–48.

Corntassel, J., & Bryce, C. (2012). Practicing Sustainable Indigenous Approaches to Cultural Self-Determination. *Brown Journal of World Affairs*, *18*(2), 151–162.

Cronon, W. (1996). with Wilderness The Trouble to the Getting Nature Wrong. *Environmental History*, *1*(1), 7–28.

David-Chavez, D. M., & Gavin, M. C. (2018). A global assessment of Indigenous community engagement in climate research. *Environmental Research Letters*, *13*(12). https://doi.org/10.1088/1748-9326/aaf300

Dickson-Hoyle, S., Ignace, R. E., Ignace, M. B., Hagerman, S. M., Daniels, L. D., & Copes-Gerbitz, K. (2021). Walking on two legs: a pathway of Indigenous restoration and reconciliation in fire-adapted landscapes. *Restoration Ecology*, 1–9. https://doi.org/10.1111/rec.13566

Eriksen, C., & Hankins, D. L. (2014). The Retention, Revival, and Subjugation of Indigenous Fire Knowledge through Agency Fire Fighting in Eastern Australia and California. *Society and Natural Resources*, *27*(12), 1288–1303. https://doi.org/10.1080/08941920.2014.918226

Evans, N. M., & Davis, M. A. (2018). What about Cultural Ecosystems? Opportunities for Cultural Considerations in the "International Standards for the Practice of Ecological Restoration." *Restoration Ecology*, 1–6. https://doi.org/10.1111/rec.12714

Fernández-Manjarrés, J. F., Roturier, S., & Bilhaut, A. G. (2018). The emergence of the social-ecological restoration concept. *Restoration Ecology*, *26*(3), 404–410. https://doi.org/10.1111/rec.12685

Fox, H., & Cundill, G. (2018). Towards increased community-engaged ecological restoration: A review of current practice and future directions. *Ecological Restoration*.

Franklin, Anderson, D. R., Gutiérrez, R. J., & Burnham, K. P. (2000). Climate, Habitat Quality, and Fitness in Northern Spotted Owl Populations in Northwestern California. Ecological Monographs, 70(4), 539–590. https://doi.org/10.1890/0012-9615(2000)070[0539:CHQAFI]2.0.CO;2

Gann, G. D., Mcdonald, T., Walder, B., Aronson, J., Nelson, C. R., Hallett, J. G., … Dixon, K. W. (2019). INTERNATIONAL PRINCIPLES AND STANDARDS FOR THE PRACTICE OF ECOLO GICAL RESTORATION SE C O N D E D I T IO N : November 2019, (November).

Hagger, V., Dwyer, J., & Wilson, K. (2017). What motivates ecological restoration? *Restoration Ecology*, *25*(5), 832–843. https://doi.org/10.1111/rec.12503

Hall, M. M., Wehi, P. M., Whaanga, H., Walker, E. T., Koia, J. H., & Wallace, K. J. (2021). Promoting social and environmental justice to support Indigenous partnerships in urban ecosystem restoration. *Restoration Ecology*, *29*(1), 1–7. https://doi.org/10.1111/rec.13305

Henri, D. A., Provencher, J. F., Bowles, E., Taylor, J. J., Steel, J., Chelick, C., … Alexander, S. M. (2021). Weaving Indigenous knowledge systems and Western sciences in terrestrial research, monitoring and management in Canada: A protocol for a systematic map. *Ecological Solutions and Evidence*, *2*(2), 1–9. https://doi.org/10.1002/2688-8319.12057

Huffman, M. R. (2013). The many elements of traditional fire knowledge: Synthesis, classification, and aids to cross-cultural problem solving in fire dependent systems around the world. *Ecology and Society*, *18*(4). https://doi.org/10.5751/ES-05843-180403

Jacob, M. M., Gonzales, K. L., Chappell Belcher, D., Ruef, J. L., & RunningHawk Johnson, S. (2021). Indigenous cultural values counter the damages of white settler colonialism. *Environmental Sociology*, *7*(2), 134–146. https://doi.org/10.1080/23251042.2020.1841370

Johnson, J. T., Howitt, R., Cajete, G., Berkes, F., Louis, R. P., & Kliskey, A. (2016). Weaving Indigenous and sustainability sciences to diversify our methods. *Sustainability Science*, *11*(1), 1–11. https://doi.org/10.1007/s11625-015-0349-x

Karuk-Tribe. (2019). Karuk Climate Adaptation Plan, (March), 1–232.

Karuk Tribe. (n.d.). Karuk Tribe Department of Natural Resources Eco-Cultural Resources Management Plan supported by Western Science .

Kimmerer, R. (2011). Human Dimensions of Ecological Restoration. *Human Dimensions of Ecological Restoration*. https://doi.org/10.5822/978-1-61091-039-2

Kimmerer, R. W., & Lake, F. K. (2001). Maintaining the Mosaic: The role of indigenous burning in land management. *Journal of Forestry*, *99*(11), 36–41.

Kimmerer, Robin Wall. (2012). Searching for synergy: Integrating traditional and scientific ecological knowledge in environmental science education. *Journal of Environmental Studies and Sciences*, *2*(4), 317–323. https://doi.org/10.1007/s13412-012-0091-y

Lake, F. K. (2021). Indigenous fire stewardship: Federal/Tribal partnerships for wildland fire research and management. *Fire Management Today.*, *79*(1), 30–39.

Lake, F. K., & Christianson, A. C. (2020). Indigenous Fire Stewardship. *Encyclopedia of Wildfires and Wildland-Urban Interface (WUI) Fires*, 714–722. https://doi.org/10.1007/978-3-319-52090-2_225

Long, J. W., & Lake, F. K. (2018). Escaping social-ecological traps through tribal stewardship on national forest lands in the Pacific Northwest , United States of America, *23*(2).

Long, J. W., Lake, F. K., & Goode, R. W. (2020). How Traditional Tribal Perspectives Influence Ecosystem Restoration 1, *12*(2), 1–12. https://doi.org/10.1089/eco.2019.0055

Long, J. W., Lake, F. K., Goode, R. W., & Burnette, B. M. (2020). How Traditional Tribal Perspectives Influence Ecosystem Restoration. *Ecopsychology*, *12*(2), 71–82. https://doi.org/10.1089/eco.2019.0055

Long, J. W., Lake, F. K., Middleton, E., Whyte, K. P., Caldwell, C., Schaefer, M., … Davis, M. A. (2018). "Ecological Restorations as Practices of Moral Repair." *Restoration Ecology*, *8*(2), 136–147. https://doi.org/10.1016/j.biocon.2014.05.007

Marks-Block, T., Lake, F. K., Bliege Bird, R., & Curran, L. M. (2021). Revitalized Karuk and Yurok cultural burning to enhance California hazelnut for basketweaving in northwestern California, USA. *Fire Ecology*, *17*(1). https://doi.org/10.1186/s42408-021-00092-6

Marks-Block, T., & Tripp, W. (2021). Facilitating prescribed fire in northern california through indigenous governance and interagency partnerships. *Fire*, *4*(3). https://doi.org/10.3390/fire4030037

Mauer, K. W. (2021). Unsettling Resilience: Colonial Ecological Violence, Indigenous Futurisms, and the Restoration of the Elwha River*. *Rural Sociology*, *86*(3), 611–634. https://doi.org/10.1111/ruso.12365

McDonald, T., Aronson, J., Eisenberg, C., Gann, G. D., Dixon, K. W., & Hallett, J. G. (2019). The SER Standards, cultural ecosystems, and the nature-culture nexus—a reply to Evans and Davis. *Restoration Ecology*, *27*(2), 243–246. https://doi.org/10.1111/rec.12913

Murdock, E. G., & Murdock, E. G. (2016). Ecological Reconciliation: Bridging Humanity and Nature for Justice. PhD Disseration. Michigan State University, East Lansing, MI

Nikolakis, W., Roberts, E., Hotte, N., & Ross, R. M. (2020). Goal setting and Indigenous fire management: A holistic perspective. *International Journal of Wildland Fire*, *29*(11), 974–982. https://doi.org/10.1071/WF20007

Norgaard, K. M. (2014a). Karuk Traditional Ecological Knowledge and the Need for Knowledge Sovereignty. Retrieved from http://pages.uoregon.edu/norgaard/pdf/Karuk-TEK-and-the-Need-for-Knowledge-Sovereignty-Norgaard-2014.pdf

Norgaard, K. M. (2014b). The politics of fire and the social impacts of fire exclusion on the Klamath. *Humboldt Journal of Social Relations*, (36), 77–101.

Richmond, L., Middleton, B. R., Gilmer, R., Grossman, Z., Janis, T., Lucero, S., … Watson, A. (2013). Indigenous studies speaks to environmental management. *Environmental Management*, *52*(5), 1041–1045. https://doi.org/10.1007/s00267-013-0173-y

Rohwer, Y., & Marris, E. (2016). Renaming restoration: conceptualizing and justifying the activity as a restoration of lost moral value rather than a return to a previous state. *Restoration Ecology*, *24*(5). https://doi.org/10.1111/rec.12398

Rossier, C. E. (2019). Integrating Indigenous and Western Sciences to Revitalize Evergreen Huckleberries (Vaccinium ovatum) and Enhance Socio-Ecological Resilience in Collaboration with Karuk, Yurok, and Hupa People. *ProQuest Dissertations and Theses*, 568. Retrieved from https://search.proquest.com/docview/2385190284?accountid=27575

Senos, R., Lake, F. K., Turner, N. J., & Martinez, D. (2006). *Traditional Ecological Knowledge and Restoration Practice*. *Restoring the Pacific Northwest: The Art and Science of Ecological Restoration in Cascadia*. Retrieved from https://www.fs.fed.us/psw/publications/lake/psw_2006_lake001_senos.pdf

Snelgrove, C., Dhamoon, R. K., & Corntassel, J. (2014). Unsettling settler colonialism: The discourse and politics of settlers, and solidarity with Indigenous nations. *Decolonization: Indigeneity, Education & Society*, *3*(2), 1–32.

Stevens-Rumann, C., McFadzen, M., Morgan, P., Lake, F. K., McWethy, D., & Wright, V. (2017). Returning Fire to the Land: Celebrating Traditional Knowledge and Fire. *Journal of Forestry*, *115*(5), 343–353. https://doi.org/10.5849/jof.2016-043r2

Taylor, A. H., Trouet, V., Skinner, C. N., & Stephens, S. (2016). Socioecological transitions trigger fire regime shifts and modulate fire–climate interactions in the Sierra Nevada, USA, 1600–2015 CE. *Proceedings of the National Academy of Sciences*, *113*(48), 13684 LP – 13689. https://doi.org/10.1073/pnas.1609775113

Trisos, C. H., Auerbach, J., & Katti, M. (2021). Decoloniality and anti-oppressive practices for a more ethical ecology. *Nature Ecology and Evolution*, *5*(9), 1205–1212. https://doi.org/10.1038/s41559-021-01460-w

Tuck, E., & Yang, K. W. (2012). Decolonization is not a metaphor. *Decolonization: Indigeneity, Education, & Society*, *1*(1), 1–40.

Tuck, E., McKenzie, M., & McCoy, K. (2014). Land education: Indigenous, post-colonial, and decolonizing perspectives on place and environmental education research. *Environmental Education Research*, *20*(1), 1–23. https://doi.org/10.1080/13504622.2013.877708

USDA Forest Service PSW Region. (2018). Somes Bar Integrated Fire Management Project: Final Environmental Assessment, (April), 456. Retrieved from www.ascr.usda.gov/complaint_filing_cust.html%0Ahttps://www.fs.usda.gov/nfs/11558/www/nepa/106291_FSPLT3_4291171.pdf

Vinyeta, K. (2021). Under the guise of science: how the US Forest Service deployed settler colonial and racist logics to advance an unsubstantiated fire suppression agenda. *Environmental Sociology*. https://doi.org/10.1080/23251042.2021.1987608

Watts, V. (2013). Indigenous place-thought & agency amongst humans and non-humans (First Woman and Sky Woman go on a European world tour!). *Decolonization: Indigeneity, Education & Society*, *2*(1), 20–34.

Wehi, P. M., & Lord, J. M. (2017). Importance of including cultural practices in ecological restoration. *Conservation Biology*, *31*(5), 1109–1118. https://doi.org/10.1111/cobi.12915

Whyte, K., Caldwell, C., & Schaefer, M. (2019). Indigenous Lessons about Sustainability Are Not Just for “All Humanity.” *Sustainability*, 149–179. https://doi.org/10.18574/nyu/9781479894567.003.0007

Whyte, K.P (2018). Settler colonialism, ecology, and environmental injustice. *Environment and Society: Advances in Research*, *9*(1), 125–144. https://doi.org/10.3167/ares.2018.090109

Whyte, K. P. (2016). Our Ancestors’ Dystopia Now: Indigenous Conservation and the Anthropocene. *Routledge Companion to the Environmental Humanities*, xx.

Whyte, K. P. (2012). the Dakota Access Pipeline, Environ- Mental Injustice, and U.S. Colonialism. *The Blackwell Companion to Science and Christianity*, (19), i–xix. https://doi.org/10.1002/9781118241455.fmatter

Wolfe, P. (2006). Settler colonialism and the elimination of the native. *Journal of Genocide Research*, *8*(4), 387–409. https://doi.org/10.1080/14623520601056240