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Advancing Indigenous futures with two-eyed seeing: Strategies for restoration and repair through collaborative research

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Abstract

This article builds on the Indigenous research concept of two-eyed seeing, that is, learning from one eye with the strengths of Indigenous knowledges and ways of knowing, and from the other eye with the strengths of Western knowledges and ways of knowing. We do so by drawing on the authors' multiple standpoints (Karuk Tribal Member, Karuk Enrolled Descendent, and non-Indigenous ally) and experiences building longstanding research collaborations that apply biophysical science, ethnographic methods, and Karuk oral traditions to tribal lands protection. Using Kovach's conversational methodology, we discuss problems of health and well-being that arise from two-eyed seeing research collaborations affecting Indigenous lands, waters, and resources. We specifically examine interventions for advancing Indigenous leadership in research that intersect with the Karuk Tribe's ecocultural revitalization initiatives through (1) stewardship of baskets alongside basket-weaving communities (human and nonhuman); (2) family based management of ceremonial trails, and (3) allyship for tribal–academic collaborations. Our analysis emphasizes how the aliveness of Karuk knowledge resists ahistorical essentialism, for example, by engaging with the joy of human/nonhuman relations, ceremonial scale, and solidarity practices. Responding to ongoing challenges with knowledge hierarchies, this work recognizes the importance of mutual acknowledgment of persons across systems for advancing Indigenous research as a multi-vocal initiative with the capacity for restoration and repair.

Keywords

Indigenous methodologies, Indigenous research sovereignty, Indigenous knowledge systems, two-eyed seeing, Karuk Tribe

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Introduction

Two-eyed seeing has emerged as a powerful approach to engaging with complementary components of multiple knowledge systems that include Indigenous knowledge systems without assuming knowledge integration. In this context, two-eyed seeing can be understood to mean seeing as learning from one eye with the strengths of Indigenous knowledges and ways of knowing, and from the other eye with the strengths of Western knowledges and ways of knowing (e.g. Arsenault et al., 2018; Denny and Fanning, 2016; Reid et al., 2020). Yet, surface engagement with two-eyed seeing glosses over the complexity and ongoing struggles for advancing Indigenous leadership in negotiating research and land management decisions—a challenge that is rooted in longstanding conflict with settler-colonial systems.

Researchers have long engaged with the paradox of finding complementarity in Indigenous knowledge systems that may or may not fit with dominant approaches to scientific research and knowledge production (e.g. Agrawal, 1995; Barnhardt and Kawagley, 2005; Berkes, 2012; Berkes et al., 2000). While there may not be consensus over the compatibility of Indigenous and Western knowledge systems, even in part, management over Indigenous lands, waters, and natural resources that cross jurisdictional boundaries and authorities creates a particular need for knowledge translation. Concerted efforts to advance two-eyed seeing are conceived as one approach to supporting Indigenous self-determination in complex negotiations over knowledge and authority.

In practice, two-eyed seeing is a careful and selective process (e.g. Kimmerer, 2015) that starts from Indigenous knowledge systems, but also brings in Western scientific knowledge systems. This is especially the case when Indigenous knowledge systems are understood to be embedded in particular, place-based understandings of human and nonhuman relations. Thus, part of Indigenous research sovereignty includes advancing two-eyed seeing in a way that authentically centers Indigenous knowledge and place-based relationships. Knowledge translation processes that are required to maintain Indigenous research sovereignty are often rooted in Indigenous methodologies, which are now well established (e.g. Kovach, 2009; Smith, 1999; Wilson, 2008).

Two-eyed seeing is also bound up with longstanding challenges of land-based trauma and environmental justice related to the contested domains of land and water management on Indigenous lands, natural resource policies that are dominated by colonial institutions, and knowledge production that privileges elite academic institutions. Highly political contests between Indigenous nations and the state have often made the very idea of proposing two-eyed seeing an oppositional effort. Yet given growing interest in Indigenous knowledge systems as offering new perspectives for solving urgent environmental problems, there are also a growing number of research spaces where mutually interested parties are bringing the political will to engage across knowledge systems. This shift creates a need to go deeper into the practice of negotiating two-eyed seeing, and engaging with the underlying tensions involved in doing so.

In this article, we are specifically responding to the emotional tensions with two-eyed seeing, where we see the mental health toll on Indigenous scholars and cultural practitioners of working in elite spaces as a large factor determining the failure or success of many two-eyed seeing efforts (e.g. Diver, 2016b, 2017; Norgaard et al., 2011). Knowledge translation work that engages with elite academic institutions and dominant bureaucratic agencies can create a tremendous amount of turmoil for advocates of Indigenous methodologies. Given the many external barriers to advancing Indigenous knowledge within a dominant system that was not created by or for Indigenous peoples, two-eyed seeing involves a tremendous amount of work. The problem is not that people are incapable of doing this work. Rather, the problem lies in the intense labor of having to translate everything that cultural practitioners and Indigenous knowledge holders need to do—whether for agencies, funders, or the academy. Furthermore, engaging with dominant systems unfamiliar with Indigenous ways of knowing or being can reactivate historical trauma for Indigenous peoples. This work often involves working closely with institutions that have played distinct roles in the displacement of Indigenous communities

from their lands, the erasure of Indigenous knowledge, and suppression of Indigenous resistance movements. This leads us to the question, how do we do the work of two-eyed seeing without being angry all the time?

In this way, engaging with historical trauma involved in cross-cultural knowledge collaborations creates a significant emotional stumbling block for moving forward with the vision of two-eyed seeing. This article seeks to lift up the mental health and wellness outcomes of knowledge collaborations, and analyze how we can advance two-eyed seeing collaborations where all members feel they belong. We do so as a research collective engaging with Kovach's (2009) conversational method. We focus our contributions on understanding the trauma by engaging across knowledge systems, as well as by analyzing our own practices in building a collaboration linking western scientific knowledge and Indigenous knowledge that seeks healing, in part through the physical and spiritual work of land management.

Literature review

Philosophy of two-eyed seeing

Two-eyed seeing is an Indigenous research concept or philosophy around interweaving different ways of knowing (e.g. Arsenault et al., 2018; Denny and Fanning, 2016; Reid et al., 2020). While acknowledging complicated colonial histories, this approach recognizes the centrality of Indigenous knowledge systems to research, but does not reject Western scientific knowledge systems. The idea builds on the work of Indigenous scholars like Vine Deloria, Jr. who discuss "two ways of knowing" (Deloria et al., 1999: 67) and differentiate between Indigenous knowledge systems and more exclusionary Western scientific traditions. In contrast, two-eyed seeing emphasizes the possibility for coexistence of Indigenous knowledge systems and Western scientific knowledge systems for the benefit of all (e.g. Reid et al., 2020). An example of creating such a bridge or linkage between knowledge systems is Kimmerer's (2015), Braiding Sweetgrass, where she deftly and poetically weaves scientific knowledge of plants and algaes with Indigenous knowledge that lifts up the interconnectedness of creation, immersed in experiential and sensorial learning that is predicated on reciprocal relationships.

Part of two-eyed seeing includes engaging with the edges and boundaries of knowledge systems, in order to work with multiple ways of knowing and transcend colonial systems that reinforce social hierarchies. As Larsen and Johnson (2017: 5-6) write:

> To claim multiple ontologies is not to claim some ultimate reality or transcendental signifier. It is instead a way of understanding edges and boundaries, of looking into the eyes of others and seeing the world from the outside, and of developing this exteriority into a 'border thinking aimed at decolonizing our relationship and forms of association. (citing Mignolo and Tlostanova, 2006)

Yet as Johnson (2008) writes, this is "tricky ground." Even as collaborators strive toward a coexistence that forwards Indigenous self-determination, knowledge production occurs within a "political realm" that includes the ongoing displacement and dispossession of Indigenous peoples by settler-state governments (Larsen and Johnson, 2017).

While recognizing the coexistence of knowledge systems, the two-eyed seeing philosophy starts with Indigenous ways of knowing–engaging directly with cosmologies and epistemologies of Indigenous peoples (e.g. Deloria, 2001; Kimmerer, 2015; Kovach, 2010; McGregor, 2014; Smith, 1999; Wilson, 2008; Whyte, 2018). Knowledge is derived from everyday, lived experiences, individually and communally; through the observation and experience with the environment, and through intuition (Cajete, 2004; Deloria, 2006; Deloria and Wildcat, 2001; Deloria et al., 1999; Kovach, 2009; Stewart-Harawira, 2013; Weber-Pillwax, 2001). Indigenous epistemologies trace the ways in which learning and teaching developed in Indigenous communities, which is a cultural and life-sustaining

process that unfolds among peoples and the natural and spiritual worlds. Experiences and learning are tied to place, environmentally, socially, and spiritually and are interwoven in the fabric of daily life (Cajete, 2004: 71). Deloria (2001) further explains that Indigenous knowledge is relational, connecting to experiences and knowledges of humans and other-than-humans. He cautions researchers to keep this in mind, since "the reduction of knowledge of phenomena to a sterile, abstract concept, much is lost that cannot be retrieved" (Deloria, 2001: 6). Through these experiences, Indigenous ways of knowing are a way of seeing and living self-in-relation with the world (Graveline, 1998; Kimmerer, 2015).

Rooted in Indigenous methodologies

Importantly, two-eyed seeing employs more holistic research approaches used in Indigenous methodologies. Implementation of two-eyed seeing recognizes the importance of reciprocal relations (e.g. Arsenault et al., 2018; Diver et al., 2019; Kovach, 2009; McGregor, 2014; Tobias, 2009; Wilson, 2008) and encourages reciprocal learning through knowledge exchange–between Indigenous community members and academic researchers, as well as within Indigenous communities. This includes approaches that bring people together, such as Kovach's (2010) conversational methodology emphasizing a two-way knowledge exchange process; Archibald's storywork where the inclusion of stories within Indigenous research assists readers to personalize and internalize the events that are being discussed, making them "feel like a part of the story" (Archibald, 2008: 21); and Craft's (2017) approach to organizing research gatherings that follow ceremonial protocol methods involving a Faculty of Elders; the Chiefs of Ontario approach to bringing knowledge holders together through an open process in a "knowledge sharing framework" among each other, rather than having the feeling of having knowledge extracted from individuals, or similar approaches that connect elders and youth in mutual learning conversations (Arsenault et al., 2018; Lavalley, 2006).

Furthermore, Indigenous research methodologies forge questions based on relations: "You are not answering questions of validity or reliability or making judgments of better or worse. Instead you should be fulfilling your relationships with the world around you" (Wilson, 2001: 177). Indeed, Indigenous methodologies consider ways of knowing as inherently relational; they are interconnected and intertwined and cannot be simply parsed out into discrete elements, as Western ways of knowing are (Cannon, 2011; Dei, 2011). The research endeavor does not belong solely to the researcher, extending beyond the individual and mutually influenced by family, community, tribe, and nation (Archibald, 2008: 11), with humans and nonhumans (Archibald, 2008; see also Kovach, 2009).

Indigenous research methods also "celebrate the pluralism in 'truth,' because Indigenous knowledge is dependent upon individual experiences and relationships with living and nonliving beings and entities" (Grincheva, 2013: 52). This approach helps mitigate the ahistorical voice in which many historical anthropological texts about Native peoples were written. For example, Coté (2010) forefronts Native voices in her research about Nuu-chah-nulth and Makah whaling practices, which ensures that multiple Native peoples and understandings are guiding the narrative. Writing in ways that are self-reflective within Indigenous research also honors the multiple ways of knowing about the world (Graveline, 1998; Kovach, 2009).

Personal experiences leading us to two-eyed seeing

While it is possible to engage in two-eyed seeing from a variety of perspectives, we are working from our own experiences. Specifically, we are coming to our analysis through the lens of basket weaving and ceremonial trails. We also draw on years of experience working through an allied approach to ecocultural revitalization in these domains, which includes using science and engaging in dominant systems. We use two-eyed seeing to bring a more open mind to our day-to-day collaborations—striving to engage across knowledge systems even if we are trained to think in one way, or are skeptical about approaches coming from dominant society. Here, we share how each of the authors came to a two-eyed approach.

The removal of Native children from their families and communities during the boarding school era and its aftereffects is keenly felt today by their descendants. For Smith, disconnection from community, culture, and homeland weighs heavily on her because her Karuk grandmother, who helped raise her, never returned home and hardly ever spoke about home and family after leaving Chemawa Indian School and Fort Lapwai Indian Sanitarium when she was just a teen. Growing up, Smith remembers that Karuk ways of knowing were in her grandmother's manner and lilt in which she spoke, but language, culture, and land were absent. The memory of her grandmother's influence on her, along with encouragement from other family members, led Smith to reconnect with her tribe. Learning to weave and gather brought her closer to her grandmother's memory, familiar lilt, and manner. Weaving baskets opened Smith's mind: seeing with both eyes and embodying different ways of knowing and understanding the world.

For Reed, going up to ceremonial areas at Inaam to make medicine is where two-eyed seeing took hold. This was a shift from his experience growing up in a lumber and mining town that was very conservative, where he was removed from a more encompassing cultural knowledge. For Reed, returning to ceremonial traditions as an adult occurred alongside starting a new job with the Karuk Department of Natural Resources. In that position, Reed became a tribal spokesperson, applying TEK and Karuk worldviews to shape federal dam removal negotiations. His experience included working with academics as a cultural practitioner to establish the links between dam construction, loss of traditional foods, and disproportionately high levels of diet-related disease in his community. After working from both Karuk TEK and Western science, Reed saw the utility of working in partnership with academia through a two-eyed seeing approach. This led him to engage with a new set of collaborators, and co-found the Karuk-UC Berkeley Collaborative in 2008—to foster synergistic collaborations for ecocultural revitalization of the people and landscapes within Karuk ancestral lands and territories.

For Diver, two-eyed seeing came from learning through research collaborations with Indigenous scholars, as well as personal friendships with community leaders. This included learning from Nancy Turner, an ethnobotanist, about her open-minded approach to accepting multiple truths as she worked with Western science and Indigenous cosmologies at the same time. For Diver, two-eyed seeing offered a productive pathway for moving out of a validation paradigm with TEK. It provided a model for holding multiple versions of reality in her mind, without feeling obligated to have everything match up perfectly. The two-eyed seeing approach further aligned with embracing multiple, situated knowledges to move toward a more complete understanding of the world (Haraway). Diver's appreciation of two-eyed seeing also came from conversations with Reed about his experience leveraging Western science and Karuk knowledge in dam removal negotiations. In this case, two-eyed seeing helped overcome uneven power dynamics in knowledge hierarchies, as an ongoing challenge for natural resource management negotiations with Indigenous peoples.

Experiences with two-eyed seeing are embodied–linked to stories, places, and people

By including our personal stories in this article and our analysis, our experiences are interwoven and their own histories, understandings, and personal integrity are implicated in the research (Archibald, 2008; Weber-Pillwax, 2001). Berryman et al. (2013: 5) state that both community members and researchers "are encouraged to bring their identities and ideologies to the research table so that these authentic selves inform the co-creation of new knowledge in a third space" (see Bhabha, 1994; Shor, 2009; Soja, 1996). This space bridges the gap between "self" and "other," and reframes the researcher's stance from "expert" to "learner" (Berryman et al., 2013; see also Freire, 1998).

For our research team, place also feeds authentic connections between knowledge systems that can contribute to our two-eyed seeing, and knowledge collaborations between Indigenous and non-Indigenous peoples. Working on ceremonial trails or gathering materials for baskets involves reaching out to a place, and relearning what it means to be of that place. This follows the work of Larsen and

Johnson (2017), who emphasize the centrality of localized and particular place relations, writing "It is at the local scale that we see places compelling ontological dialogue and struggle over how to live together in ways that acknowledge our kinship and its inherent responsibilities" (p. 157). Place also supports Indigenous self-determination in political negotiations over knowledge production regarding Indigenous lands (e.g. Diver, 2017). As Larsen and Johnson (2017) describe it, "'Border thinking' is, at root, grounded in the agency of place to teach coexistence, an agency that also entangles corporations and states" (p. 186).

Engaging scientific and bureaucratic systems given historical trauma: A heavy lift

In addition to Indigenous ways of knowing, two-eyed seeing also seeks authentic knowledge collaboration with Western science. This is a heavy lift, considering the many cases in which dominant science engages with Indigenous knowledge in a techno-bureaucratic manner without respecting its embeddedness in place-based cultures (e.g. Norman, 2013). Yet, two-eyed seeing recognizes the contemporary and changing nature of Indigenous knowledges, cultures, and governance institutions, which multiple Indigenous peoples and nations are articulating for themselves (e.g. Clifford, 2001). To this point, TallBear (2016) writes that

> part of the governance of science, and governing through science is to build Indigenous controlled institutions. Part of governance, if we choose to take it up, is to train our own peoples to do the science. . . . The hope is also that as we learn to participate in governing techno-science, we bring to the conversation a nuanced and radical positionality. (p. 79)

This speaks of the cases where Indigenous nations are choosing for themselves to leverage Western science in service of Indigenous values for restoration, revitalization, and repair (e.g. Diver, 2017). TallBear's ideas of Indigenous governance in science connect with Todd's (2014) "principled pragmatism," that is, ensuring that Indigenous values are embedded in formal legal orders or informal norms regulating and guiding non-Indigenous resource users in respectful practices. Approached in this way, we see pathways by which two-eyed seeing could facilitate the radical transformation of knowledge production, and land management.

Yet such knowledge collaborations are embedded in longstanding histories of resistance against colonial legacies, uneven power relations, environmental injustice, and other forms of racialized violence. From the genocide and theft of lands and livelihoods through settler colonialism, to the children who were violently stolen from their families and placed in federal boarding schools, the centuries-long buildup of historical trauma in Native peoples is immense. The weight of these traumas continues to have socioeconomic, mental, and physical health impacts on individuals, families, and communities (e.g. Brave Heart et al., 2011; Evans-Campbell, 2008; Mohatt et al., 2014).

Such land-based historical traumas are often recapitulated when Indigenous peoples enter into contemporary, conflict-ridden environmental decision-making processes. Researchers have clearly established how problems of cultural differences and power asymmetries typify negotiations over environmental management and injustice with Indigenous peoples (Feit and Spaeder, 2005; Menzies and Butler, 2006; Nadasdy, 1999, 2003; Natcher et al., 2005; Spak, 2005; Taiepa et al., 1997; Tindall et al., 2013; Usher, 2003; Weir, 2009). Experiencing and responding to environmental injustices can provoke a sense of overwhelming outrage and despair for culture bearers (Norgaard and Reed, 2017). And Bacon and Norgaard (2021) point out how these emotions, including anger and shame, structure settler-Indigenous solidarity work and resistance movements.

In the Indigenous environmental management context, what is less discussed is the emotional toll that the complex process of crossing knowledge systems can take on the health and wellbeing of Indigenous community leaders, and what is needed to promote healing in research partnerships. There

have been important innovations in culturally informed therapy to provide healing of historical trauma that incorporate traditional knowledge (e.g. Archibald, 2008; Archibald and Dewar, 2010; Ellington, 2019; Galla and Goodwill, 2017; Hartmann et al., 2019; 5.

Moving forward: Collaborative care and reciprocal relations

Part of the solution has been discussed through reciprocal relations: doing research in deep connection with the communities we work with, as well as the land (Kovach, 2009; Wilson, 2008). This understanding of reciprocity grows from Indigenous worldviews centered on practices of embodied caretaking held between people and place (Craft, 2017; Littlebear, 2000, 2009; Vaughan, 2018), and through mutual caretaking between people and place that occurs when Indigenous communities can exercise their intrinsic responsibilities toward their lands and waters (Diver et al., 2019). Place-connections feed personal needs for kin-centric relations that connect human and non-human collaborators through ceremony, gathering, fishing, or other cultural practices that help to fulfill the intrinsic responsibilities people hold toward a particular place that are embedded in Indigenous belief systems (e.g. Deur and Turner, 2005; Kimmerer, 2015; Lake et al., 2010).

Reciprocal relations also reflect Wilson's (2008) discussion of relational accountability to ensure respectful relationships with other participants involved in research. Wilson's reflexive research approach intersects with a feminist ethic of care, and evokes TallBear's (2016) reflection on the need to care for our research subjects, even when taking on settler-colonial violence. As Whyte (2018) points out, however, relational accountability is severely lacking in the societal institutions that are available to work with Indigenous peoples. To avoid further perpetuating injustice, Whyte (2018: 1) calls for institutions with "relational qualities" based on reciprocity, trust, accountability, mutual responsibility, and consent and also notes the time and effort required to achieve such a relationship. We extend this ongoing conversation of reciprocal relations to our research collective, and our efforts at two-eyed seeing.

Method

Our analysis of two-eyed seeing arises from conversations between three scholars working from multiple standpoints: Karuk Tribal Member, Karuk Enrolled Descendent, and non-Indigenous ally. Through this conversational approach (Kovach, 2009), we draw on our experiences, individually and collectively, to identify challenges to researcher health and wellness that arise through two-eyed seeing processes, and share productive interventions we have employed to surmount these challenges.

The authors in our research collective, Smith, Diver, and Reed, first met through the Karuk-UC Berkeley Collaborative, a group made up of Karuk peoples, the scientific community, and others, that is, working toward "enhancing the eco-cultural revitalization of the people and landscapes within Karuk ancestral lands and territories" (www.nature.berkeley.edu/karuk-collaborative). In 2007, Reed initially connected with UC Berkeley scholars about his work on ecocultural restoration and supporting Indigenous youth. The following year, 2008, Diver started her PhD program in Environmental Science, Policy, and Management at UC Berkeley. Diver then met Smith, a 2010 incoming graduate student in the Department of Anthropology, and introduced her to the Karuk-UC Berkeley Collaborative. Notable projects, research and events that Smith, Diver, and Reed undertook as Collaborative members included building a 5-year partnership with the Karuk Tribe and Berkeley Law students to advance Karuk self-determination.

This article unfolded from our small collaborative's relationships through this web of meetings, research partnerships, and gatherings from 2010 onwards. What cemented the coauthors coming together for this particular project was a 2021 podcast recording for the @ Risk in the Climate Crisis

at Western Sydney University (www.westernsydney.edu.au/ics/events/@risk). After our podcast discussion of Indigenous leadership in the academy, we collectively felt we had so much more to say on these topics and others. In December 2021 through March 2022, we met virtually each week for conversations on each of our experiences with two-eyed seeing. Our methods of composing this article leveraged both written and oral contributions through a collaborative writing process. Smith and Diver who work primarily in academia often shared manuscript drafts by email. As our first agenda item at weekly research meetings, Reed who works primarily in the community would dictate additional text and edits. Notes that recorded our weekly conversation provided the backbone of our article, including the analysis and co-learning we did for envisioning Indigenous futures. The warp and weft of these conversations were dynamic, but wove together a more nuanced understanding of our encounters with two-eyed seeing through both the joy of land management and the mental toll of balancing Western science and Indigenous knowledge.

Results

Defining the problem: Engaging with "two-eyed seeing" from a weaver's perspectives

> When we are thinking about the environment, ceremonial trails, it is engaging different parts of our brain. We are going from unfixed, not-concretized ways of engaging with the world, and then we have to translate that into these fixed terms. And this is frustrating.
>
> Because when we are out on the land, I am not thinking through the processes in a western science procedural way when I am coppicing a willow tree. It is part of a process where I know the tree will be healthy, but that is not the end point of it. I am gathering the materials so that it is going to be helpful.
>
> It is working in conversation, constantly in rhythm and tempo in our environment. What we are doing in the moment is about where we are at with our stories, and a whole host of other things. (Carolyn Smith, Karuk scholar and weaver)

Drawing on her experiences as a Karuk basket-weaver, Smith shared with our collective that interweaving Indigenous science and Western science requires a careful process of selecting the threads you want, and then weaving them together in an intentional manner. There is a choosiness involved in preparing basket-weaving materials. Recalling the art of weaving, Smith is reminded of the work that is involved in scraping the roots to make sure they weave well together and choosing sticks that are the same thickness to ensure that the weave is tight and smooth. As Smith's weaving teacher, Wilverna Reece, would tell her, do not try to throw everything into the basket, otherwise the basket will end up lumpy and holey, much like a bird's nest. Weavers need to be choosy about their materials, for example, if materials are buggy or crooked, they need to be thrown out. If the roots are too thick, they need to be scraped down. Honing your ability to select the right materials is part of the artist's skill, learned over a lifetime of experience. It is part of the joy and excitement, the labor, and the frustration of learning to weave.

The concept of two-eyed seeing, seeking to engage in multiple knowledge systems with the goal of finding complementarity and balance—a smooth weave—is inspiring. Yet, in practice, this work can lead to intense frustration. This is due to an imbalance in power hierarchies between Indigenous management systems and Western management systems. Many authors have written about these power dynamics that are a part of ongoing efforts to link Indigenous science and Western science (Diver, 2016a, 2017; Nadasdy, 1999; Notzke, 1995; Weir, 2009). These dynamics are replicated in current efforts by weavers striving to access materials they need on the land, a practice that is governed by regulations that favor Western policies, shaped by colonial legacies.

As Smith recounted in our conversations, this imbalance plays out through the harassment that weavers sometimes experience when gathering in their ancestral territories, areas that are now

under the jurisdiction of state or federal agencies, and the advocacy weavers have taken up to resist such harassment (Oberholzer Dent et al., 2023). Even in cases where state agencies and Indigenous governments have negotiated gathering policies, enforcement officers may be unaware that these policies exist. Repeatedly, state agents engage with Indigenous weavers as adversaries. The consequences of this means that the state and its enforcement officers are the deciders; gathering is not permitted; and if cultural practitioners choose to gather on these lands, they run the risk of having state agents confiscate the materials.

Harassment of Indigenous peoples engaging in subsistence use and the personal trauma these events can incite are not one-off events (Alliance for a Just Society, Council of Athabascan Tribal Governments, n.d.). It speaks of the pattern of uneven power relations that prevent contemporary harvests of cultural materials necessary for the continuance of Indigenous knowledge. The threat of harassment and criminalization forces Indigenous knowledge practices into the shadows, where weavers must hide behind the trees if they wish to bring home the roots, sticks, ferns, and fibers from areas that remain their ancestral territory. The suppression of cultural practices has negative repercussions for both Indigenous and non-Indigenous peoples, both in preventing access of cultural practitioners from continuing subsistence harvests, and in preventing opportunities for two-eyed seeing that might flow from such cultural practices.

Such negative interactions between state agents and cultural practitioners also highlight the uneven power dynamics behind two-eyed seeing. Even if weavers negotiate the right to gather in a particular area, and the rules of this agreement are followed, and permits (where such agreements exist) are obtained, weavers must still function within a system that typically assumes the criminality of cultural practitioners as the starting point for regulation. Even if weavers tried to bypass or go around this system, the dominant system is still there as an organizing force.

What is at stake: Indigenous health and wellness

> I can sit here and make everybody cry for the rest of the day, but we are trying to figure out the method to this madness. We need to bring a sense of happiness and well-being back to the conversation. (Ron Reed, Karuk culture bearer and cultural biologist)

Such on-the-ground experiences with two-eyed seeing—both the excitement of finding the right materials, and frustration of struggling against power hierarchies—condition the emotions underlying the leadership efforts of Indigenous scholars, cultural practitioners, and their allies in research and land management. As traditional dipnet fisherman, Reed shared with our collective, a key driver for working across knowledge systems includes the need to get the tribal community to be healthy again, and to accomplish this through a self-determination process. Indigenous research leadership is about healing Indigenous communities, and building a system that makes health and wellness for Indigenous communities just as good as for everybody else.

For Reed, this means finding a way to see the history for himself of what is behind tribal health and wellness challenges, and also supporting other community members and family members to do so (e.g. Diver, 2014; Diver et al., 2010). Reed also shared his vision for creating health and wellness that is rooted in cultural identity and place-based practices. In his experience, it is through centering culture that you can gain a sense of how everyone in the community is doing, and how you are connected to one another. Even as the community is working to rebuild Karuk knowledges, you can know that you are connected through ideology rooted in Karuk knowledge systems. For example, Reed noted how he connects with Smith, in part, because she is a basket-weaver, which dips down into the core of what it means to be a Karuk person.

As discussed by Bacon and Norgaard (2021), building health and wellness into environmental justice can be fraught—the emotions behind doing knowledge translation work in an environmental justice context can be immense. For cultural practitioners like Reed and Smith, there is a tension with

working in the academy and with agencies, particularly around dividing one's time, because there are more hours required under the fluorescent lights of sterile meeting rooms than on the trails. There are also deeper tensions around how to constantly negotiate between worldviews, which can deeply affect the mental health and well-being of individuals and the community, and in a research collaboration.

As Reed described to our group, the feeling he gets—when advocating with other tribal leaders and their allies for salmon protection and dam removal, the reintroduction of prescribed fire on Karuk ancestral territory, and Karuk leadership in the protection of sacred sites—is often one of incompatibility. He mentioned that, after a couple of meetings with an agency, the understanding that there is no space to be your own person can quickly unfold, and only the external vision of how agency leadership and staff choose to see you (Reed and Norgaard, 2010). Not only is there a mismatch with differing visions of work, but there are also complex emotions around restoring ceremony and ceremonial trails, particularly when it has to be done in collaboration with institutions in a Western bureaucratic world that separates church and state. As Reed shared with us, "It is a hard nut to crack when you have to go after federal funding to restore your religion, but that is what is at the crux of Indigenous land management." For Reed, this raises the question, do you continue to stay in that space, or find a place that honors who you are as a full person, which includes your indigeneity, your religion, and your history?

Mental and physical consequences of advocacy for the cultural practitioner

Two-eyed seeing is being able to persist as an advocate and practitioner in the world of ceremony and community, and the world of agency and academy, even if there are mental and physical consequences to this work. Negotiating cultural knowledge and Western science ways of knowing can challenge one's sense of identity and one's confidence of their knowledge in both realms. Reed mentioned that to live the experience in both worlds can create a sense of inadequacy. For example, Reed shared that his grandparents were great leaders, while he felt that he had a fraction of that knowledge. He found that when he went to college, he felt he did not fit in there either. To be a Karuk person, to come from a ceremonial family, Reed holds an inherent responsibility to do what is right. But through his journey to restoring Karuk ceremonial trails and navigating the academy, he has found that there is a lack of reciprocity, which is central to Karuk ways of knowing. There is the sense of fighting against multiple systems and perspectives of how to manage the landscape.

To get the work done, two-eyed seeing from all collaborators is needed because each person brings unique understanding to the fore. Reed stated that the knowledge of Karuk World Renewal, Karuk ceremony was gifted to him, genetically encoded, so no matter what the pressures are, the work continues. All of the work is related to World Renewal, to ceremony, to creation stories, and to the ritualistic, annual, biannual, periodic knowledge that is required to continue Karuk culture. As Reed shared, this creates a sense of cultural integrity that is like the frame of a sweathouse, shared in the creation stories, and woven all together. Embedded throughout is responsibility: to restore balance and harmony, to heal historic trauma, and to help heal the land.

Reed described his vision for a collaboration process that engages with Western science to fill in knowledge that is missing due to colonial dispossession, knowledge that enables you to fill up your bag with the right things, in order to move past the story of the trauma. The progress needed to gather all the information needed, as well as to help each other get to a better state of mind—so that we can all gain the confidence we need to do our best work. Reed explained, "As my mom used to say, it's that extra bounce in your step." This includes getting to a mental state where you feel you are good at something, and able to contribute to the community by fulfilling cultural responsibilities.

Interventions: Aliveness of knowledge-resisting ahistorical essentialism

Ethnographic research from the era of "salvage anthropology" sought to define and construct an image of Karuk culture that made sense to an academic, Western worldview, while at the same time

distorted and discounted Karuk social and cultural life (e.g. Stewart-Harawira, 2013). While anthropologists, who interviewed Karuk elders in the early 20th century, noted names and differing points of view in research notes, they aggregated data to create a fixed, ahistorical sketch of Karuk people. While archives and old publications can be useful if combed through carefully, the reliance on the claims made in the old anthropological project brings about unintended consequences, such as perpetuating a colonizing mindset about Karuk lands and practices, As Reed noted, anthropological information that often erased individuality, nuances of practices, and historical contextualization has been frequently relied upon by agencies and the academy to describe the Karuk Tribe, and also fed back to the Karuk community.

At the same time, archival research has become increasingly important in order to piece together Karuk elder oral histories, which can help with guiding "Cultural Management" that is both physical and spiritual in nature. There are many aspects of ceremonies, oral histories, and language, which have not been passed on due to forced assimilation. Responding to this loss, cultural leaders are reestablishing life-pathway ceremonies along with land management, and procuring, harvesting, and distributing traditional foods and materials helps to restore Karuk consciousness from working on the land, and from a place-based sense of being.

Given that Karuk knowledge is channeled through individual standpoints and lifetimes of experience, the question becomes, how can the polyphonic nature of Karuk knowledge from elders and individual experiences be conveyed to agencies and academics as tribal leaders move forward with ecocultural revitalization? How can these polyphonies of knowledge be honored in reports, publications, and "operationalized" in land management plans? Karuk people carry these voices and these perspectives, and express this knowledge to agencies and academies in order to gain support and access to steward the lands of life and livelihood. Yet all too often the multivocality that honors elders' and individual's knowledge is often drowned out, erased, flattened to a singular perspective.

Much of the knowledge that informs the restoration of ceremonial trails or gathering of weaving materials is the teachings from Karuk elders. Karuk elders and ancestors, who imparted these lessons, have shaped and informed what is shared. Yet while working with academics or working with agency personnel, the transactional experience of knowledge exchange is one-to-one. The elders and ancestors who taught the interconnection of prayer and stewardship are the forgotten ones in the knowledge transaction. Karuk cultural practitioners, like Reed and Smith, resist this transaction by honoring their elders, their contributions to the community, and the collective nature of knowledge production that includes ancestors and learning from place.

Relationships, joy, and liveliness: Sensory perception with ecocultural revitalization

> Weaving is life—it is a way of life and a way of knowing. Through the act of weaving, one is both creating and recreating the past, present, and future. Each of these is intertwined in each basket—Karuk ecological responsibility, Karuk histories, including the legacy of genocide and erasure, Karuk language, illustrating the liveliness of our baskets, Karuk prayers for the world, breathed into each root and stick as they are twined together. (Carolyn Smith)

Whether gathering basket plant materials, or walking on ceremonial trails, Reed and Smith are engaging with all of the senses, existing in a land infused with the knowledge and experience of their elders and ancestors. When it comes to translating this knowledge into something understandable into Western science terms, there is an almost epistemic violence in the process that arises from shifting unfixed, cyclical knowledge to fixed, linear terms. Performing this balancing act, translating experience into Western science terms draws immense mental energy from both worlds.

The intervention with this simplification is to celebrate the world in which Karuk people live as a vital, living, breathing place infused with the knowledge and spirit of ancestors and beings, and materials gathered or harvested from their homelands. The work to restore ceremonial trails and the work

to gather and weave baskets are inextricably intertwined. Cultural practitioners are walking the land, breathing alongside it, in the rhythms and songs of the way things are and the ways things can be. Being connected to the land is a way to reconnect and rebuild the relationships with the environment and to heal from ongoing historical trauma.

Although there is restoration work to be done with agencies that have rights over Karuk lands, the academy that can amplify the meaning of the restoration work, and granting agencies that provide funding, the sensorial experience of gathering is at the center of the knowledge collaboration. The depth of weaving experience is felt within the songs and prayers, the stories of Karuk creation, and the muscle memory of the clipping, pruning, coppicing, digging, cleaning, and preparing weaving materials. This is what keeps the knowledge collaboration authentic and alive—not necessarily in the "translating" of sensorial, experiential knowledge of land stewardship for agency and academic purposes on top of residual trauma from colonization, which wears on a person's health and wellbeing–but in creating space for the "doing" of cultural practices.

There are so many ways that we communicate with each other, with the world, and it is not just through words. In working toward two-eyed seeing, Smith remembers the space of weaving where the sense of animacy of the basket grows, and the encompassing awareness of the relationships to both human and other-than-human beings. While weaving a basket with materials so carefully harvested and prepared, a finely tuned conversation occurs between the weaver and the basket, like the gliding fingers over the sticks and scrapped roots or the waft of scent from the damp willow sticks that is reminiscent of a languidly warm spring day on the Klamath River. Each sensation is telling of a conversation between the weaver and the materials, with the baskets encompassing the thoughts and emotions of the weavers, and taking part in the knowledge collaboration.

Accountability to ceremonial scale: Doing the work in good spirit

> Reciprocal relationships mean health and wellness when allowed to practice inherent responsibilities in regards to food and indigenous ritualistic landscape scale management processes. (Ron Reed)

Ceremonial trails are an important part of Karuk culture, as part of World Renewal ceremonies, named Pikyávish in the Karuk language. Reed shared that ceremonial trails in the Inaam cultural area provide a spiritual and geographic center. Reed's grandfather Francis Davis had been the Medicine Man at the Inaam Pikyávish in the early 1920s, and became the ceremonial head man until his passing in 1977. These responsibilities have since been passed on to others in the family. Reed became Medicine Man at Inaam briefly from 1996 to 1998, then returned to a leadership role more recently in 2018.

In 1998, Reed shifted from ceremonial appointment into a job with the Karuk Tribe's Department of Natural Resources, where he worked for over 20 years as a cultural biologist, identifying natural resource management impacts to Karuk culture. The experience was stressful and draining, so that he eventually left his position with the tribe to heal himself. Ceremonial and ritual-based management of trails, camps and associated resources has been one pathway for Reed to restore his health, as well as his family's health. Becoming co-ceremonial leader at Inaam required managing ceremonial ritual and timelines; working closely with family members that includes his sister and brothers, sons and cousins, who also took on ceremonial roles as medicine men; and gathering traditional foods needed to provide sustenance during ceremony with the help of family.

There is a great stress and burden involved in site restoration for ceremonies. The physical labor involved in cleaning trails is challenging; the trail system includes steep, mountainous terrains that are now overgrown due to fire suppression. Over the past 4 years, the family has struggled to clear thick brush in order to allow the ceremonies to proceed. The magnitude of impacts of fire suppression to ceremonies has been catastrophic. Yet restoring trails is part of an inherent responsibility for Karuk people to care for the ceremonial grounds and associated places.

There is a broader spiritual and social obligation that arises from operating within a place-based religion. The physical practice of cleaning prepares the people for the ceremony, and holds the spirit of prayer. This is accomplished by cultivating responsibility through the family, which brings the people together around a shared place and purpose. And it is a land management practice that requires the family to lead; this land management cannot be done by others, if it is to have a strong social impact. Reed shared that it is a humbling experience to be out on the trails, which he sees as part of what it means to practice a place-based religion—connecting Karuk worldview and ceremonial ideology to this place.

Interventions in the current situation involve activating federal agencies to support ecocultural restoration, as a form of two-eyed seeing. Current talks with the District Ranger at the Klamath National Forest are encouraging. The meetings are proactive, sharing information and resources, as well as building trust through dialogue that will lead to action. Conversations have centered around Reed's inherent responsibility as a ceremonial leader and the health and wellness of Karuk place-based ceremonial community, both human and nonhuman. This means putting fire back on the landscape at a "ceremonial scale."

For Reed, working at a ceremonial scale is highly motivating, because it leads to cultural integrity. The joy coming from ceremony resides in connecting knowledge to spiritual action, which leads to clarity, competence, and feeling that you are in control of your life. It is about those relations that are embedded in you, all those relationships that are connected, creating a level of good. It gives a sense that at least you're trying, or on your way to being good. Reed goes on to state:

> If you are going to have good medicine, you have to have that positive frame of mind. Finding that good feeling is something that can happen through ceremonies, as well as through the connections with non-human relations that come through them.

Reed shared that he never saw his grandmother cry until he was named Medicine Man. He remembers her having a sense of strength portrayed through her infectious smile and laughter, even though life was hard. He recalls that other community members, who also spent time with his grandma, remember that feeling too. To maintain that good feeling, Reed shared, is through "the good that we do every day." If you are going to do good things, you have to be thinking good. It becomes not a duty, as he explained, but a love for the lifestyle we have inherited. It is about finding your place in the world through cultural practices. As Reed stated, you do not have to be good at everything, but you do need to find something that is yours. It is about finding your place through the ceremony or practice of your choice.

Working at ceremonial scale is also part of the healing process needed in tribal community, with finding a path toward knowledge that is accessible to individual families, given their unique gifts and histories and futures. This is based on the inherent responsibility that is linked to place-based knowledge, and individual family ties to particular places. Community knowledge can function differently than the knowledge of tribal government, and finding ways to create space for multiple knowledges within the tribe is part of community healing. In this way managing at "ceremonial scale" has great teachings for the spirit, for community, and for two-eyed seeing.

Finding our allies: Mutual acknowledgment and solidarity across systems

Two-eyed seeing arises from working collectively in solidarity toward a common goal of Indigenous sovereignty. Intersections between lifepaths, expertise, and social movements enable us to make connections across systems and knowledge traditions, and sometimes to locate trusted allies. Many of the movement leaders have had to fight for a long time without being heard, and yet they still have the grace to share with people who are willing to listen. Reed often finds himself expressing his anger in

public talks, and in our conversations. Our group discussed how this has a use. Expressing outrage in such an open and personal way can allow you to find the people who can become your allies, people with a sense of mutual understanding and interests that you really want to work with in solidarity and learn from over the long term.

In our experience, this means working together to generate the energy we need to create a pillar of strength for Indigenous revitalization and sovereignty. Sometimes fear is the obstacle we seek to overcome. As Reed explained, the collaborations with researchers in the academy are part of what helps him to overcome this, to keep going. Working with trusted collaborators who have different experiences are sometimes able to help reflect back different points of view. As Reed stated, "you remind me of who I am." This feeling comes out of friendship, connectivity, trust, and the acceptance we bring to our collaboration. The same kinds of relationships are needed within tribal community, which can be challenging to accomplish for many reasons. Ironically, it can sometimes help to seed a collaboration with friends and collaborators from outside the community—friends who do not share the same lived histories or traumas, and who may have be drawing on different lifepaths to contribute helpful reserves of empathy and support to solidarity efforts.

The real learning that we do is around being together as friends and family. As Diver recalled from her early experience as a graduate student beginning to work with Reed and Smith, we started working together through the Karuk-UC Berkeley Collaborative through friends, and in this way built our own friendships. We started by finding people who cared about each other, and who were willing to think about the needs of our friends and our collaborators as a first step toward anything else that we might build. It was about about caring about each other, and finding ways to help each other in deep ways. This speaks strongly of Wilson's (2008) understanding of research as relationships, where the knowledge sits in the personal connection created and held between particular people, their families, and life experiences.

Part of this relationship may go out into the world in collaborative writing, or restoration projects, but much of the knowledge is held internally, embedded in a friendship that endures over time and shapes your life path and behavior in new ways, as an individual, a community member, and a family member. This personal aspect of knowledge production through two-eyed seeing sheds light on what it means to conduct collaborative research in solidarity with Indigenous communities. While the academic project is there, much of the deep learning is around how to build toward wellness by engaging respectfully with one another as trusted friends and colleagues, appreciating and caring for one another and our families over time, even if we bring come from different standpoints and situated knowledge to the relationship.

Discussion

Seeing one another: Clearing the path for Indigenous leadership in research

> Rebuilding that trust is about reconnecting the resources to family. It's like a good fire, where you have to put fuel on it. That's what I'm committed to doing to get out of this insanity part of my world. (Ron Reed)

As discussed above, engaging with two-eyed seeing requires grappling with power hierarchies. How do we weave together knowledges and what are the negotiations that go into decision-making processes? What does it mean to engage with two-eyed seeing as a flexible space for building solidarity for Indigenous sovereignty and self-determination, which benefits from all of our lifepaths and capacities? In seeking to overcome the challenges that are intrinsic to two-eyed seeing, we move in a three dimensional space, where we are open to all of the points of connection among us. Through building relational accountability, we move political relations into the field of personal and even spiritual relations, where we begin to negotiate our knowledges based on a sense of personal mutual responsibility to each other, and to particular places. Larsen and Johnson (2017: 157) describe the significance of this

shift in the following way: "With the call of place bringing Indigenous as well as non-Indigenous peoples into dialogue about our shared responsibilities to the more-than-human world, we are displacing the role of the state as arbiter of (economic, social, psychological, spiritual) value."

To achieve Indigenous leadership in research and knowledge production the weaving process must be rooted in Indigenous sovereignty and freedom. At the same time, this does not mean that knowledge production for two-eyed seeing occurs as a singular effort, or that the knowledge production process is inherent to any one group of people. Building the freedom to lead despite colonial legacies requires strong relationships. This is difficult work that requires cooperation, and flexibility. It also involves advancing the understanding of Indigenous research as a multi-vocal initiative with the capacity for restoration and repair.

In many attempts at knowledge collaboration, Indigenous knowledge is often taken out of context, and out Indigenous peoples' hands, but it does not need to be. With the Western scientific frame, knowledge becomes data, and connects to the erasure of our culture–and a lot of moral standards that rejected Karuk people. When an understanding of the medicine embedded in prayers and lifepaths is taken from Indigenous peoples, when this is vacated, it erases that spirit that connects basketry, hunting, fishing, gathering, and praying with the trails and everything that we do. When two-eyed seeing engages with questions of Indigenous lands and ceremonial trails, this is our cathedral. It is about protecting a community of faith, and yet the decision-making is dealt with in the context of "management," not religion. Keeping Indigenous peoples, voices, and cultural practices in the knowledge collaboration, while protecting Indigenous knowledge sovereignty, is a vital part of our work.

In order for effective knowledge translation to occur across cultures and worldviews, one needs to feel welcome—before equitable knowledge exchange can occur. Yet feelings of belonging for Indigenous scholars and cultural practitioners are often elusive in the academy, or in bureaucratic government agencies. When academic institutions do not value Indigenous scholars for their intrinsic contributions, but instead engage with Indigenous scholars through a tokenistic approach, that is, "checking-the-box" on whether you have an Indigenous person on a review committee, grant proposal, or symposium panel, this reproduces colonial violence. The same goes for implicit or explicit expectations for Indigenous knowledge holders to provide performative demonstrations of vulnerability in talks of research collaborations. Collaborations such as the "So You Care About Indigenous Scholars?" research collective that Diver and Smith are a part of, are increasingly working to educate the broader academic community, in this case through comic art posters that challenge the academy to transcend extractive relationships with Indigenous peoples (Sullivan et al., 2020). A key message in the "So You Care?" poster series is "Pass the Ball," a comic art storyline that envisions a win for the team when Indigenous scholars are valued and centered in knowledge production (Piatote et al., 2020).

Encouraging flexibility and multiplicity—For solidarity

The metaphor of weaving further expands our understanding of two-eyed seeing because it offers an understanding of the flexibility, as well as discernment that is involved with learning from multiple knowledges, choosing what materials work best for the situation at hand. We work toward creating a collaborative space that moves away from rigid connections that are prone to breaking. This kind of solidary work shifts away from having to find a single answer, or wrapping everything that is known into a neatly packaged theory. The act of "seeing" turns out differently based on the roots selected in a given session. As Wilson (2008) asserts, the search is grounded in relationships, and it is about seeing one another in a given moment. This is where our small research collective shines.

Baskets are not rigid, and neither are we. Weavers typically soak their roots and sticks in water to make them more pliable before they set themselves to the task of weaving fibers together. That is what

it feels like when we first get together to talk about our ideas, and loosen up—hearing about a family issue, challenges on the job, or celebrating a recent accomplishment. Whether we start with laughing or crying, we relax when we get together to talk about ideas, and that is what keeps us coming back to talk to one another. Like a dipnet, we flow into and through our conversations, building in flexibility and acknowledging one another as we go.

It is not so different from working within an Indigenous community in that it is not about sameness. For example, you get one weaver next to another, you're not going to see the same thing. There are tiffs and spats about how to do certain things. We all have different life experiences, and these influence the way we need to negotiate the world. Because we are not always going to see eye-to-eye, we find the work of two-eyed seeing wonderful and complex and unique. For example, while Karuk weavers may use the same materials, like hazel sticks and spruce roots, they often gather them from different places. We use these same materials to make watertight soup bowls, basket caps, and other baskets that take care of physical, spiritual, and emotional needs. How we weave and how we start baskets can be contested, though—but these differing knowledges were shared with us by teachers and elders. Families do things differently, and weavers add on their own touches, so while we weave together, we also weave differences into the warp and weft of the basket.

We can regain a healthy mindset from each other, even if we are walking different paths. It comes from working with a fundamental position of support and care, with people who have taken the time to get to know you as a person and who have a mutual understanding of the issues you are taking on. As Reed told our group, there is a relief in not having to start at the very beginning, not having to start from an adversarial relationship. There is healing that comes from being able to express emotions like grief and frustration, alongside the joy of being in good company. While we do not require sameness, we do need alignment. Through the concept of solidary, we emphasize that our knowledge collaboration works as long as we are aligned with similar goals, and what needs to be achieved to center Indigenous peoples in knowledge production. Negotiation comes into the picture, but this is woven into the fabric of our relationships. Through mutual recognition, intergenerational and learning, we are coming up with words and language and ideas that we want to write about together. In our case, two-eyed seeing is the way to go, the way to get things done if we are wishing for material changes to how we manage the lands and waters and resources that Indigenous peoples depend on for their subsistence and wellbeing and cultural continuance.

Sisseton-Wahpeton Oyate scholar Kim TallBear (2013: 203) describes the ethic of solidarity she desires when working across different knowledge traditions, stating:

> I maintain my optimism by seeking out scientists with whom to speak and collaborate who love the revelations and insights their science produces but who also cherish democracy and connectivity. I seek those who are willing to battle within their fields to make space for respectful relations with others who are committed to different but equally moving ways of inhabiting this world.

An ethic of solidarity is required for two-eyed seeing because of the longstanding history of Indigenous peoples working under duress, in oppressive systems that have not yet succeeded in building a bridge across knowledge communities. As we seek to solve the problem of privileged spaces like the academy and federal agencies, excluding Indigenous peoples from decision-making and knowledge production, we need to look to Indigenous peoples themselves to understand the issue, without reproducing the tokenism or overburdening of Indigenous peoples in addressing long-standing disjunctures and concerns.

Still, the history of extractive engagement is ongoing, and this motivates us to make these problems visible in our collaborative writing and research to find a more inclusive path forward, in part by going beyond the academic project. When we work together on collaborative research, we do hope that the writing is useful to other scholars, but we also write for the youth who are just now coming

into leadership roles in the tribe, or finding their own path as scholars. We write for other Indigenous community leaders like Reed, who are exploring alternate leadership models that can extend beyond dominant bureaucratic structures. We write for Reed and his own family members, so that Reed's experiences advocating for Indigenous leadership for land protection and ecocultural revitalization on the Klamath can be documented in his own words, and passed along to his children and grandchildren, who will take up the work in their own way.

We also look for opportunities to extend the ideas and the language that we generate through our collaborations into material outcomes that benefit the Karuk people and the places they are connected to. Our research conversation easily transitions into practical steps for moving ecocultural revitalization forward on the ground. Because of the long-term nature of our relationships, it is not difficult for us to move into concrete actions that can generate substantive benefits ecocultural revitalization on the ground. For example, we discuss Smith's upcoming visit to see mentors to create an illustrated book documenting gathering practices and weaving methods for other basket weavers. We identify grant sources that can support Reed's efforts for revitalizing ceremonial trails in his family's management areas, and offer our respective skills toward outlining a proposal that can help direct policy decisions and resources needed to improve Karuk trail systems. We discuss approaches that support Diver on her collaborative research efforts working with the Karuk Tribe and allies on a community assessment of upcoming dam removal efforts, and make plans to meet on the river in a few weeks.

This is how we provide mutual support for one another for two-eyed seeing in solidarity. This is how we bring joy to the complex, sometimes adversarial work that is done with agencies and the academy. This mutual support is also a way in which we buoy each other, supporting mental health and wellness by acknowledging one another and the contributions we bring to the collaboration based on our respective knowledge and skills. This is where we "see" each other for all the things we are. While it is difficult to push back against academic, agency, and grant deadlines, taking time to get to know each other more completely, while creating an "extended family," is one way we fulfill our responsibility to one another. This is where we create the emotional health for ourselves that is so hard in this work.

Implications of two-eyed seeing for Indigenous futures

Building on our experiences, part of two-eyed seeing is that, by drawing on Western science and Indigenous knowledge, Reed's family is reclaiming Karuk ceremonies at Inaam and other lifepaths. It is also working to revitalize Karuk traditional foods, as part of ceremonial preparations and Karuk culture. Through our collective work, we have also seen how it can create links to allies and accomplices who support revitalization in solidarity with Indigenous leaders. So as we expand our gaze to other efforts of respectful knowledge collaborations, what does two-eyed seeing mean for Indigenous futures?

First, it recognizes that Native peoples use science. As Reed reminded us, "Don't say that I'm just Native, and I can't use the dominant science rules too." Native peoples have full political legitimacy in the dominant system. Noted Reed, "The times when people could talk about us not being part of the Constitution are over." The slogan, We Are Still Here, was a reminder to non-Indigenous peoples that we survived physical and cultural genocide, but it is time to move past this. Not only are Indigenous peoples still here, but we are also participants in the world, and members of sovereign Nations, working to breathe life back into the land, culture, water, and community. Two-eyed seeing in this way means employing the best tools that Western science can offer, alongside our own ways of knowing. And balance is created when it is community members that are implementing the framework of the two-eyed seeing, where tribal community is a full participant in knowledge production and land management processes that leverage both Western science and TEK.

Second, two-eyed seeing contributes to Indigenous futures by disrupting the knowledge hierarchy between Western science and Indigenous ways of knowing. As Smith shares, there is a difference when we choose to center Indigenous knowledge systems:

> It comes down to our humanity, our embodied learning processes, our place in the world, our responsibility as Karuk people to bring balance to the world . . . With science, it is about the science, not about the human making the science, like Haraway's *god trick*, or like the anthropological project of old, excising snippets of complex, whole ways of life and rendering them into discrete sets of data to be shared and compared.

Interweaving knowledge systems allows us to maintain the integrity of Indigenous knowledges in a braid of interwoven strands that may include Western science. To transcend the challenges discussed in this article, we imagine an Indigenous future with two-eyed seeing where members of dominant society are able to accept Indigenous knowledge on its own terms within an inclusive knowledge production process. In this future world, Indigenous knowledge would not be rendered down to folklore or myth. Instead, the legitimacy of Indigenous knowledge would be a given, and where Indigenous knowledge systems, as represented by tribal community members, would be a central to research questions and processes.

Third, our hope is that two-eyed seeing can help facilitate a new approach to land management. In particular, two-eyed seeing might lead to Indigenous futures with active management, where the harvest of natural resources is guided by scientific monitoring and reciprocal responsibilities to place, and where humans are seen as a part of nature. Seeing with both eyes reveals the Klamath River as a cultural riverscape (King, 2004), both increasing awareness of cultural connections and land uses that extend across Karuk ancestral lands and territory, and also benefiting from scientific analysis of Klamath Basin watersheds, firesheds, and foodsheds (Sarna-Wojcicki et al., 2019). Furthermore, with its focus on coexistence, two-eyed seeing may create opportunities for identifying policy pivot points (Diver, 2016a), finding new ways to engage with government policy as a starting point for meaningful policy change to support Indigenous land management, for example, through cultural burning or land back.

These insights into Indigenous futures suggest an adaptive approach, where Indigenous peoples are continuing to engage with new technologies, now through Western scientific approaches. What is unchanging here, however, is the inherent responsibilities that Karuk people hold for past, present, and future to create balance in their community, in the Klamath Basin, and in the world. It is through honoring these responsibilities that Karuk people work to fix the world, repairing relations, and ensuring that future generations carry forward language, TEK, basket-weaving, and other cultural traditions. Recognizing ongoing inherent responsibilities is an important way that we steward the land and the river as people who are part of the world that we are inhabiting. It is through such embodied and adaptive practices that we maintain place-based relationships to our homelands, now and into the future.

Conclusion

Because of our respective experiences with land management conflicts involving Indigenous peoples, and working in the academy, we see this work as a highly political project. The real work of relationship building that authentically crosses multiple knowledge systems is a refusal of the dominant system of sameness, or the reductionism or totalization that often comes with engaging with Western scientific knowledge traditions. These political aspects of relationship building are not always discussed in the context of ecocultural revitalization. Perhaps this is where our contributions can build on the foundational writing of Wilson (2008), Kovach (2010), Smith (1999) and others, about the relational aspect of Indigenous research methodologies. We see part of our analysis as recognizing the history of why maintaining relationships in two-eyed seeing work is so difficult, and links back to the

lack of wellness in many Indigenous communities, and the need to create a sense of wellness and belong first, before we can do the hard work of conducting research between multiple knowledge systems.

This article adds to a growing conversation about the need for collective healing. As Reed shared, "It is wonderful to be doing something that is planning for the future. I have some bright spots on my horizon." The conversation we have around this writing supports next steps with bridging the gaps with agencies, with figuring out what are the barriers, and with doing the cultural outreach. As Reed continued, "It's about healing and wellness. That is what prayer is about. That is what ideology is about. . . . It is not only about being a survivor, but about future planning, hope, and family. There is a future."

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