

## Indigenous Fire Futures

### Anticolonial Approaches to Shifting Fire Relations in California

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■ **ABSTRACT:** Dominant causal explanations of the wildfire threat in California include anthropogenic climate change, fire suppression, industrial logging, and the expansion of residential settlements, which are all products of settler colonial property regimes and structures of resource extraction. Settler colonialism is grounded in Indigenous erasure and dispossession through militarism and incarceration, which are prominent tools in California's fire industrial complex. To challenge settler colonial frameworks within fire management, Indigenous peoples are organizing to expand Indigenous cultural controlled burning, fire stewardship, and sovereignty. These initiatives emphasize reciprocal human-fire relations and uphold Indigenous knowledge systems and livelihoods. Concurrently, Indigenous fire sovereignty is threatened by knowledge appropriation and superficial collaborations. In this article, we review contemporary research on Indigenous burning in order to highlight the strategies that Indigenous communities and scholars employ to subvert colonial power relations within wildfire management and actualize regenerative Indigenous futures.

■ **KEYWORDS:** California, cultural burning, fire suppression, incarceration, Indigenous resurgence, militarism, settler colonialism, traditional ecological knowledge

### Indigenous Fire Sovereignty

Amid the growing threat of catastrophic wildfire in California, interdisciplinary scholarship and multimedia journalism have highlighted the importance of Indigenous intentional burning practices, or what many Indigenous leaders call “cultural burning.” Indigenous cultural burns are fires intentionally set to enhance the quality and abundance of habitats and species vital to Indigenous cultures, and they were once ubiquitous across California (Adlam et al. 2021; Eriksen and Hankins 2014; Goode et al. 2022). After centuries of a totalitarian fire suppression paradigm in California that criminalized Indigenous peoples' relationships with fire, settler policies and public perspectives are beginning to shift. After decades of advocacy from Indigenous leaders and activists, in 2021, California state law codified the practice of cultural burning (California Senate Bill 332), and federal land managers are beginning to collaborate with Indigenous peoples to incorporate cultural fire into their management plans (Long and Lake 2018). Some California policy makers and publics consider Indigenous burning a potential solution to the wildfire threat. Yet dominant causal explanations of the threat—such as anthropogenic climate



change, federal and state fire suppression policies, industrial logging, and the expansion of residential settlements—are too rarely understood within the larger context of Euro-American settler colonialism (Hernandez 2022; A. Simpson 2014; Trask 1999; Tuck and Yang 2012; Wolfe 2006). The contributing factors to California’s wildfire crisis are all symptoms of ongoing settler colonial structures that prioritize norms of private property and capital accumulation, defer environmental authority to state technocrats, and marginalize the knowledges and sovereignties of Indigenous peoples.

Critically analyzing the narrative of the contemporary “wildfire crisis” through the lens of settler colonial studies challenges us to think beyond prevailing quick fixes that ignore structural forms of violence and erasure. Too often, appeals to “crisis” function to dehistoricize the very power relations that produce disasters and re-entrench violent structures by defaulting to liberal logics of reform (Masco 2017; Whyte 2020a). By contrast, Indigenous fire practitioners are more likely to apprehend the contemporary wildfire “crisis” as a crossroads—a moment of danger and opportunity with deep historical roots as well as a juncture in which both catastrophic and liberatory futures come into view. Settler colonial analytics reveal that the imminent wildfire threat is inextricably linked to the long-term catastrophe of California’s Indigenous genocide and dispossession, as well as the deliberate, racialized delegitimation of Indigenous knowledges and land stewardship practices (Reed 2020; Risling Baldy 2015; Vinyeta 2021). Despite the perceived hegemony of settler colonialism in California, Indigenous peoples did not disappear. They have resisted settler colonial relations and continue to intervene to influence the future of fire management (Clark et al. 2021; Eriksen and Hankins 2014; Marks-Block and Tripp 2021; Norgaard 2019).

Indigenous fire practitioners, Tribal leaders, and scholars of settler colonialism and Indigenous studies theorize and enact the inherent responsibility and right of Indigenous peoples to use fire to steward their homelands. This orientation cuts through certain high-profile debates about wildfire policy to address systemic and long-standing environmental injustices and redirect our attention to alternative futures already in progress. We follow Frank Lake and Amy Cardinal Christianson (2019) to refer to this responsibility and right—or right to fulfill a responsibility—as “Indigenous fire sovereignty.” The authors explain that “[s]overeign Indigenous fire use conceptually is a culturally decentralized form of governance where fire use, the choice and the authority to burn, resides with the individual, family, clan, band, or tribe/nation” (2019: 3). Indigenous fire sovereignty incorporates complex, specialized, and place-specific cultural ecological knowledges and is a framework of Indigenous law and political self-determination.

A key Indigenous intervention into the wildfire crisis has been to revitalize and expand Indigenous cultural burning practices that remain effectively criminalized (Clark et al. 2021; Goode et al. 2022; Tripp 2020). The State of California and the federal government’s introduction of fire suppression policies in the twentieth century drove a rapid and immense decline in fire extent and frequency (Taylor et al. 2016), which had cascading negative effects on species and cultures (Hoffman et al. 2021). In the present, some circles within the settler colonial state and academy have tepidly acknowledged that its past derision and exclusion of controlled burning was problematic (Pyne 2015; Stephens and Sugihara 2018) and have since co-opted elements of Indigenous burning in their advocacy and implementation of prescribed fires (Fache and Moizo 2015; Pyne 2015). However, government-led prescribed fires are primarily oriented toward fuel reduction to protect settlements and timber, a distinct shift from the objectives of Indigenous fire stewardship in which a primary objective is to regenerate fire-adapted species and ecosystems (Goode et al. 2022; Lake and Christianson 2019). Too many policymakers and scholars continue to marginalize the perspectives of contemporary Indigenous fire practitioners even as they acknowledge that Indigenous burning was widespread before colonization (McWethy et al.

2019; R. Miller et al. 2020; North et al. 2021; Stephens et al. 2020). They continue to hold their own established scientific practices as epistemologically superior to other knowledge systems. Management solutions that disregard and exploit Indigenous peoples and species perpetuate the settler colonial power structures responsible for the volatile conditions of California landscapes today. By contrast, Indigenous re-framings of climate change and wildfire emphasize that deepening reciprocal relationality with human and nonhuman species is a critical pathway toward redressing past harm, and that returning lands and enacting reparations are a key part of mitigating these crises (Reed 2020; The Red Nation 2021; Tripp 2020; Yazzie and Risling Baldy 2018).

In this article, we highlight strategies that Indigenous communities and scholars are employing to approach wildfire management. We start by introducing the reader to the colonial ecological violence that has resulted from the exclusion of fire and the ways that communities resist the settler colonial paradigm of fire suppression. We then analyze the role of militarism and incarceration within the “fire industrial complex.” Militarism and incarceration have been a part of settler colonial fire suppression in California since the beginning even as they emerge in novel forms in the twenty-first century, and they pose a challenge to regenerative and sovereign Indigenous fire futures. Next, we guide the reader through debates on Indigenous “traditional ecological knowledge” (TEK) and the ways that fire science variously erases, homogenizes, or romanticizes the epistemologically and politically complex practices of Indigenous burners. We advocate that scholars avoid participating in an extractive “TEK rush” and instead enter into direct relationships of accountability and collaboration with Indigenous fire practitioners. We conclude by discussing the ways Indigenous communities build anticolonial movements to assert sovereignty—fire and otherwise—based on reciprocal and relational systems for people and ecosystems. By reframing the current wildfire crisis through the lens of settler colonialism, we bypass unilateral, settler-driven solutions and emphasize that respect for Indigenous fire sovereignty—not only Indigenous fire knowledge—is essential for actualizing just fire futures in California and beyond.

## **Settler Colonial Impacts on Indigenous Fire Regimes**

An understanding of California as a settler colony (Hernández 2017; Risling Baldy 2018) is key for envisioning potential pathways to restoring fire-adapted landscapes and communities in California. The interdisciplinary field of settler colonial studies offers key concepts and analytics. Elaborating on the term “settler colonialism” after it was coined by scholar and Hawai’ian sovereignty activist Haunani-Kay Trask (1999), Patrick Wolfe articulated that in settler colonial projects such as the United States, Canada, and Australia, among others, invasion is an iterative structure rather than a past and completed event (2006). Institutions, policies, and cultural productions in a settler society are oriented toward the ongoing acquisition of Indigenous lands and the destruction of Indigenous sovereignty (Tuck and Yang 2012). Settler societies fantasize that colonial occupation is an immutable and “settled” matter (A. Simpson 2014). Yet persistent Indigenous resistance, refusal, and survivance troubles this delusion, and as a result settler colonial power is less a fixed structure and more an anxiously assembled set of technologies that strives to promote the legitimacy of ongoing appropriation and occupation, a “countersovereignty” whose constitutive power is violent land theft (Coulthard 2014; Karuka 2019; paperson 2017; Rifkin 2009).

United States settler colonialism is a form of warfare legally and epistemologically at the root of its imperialism abroad (Byrd 2011), a “fiscal-military state” since 1776 (Dunbar-Ortiz 2021).

Cultural critics of settler colonialism in the United States have observed the widespread phenomenon of “Playing Indian” in which settler individuals and organizations appropriate aspects of Indigenous aesthetics, philosophies, and practices in order to garner social capital, forestall cultural crises, and legitimize land grabs (Deloria 1998, Tuck and Gaztambide-Fernández 2013). “Playing Indian” is underscored by a “settler common sense” (Rifkin 2014) that Indigenous cultures—along with lands—are inherently available for exploitation and settler self-fashioning.

Settler colonialism is invariably environmental, striving to destroy Indigenous presence and ways of interacting with landscapes and replace them with liberal capitalist logics of patriarchal white possession (Moreton-Robinson 2015; Whyte 2017). Jessica Hernandez (2022) identifies three broad layers of “eco-colonialism” that are useful for understanding the situation of Indigenous fire practitioners in California: the white settler entitlement to control landscapes without regard for Indigenous sovereignties, the disfigurement and alteration of Indigenous geographies as a result of extraction economies and climate change, and the institutional neglect of Indigenous and marginalized communities in the face of climate disruption and disaster. As Jules Bacon (2018) theorizes, settler colonialism is an ongoing eco-social structure that continuously dispossesses Indigenous peoples through “colonial ecological violence.” This form of violence is synergistically enacted by settlers, the settler state, and private industry, and manifests in myriad ways, from spectacular forms of violence such as genocide and forced relocation, to more inconspicuous, “slow” forms of violence the impacts of which take time to fully manifest (Nixon 2011). Among these slow forms of colonial ecological violence is the imposition of settler land management regimes that disregard Indigenous knowledges, stewardship practices, and spirituality. As we will elaborate upon in this article, the disruption of Indigenous cultural burning practices under settler colonial land management has had devastating and increasingly severe ecological, social, and political consequences, whose full magnitude has only become apparent over time (Norgaard 2019).

Prior to European invasion, Indigenous peoples in what is now known as California burned extensively as part of sophisticated and place-based ecological and spiritual practices refined over millennia (Anderson 2005; Cuthrell 2013; Lightfoot and Lopez 2013; Nelson 2017; Stewart 2002). M. Kat Anderson (2005) explains that fire has been and still is (despite legal and jurisdictional limitations on the practice of burning in more recent times) “a primary land management tool of California Indians” because of its significant ecological benefits, five of which stand out as especially fundamental: (1) decreasing detritus and recycling nutrients, (2) controlling insects and pathogens especially on key food staples, such as acorn, (3) managing wildlife, (4) modifying the structure and morphology of forest vegetation to support the abundance of basketry material and other cultural items, and (5) maintaining habitat for shade-intolerant species. Beyond the ecological benefits of fire, Indigenous peoples of California consider burning a cultural responsibility that defines their role within their more-than-human communities (Adlam et al. 2021; Goode et al. 2022; Hillman and Salter 1997).

Though there is extensive documentation and evidence for the broadscale use and antiquity of these practices from California Native peoples themselves and through various ethnographic and ethnohistoric sources (Anderson 2005; Stewart 2002), some Western scientists have questioned the validity of ethnography as a source of empirical scientific evidence for the integral role that prescribed or cultural burning plays in California’s ecosystem (e.g., Barrett et al. 2005; Vale 2002). To address these critiques and control for the conflation of cultural versus natural fire data in the past, archaeologists and paleoecologists have found that human disturbance is essential in maintaining the long-term presence of open ecosystem types as opposed to widespread, dense forests (Crawford et al. 2015; Cuthrell 2013; Knight et al. 2022; Lightfoot and Lopez 2013; Lightfoot et al. 2021; Nelson 2017; Taylor et al. 2016). The paleoethnobotanical

and zooarchaeological data testify to the widespread use of cultural burning to maintain open grasslands, forest openings, and coastal prairies over the course of at least the most recent few millennia at several geographically distinct areas within California (Cuthrell 2013; Lightfoot and Lopez 2013; Nelson 2017).

Cultural burning practices have been limited or wholly excluded from different areas across California since the time of the Spanish missions to the present day. In 1793, the Spanish colonial governor of the Californias prohibited landscape burning, though there is little information as to the scale or success of enforcing this proclamation (Clar 1959; Cuthrell 2013). The Spanish missions also impacted many communities' abilities to steward the land, especially along the Central and Southern Coast, because vast numbers of people from these areas were captured and forced to labor in the missions and surrounding ranchos and pueblos (Madley 2016). The missions were, in fact, military prisons and harbingers of future methods of colonial social control (Gali 2021; Lumsden 2021), though Native peoples worked to maintain agency and autonomy wherever possible within such an oppressive system (Schneider 2021).

The transfer of California and lands in the Southwest to the United States after the Mexican American War in 1848 led to yet more restrictions on the lives of the Native peoples of California. During the first session of the California legislature from 1849–1850, the government passed a statute entitled “An Act for the Government and Protection of Indians” that subjected “Any person . . . to fine or punishment if they set the prairie on fire or refused to use proper exertions to extinguish the fire.” The original language specified any “Indian” rather than “person,” making clear that this statute specifically targeted Indigenous peoples and practices (Johnston-Dodds 2002: 29).

At the same time, Indigenous land tenure was being actively contested by settlers and the settler state, and a period of brutal genocide was beginning. The greatest dispossession of Indigenous land in California resulted from the unratified treaties of 1851–52 (L. Miller 2013). During this period, state-sanctioned and rogue settler militias murdered Indigenous peoples by the thousands—a cataclysmic crime against humanity that the state of California is only now beginning to acknowledge (Lindsey 2012; Madley 2016; Norton 2014). The loss of knowledge and capacity embodied by each person lost to settler violence was ecologically devastating. Traditional land management requires the transmission of Indigenous knowledges and the active and sovereign presence of Indigenous peoples in ecosystems of cultural importance (LaDuke 2017; Simpson 2017).

The occupation of Indigenous ancestral lands by federal land management agencies such as the US Forest Service and the National Park Service followed. Initially modeled after European state forestry and conservation principles, these agencies prioritized capitalistic timber extraction and white, upper-class recreation, programs that demanded the expulsion of Indigenous peoples and practices, including—and especially—Indigenous burning (Catton 2016; Jacobs et al. 2022; Pyne 2015). Indigenous burning was criminalized, and strict fire suppression measures were enacted across fire-adapted forests in the western United States (Norgaard 2019). The 1911 Weeks Act permitted the federal government to purchase private land for conservation purposes and simultaneously created a policy framework for multijurisdictional fire suppression.

The criminalization of Indigenous burning was harmful to fire-adapted ecosystems such as prairies, meadows, and oak woodlands in which many Indigenous foods grow, as well the mental and physical health of Indigenous peoples (Long et al. 2021; Norgaard 2019). Fuel loads and forest density have been increasingly unchecked in many California landscapes, creating highly combustible conditions (Knight et al. 2020). In the twenty-first century, these impacts intersect with advancing climate change to create forest conditions primed for high intensity wildfire, endangering both Indigenous peoples and settlers living in increasingly volatile landscapes.

The increased frequency of high severity wildfires—a direct result of fire suppression policies—can additionally be harmful for Indigenous self-determination. The Karuk Tribe’s Department of Natural Resources (Karuk Tribe 2019) documents how, during wildfires, the federal government overrides Karuk sovereignty under the premise of “emergency.” The Karuk “Good Fire Report” states that, “federal policies rooted in paternalistic governance” continue to place ultimate decision-making power in the hands of the centralized settler state, stymying Indigenous fire sovereignty (Clark et al. 2021).

## **The Perpetual Militarization of Settler Fire Management**

The network of institutions and political and economic interests that comprise fire suppression in the US West has been dubbed by critics as the “fire industrial complex,” and colloquially (at least in Karuk country) “the colonial fire-military-industrial-prison complex.” Such wry acts of re-naming argue that fire suppression is a settler colonial tool, entangled with the military and the prison, to eliminate Indigenous lifeways. The perpetual militarization of California’s environments is a direct descendant of European colonists’ wars against Indigenous peoples, and the fire suppression apparatus continues to be premised upon the settler state’s entitlement to environmental authority.

Throughout Euro-American colonialism, Indigenous autonomous burning has been criminalized alongside Indigenous ceremonial practice and language, and California’s prisons have been used to control Indigenous rebels (Clar 1959; Gali 2021; Lumsden 2021). Imprisonment and enslavement of Indigenous peoples are at the foundation of colonialism in California and the United States (Hernández 2017; Ross 1998). Fire suppression in California is not only a system for fighting wildfires, but of governing public behavior, and specifically criminalizing Indigenous relationships with fire. In the face of violent laws, Indigenous peoples of northwest California have continued to use fire into the present day, as acts of sovereignty and survivance (Conners 1998; Davies and Frank 1992; Norgaard 2019; Vizenor 2009). However, the threat of imprisonment and fines continue to act as a strong deterrence for Indigenous peoples who desire to maintain burning practices and other aspects of their cultures (Norgaard 2019). Indigenous renegade burning continues to be prosecuted as arson.

Sociological and historical research has shown that California’s twentieth-century project of “total fire suppression” (M. Davis 1998), from Los Angeles suburbs to the northern state timberlands has continually demanded escalating costs, new technologies, and complex command and control bureaucracies (Pyne 2016; Wuerthner 2006). California’s fire suppression system originated to protect the homes and extraction investments of the state’s wealthiest residents. Federal and state fire suppression has entailed evolving and compounding forms of war logic, from the first forest rangers’ policing power to investigate and arrest under the auspices of fighting arson and incendiarism to the militaristic structure of the CCC (Civilian Conservation Corps) in the 1930s and 1940s. National Forest rangers retained broad latitude to conscript civilians into firefighting through the legal criminal system well into the mid-twentieth century (Davies and Frank 1992; Pyne 2015). The threat that fire posed to timber during World War II caused the federal government to demonize those who caused forest fires in order to consolidate patriotism for US empire (Kosek 2006). After World War II, surplus military aircraft were used to expand fire surveillance and rapid fire suppression domestically (Pyne 2015). Although both economically and ecologically unsustainable (Hudson 2011), status quo fire suppression continues in part because it generates revenue for an array of manufacturers, vendors, and indeed the US Forest Service, whose funding structure has, since the 1980s, become tied to a model of crisis

management (Hirt 1996; Hudson 2011; Kosek 2006). Proponents of a paradigm shift away from pure fire exclusion argue that “fighting fire” may be good big business, but it is ultimately a war that cannot be won (Ingalsbee 2017). Some fire suppression is necessary to protect lives, but its militaristic patriarchal social norms (Reimer and Eriksen 2018), disregard of Tribal sovereignty (Norgaard 2019), the trend of classism and racism in its execution (Méndez et al. 2020; Roberts 2013), and structural inflexibility in the face of changing conditions suggest a different fire policy is necessary.

Waging fire suppression as an endless war also has complex psychological and physical impacts on firefighting personnel. On the ground, fire suppression hand crews engage in very challenging manual labor in extremely dangerous situations. Wildland firefighters are typically exalted for their heroism, yet low wages and temporary contracts can lead to high turnover and demoralization (Boguslaw 2021). Wildland firefighters typically are not trained in Indigenous epistemologies of environmental reciprocity and relationality. Hence, species of importance to Indigenous communities are routinely sacrificed to meet containment objectives, unless Indigenous expertise is respected, and Tribal representatives are given decision-making power within Incident Command Units (Lake 2011; Lake et al. 2017). Indigenous communities also have a long history of engaging in wildland firefighting to support rural Tribal economies (Fisher 2000) and such careers have been a vital way for Indigenous peoples to retain their connections to land and fire in an era of colonial suppression (Eriksen and Hankins 2014).

Fire suppression continues to be entangled with broader systems of criminalization, surveillance, and incarceration across California because it relies on the firefighting labor of incarcerated peoples, who comprise up to 30 percent of firefighting labor each year (Lowe 2021). Much like fire suppression is a response to the crisis of timber capitalism (Hudson 2011), incarceration is a response to multiple crises of racial capitalist political economy (Gilmore 2007). These crises intersect in California’s prison fire (conservation) camps, where individuals convicted of crimes are compelled to suppress fires (Feldman 2020; Goodman 2014). Some people in prison find this form of incarceration preferable to the banality and relative violence of traditional prison yards. Yet the system is intrinsically exploitative (Goodman 2014): the threat of being sent back to a typical prison discourages people in conservation camps from filing complaints or questioning their work assignments, exposing them to dangerous situations while earning much less than minimum wage (Lowe 2021).

In the early twentieth century in the Klamath mountains of California, Native peoples classified as criminals were first coerced to suppress fires for the US Forest Service to pay off their “social debts” (Davies and Frank 1992). Today, Black, Indigenous, and Latinx peoples are all disproportionately incarcerated in California, and bear the brunt of economic precarity and policing (Gilmore 2007; Hernández 2017). The informal economies in contemporary communities of color are criminalized similarly to the Indigenous economies and lifeways first encountered by Spanish and Euro-American settler-colonists. Neoliberal austerity funnels captive people into the fire suppression industry where there are perennial labor shortages (Demause 2020), reifying a “prison industrial complex” (A. Davis 2016) bound up in the logic of anti-Blackness (Alexander 2011; Martinot and Sexton 2003) and settler colonialism (Henery 2020; Hernández 2017; Ross 1998).

Throughout the West, land management agencies are greeting catastrophic megafires as a “new normal” at the same time that nation-states worldwide are integrating climate change into security state discourse (Chaturvedi and Doyle 2015). The US federal government in particular has described climate change as a “threat multiplier” (Gilbert 2012), and the complex of law enforcement, intelligence, and armed forces agencies that comprise the US national security apparatus is conducting long-term strategizing for a world made unstable by environmental

collapse. Such militarization (sometimes “securitization”) of climate change represents an emergent socioecological episteme that apprehends climate change as an existential threat to extant systems of wealth accumulation and political privilege, to be combated with militarized borders, detention centers, and counterinsurgency operations that suspend liberal norms under the sign of crisis (Boyce et al. 2020; Marzec 2015; T. Miller 2017). However, when we see climate change as a consequence of settler colonialism, wealth accumulation, and other systems of oppression, we understand that rather than adapting and creating new solutions, settler strategies aim to retrench systems of supremacy. Indigenous communities approach climate change from a vantage point of longevity on the land, commitment to particular homelands, and with the deep experiential knowledge of what it takes to adapt (Whyte 2017).

Striving to avert a future in which the militaristic aspects of fire suppression are re-entrenched, ecological advocates and Indigenous fire practitioners strive to build a future in which fire management programs prioritize safety, ethics, and ecology, center the leadership and knowledges of Indigenous communities, and re-conceive fire as an inextricable and regenerative component of Western ecosystems rather than an enemy to be exterminated at any cost. Some Indigenous communities, especially in northern and eastern California, have continued cultural burning practices (even if on a small scale) up to the present day; other Indigenous communities have experienced more restrictions and a greater colonial impact in their homelands, and as a result, cultural burning is practiced less (Goode et al. 2022; Marks-Block et al. 2021). Yet across the state, many Tribes are developing new fire stewardship programs that support their communities and care for their ancestral lands (Adlam et al. 2021; Anderson 2018).

### **Averting a “TEK Rush”: Protecting Indigenous Knowledge Sovereignty in the Search for Contemporary Solutions**

Indigenous sovereignty, or a community’s right to self-determination and self-governance, is intimately tied to the ability of Indigenous peoples to exercise, renew, and protect Indigenous knowledges that are place-based and culture-specific. We refer to these knowledges in the plural form to reject the notion that they exist as a monolith—while they may share common principles, these are diverse and sophisticated ways of knowing that vary by Tribe, landscape, gender, and even from family to family (Eriksen and Hankins 2014; Huffman 2013). Kyle Whyte defines Indigenous knowledges as “systems of monitoring, recording, communicating, and learning about the relationships among humans, nonhuman plants and animals, and ecosystems that are required for any society to survive and flourish in particular ecosystems which are subject to perturbations of various kinds” (2017: 157). Indigenous knowledges serve to maintain viable ecosystems that support ongoing relationships with species of eco-cultural importance, a process Whyte (2017) refers to as “renewing relatives.” For Indigenous peoples living in fire-adapted ecosystems, the strategic use of fire is considered among the most important contributions Indigenous peoples make to their biotic communities (Huffman 2013; Lake and Christianson 2019; Stewart 2002).

Indigenous scholars, knowledge holders, and allies have theorized the differences between Western and Indigenous fire use and governance (Adlam et al. 2021; Clark et al. 2021; Goode et al. 2022; Lake and Christianson 2019; Long et al. 2021). Whereas Western land managers use prescribed burns with the primary intent of reducing future wildfire hazards, Indigenous cultural burning practitioners in California use fire primarily “to increase the quality and quantity of desired plant resources, to maintain healthy landscapes for all species, to fulfill a stewardship obligation, and to maintain their cultural identity” (Adlam et al. 2021: 580). Relatedly, Lake



and Christianson define Indigenous fire stewardship as “the use of fire by various Indigenous, Aboriginal, and tribal peoples to: (1) modify fire regimes, adapting and responding to climate and local environmental conditions to promote desired landscapes, habitats, species, and (2) to increase the abundance of favored resources to sustain knowledge systems, ceremonial, and subsistence practices, economies, and livelihoods” (2019: 1). The authors explain that Indigenous fire stewardship is guided by what Mary Huffman (2013) calls “traditional fire knowledge,” or “fire-related knowledge, beliefs, and practices that have been developed and applied on landscapes for specific purposes by long-time inhabitants” (Lake and Christianson 2019: 2).

In the early twentieth century, the US Forest Service and other agencies discursively racialized, delegitimized, and attempted to erase Indigenous burning practices in an effort to justify a scientifically unsubstantiated fire suppression regime (Vinyeta 2021). Only in recent decades, as fire suppression has become unsustainable and has consumed greater proportions of government agency budgets (Marks-Block and Tripp 2021) have these agencies begun acknowledging, and sometimes actively seeking collaborations and co-management agreements with the very Indigenous knowledge holders and cultural burning practitioners they once disdained (California Wildfire and Forest Resilience Task Force 2022; State of California 2021; USDA Forest Service PSW Region 2018).

While these collaborations could signal a positive transition away from Indigenous erasure, it is important to foresee and actively prevent the risk of federal-Tribal fire partnerships becoming a site of Indigenous dispossession (Diver 2015). Although some contemporary fire research centers Indigenous fire sovereignty (for example, Lake et al. 2017; Long et al. 2021, Prichard et al. 2021), too many recent settler fire management proposals fail to mention Indigenous fire futures, relegating Indigenous knowledges to the past tense (for example, McWethy et al. 2019; North et al. 2021; Stephens et al. 2020). Other fire management proposals mention the value of Indigenous burning practices yet fail to prioritize or discuss the sociopolitical importance of contemporary Indigenous sovereign land management (for example, DellaSala et al. 2022; Safford et al. 2022).

At present, many scientists and land managers express the desire to incorporate aspects of so-called Indigenous “traditional ecological knowledge” (TEK). Yet critical scholarship troubles easy narratives of Indigenous TEK inclusion and recognition (W. Smith et al. 2021; Wyndham 2017). Paul Nadasdy (2003) observes that collaborative projects between Indigenous practitioners and settler state land managers too often reify state power by forcing Indigenous concepts to conform to language legible to Euro-centric epistemologies. Research by Christine Eriksen and Don Hankins (2014) describes how Indigenous fire knowledge is nominally included but ultimately subjugated within agency firefighting in California and Australia. Elodie Fache and Bernard Moizo (2015) describe the process by which the integration of Indigenous fire knowledges and Western science in Australia has led to the transfer of burning responsibilities from specific Indigenous stewards to Indigenous and non-Indigenous rangers, ecologists, and actors operating within the settler state’s bureaucracy. More recently, however, Jessica Weir (2023) shows that some Indigenous-settler partnerships in Australia are challenging the supremacy of Western science and fire management. Whyte (2020a) identifies a pervasive “crisis epistemology” among settler land managers, noting that the imminent threat of climate collapse is sometimes used to justify the appropriation of Indigenous knowledge and the relegation of Indigenous communities and their sovereignty as necessary sacrifices to preserve settler futurity. Such work elaborates how settler institutions’ recognition of TEK can depoliticize Indigenous struggles for sovereignty and the return of land, and marginalize Indigenous modes of law and governance, even as it strives to unsettle Western scientific thought.

Given that the appropriation of Indigenous lands and the co-optation of Indigenous knowledges are mutually constitutive processes (Deloria 1998; Tuck and Yang 2012), a broad-based

interest in TEK could represent a new wave of settler colonial appropriation. Under settler colonialism, Indigenous lands often endure evolving forms of exploitative resource extraction. In a historical analysis of settler extraction in Yurok territory, Kaitlin Reed (2020) has noted that the genocidal gold rush of the mid-nineteenth century was followed by subsequent waves of invasion, from the timber industry to the more recent “green rush” of cannabis farming that led to twin crises of soaring real estate prices and environmental toxicity from agricultural effluent. Fighting for regenerative Indigenous fire futures will entail averting a “TEK rush,” in which settlers respond to large-scale environmental change by rushing into Indigenous communities to misappropriate and exploit Indigenous knowledges for the benefit of settlers and the settler state. A TEK rush would sap time, energy, and knowledge from Indigenous fire practitioners while leaving settler colonial relations of power and property largely intact.

Too often Indigenous environmental knowledges are portrayed in visual and print media as public property and the inheritance of “humanity” as a whole rather than the Tribally- and sometimes family-specific adaptive work of fulfilling an obligation to steward a particular landscape. Elizabeth Povinelli identifies that there is a settler impulse to extract Indigenous knowledge solely to “save [one’s] own skin” (2021: 103) in reaction to environmental crisis, a point that coheres with the assertion that “Indigenous Lessons about Sustainability Are Not Just for ‘All Humanity’” (Whyte et al. 2018). Indeed, there has been a proliferation of anthropocenic calls for us all to reconsider the ontological relationship between humanity and fire, with some even re-dubbing the millennia since the last glacial period as the “pyrocene” (Pyne 2021). The concept of the pyrocene suggests that a universal human-fire relational ontology can transcend the specific political circumstances of Indigenous dispossession and environmental injustice. It assumes that all “humans” are equally to blame for environmental crises or that all will be equally impacted—ultimately naturalizing white possession and Indigenous marginalization (Davis and Todd 2017; Yusoff 2018). As counterexample to such a crisis epistemology, Indigenous organizations such as the Karuk Department of Natural Resources (Karuk Tribe 2019), while averring that Californians need to change their relationships with fire, assert that solving California’s wildfire crisis must entail investigating and dismantling the specific policies and practices of settler colonial domination that prevent Karuk people from using fire as they have always done.

Indigenous Studies scholarship provides alternative theoretical frameworks that can create conditions of possibility for productive collaborative research and practice that simultaneously forwards anticolonial systemic change and helps mitigate the wildfire crisis (Risling Baldy 2015; C. Smith et al. 2023; Whyte 2017, 2020b). Tribally authored and published reports assert the inseparability of Indigenous peoples and their lands, knowledges, practices, and belief systems, and lay out practical protocols for ethical and effective collaboration, for example the Karuk Tribe’s “Climate Adaptation Plan” (2019), Knowledge Sovereignty Report (2014), and “Practicing *Pikyav*” policy documentation (Karuk-UC Berkeley Collaborative 2014). The Karuk Tribe in particular has had success working with outside researchers to develop projects that meet community needs and address questions of interest to Karuk people, and whose research design brings resources, training, and other forms of reciprocity to cultural practitioners. Such protocols are important steps toward warding off a TEK rush and facilitate Indigenous-led collaborative management. Articles produced within these community-centered frameworks (Adlam et al. 2021; Karuk Tribe et al. 2017; Lake and Christianson 2019; Marks-Block and Tripp 2021; C. Smith et al. 2023; Sowerwine et al. 2019; and more) make important strides toward a not-yet-fully-realized paradigm of reciprocal non-extractive research.

While Tribes such as the Karuk are attentive to the risk of co-optation of fire practices, at the same time they may take the climate crisis as a “strategic opportunity” (Karuk Tribe 2019) and crossroads to revitalize ancestral knowledge, strengthen sovereignty, and enhance community

health and well-being. This orientation is described by Karuk Department of Natural Resources Collaborative Stewardship Program Manager Analisa Tripp, who stresses that the best thing for Karuk territory is not simply prescribed fire in and of itself, but rather the sovereignty and stewardship of Karuk people. While fire is an important tool, Analisa explains, “More important than the return of fire is the return of Karuk people to their places, and to the decision-making tables about how this land is managed and cared for” (Vinyeta 2021).

In prioritizing connection to land and community, Indigenous cultural fire practitioners are bringing forward Indigenous fire futures. Relationality is expressed and practiced on the ground in a diverse array of ways by different Indigenous peoples for different purposes. One example of relationality involves the creation of the Amah Mutsun Land Trust in the Quiroste Valley on the Santa Cruz coast. The Amah Mutsun Tribal Band work collaboratively with archaeologists from UC Berkeley and California State Parks to investigate Indigenous stewardship practices in the past as well as develop programs to support their access to lands and their capacity to train Tribal youth, organize volunteers, steward ancestral territory, and promote Tribal sovereignty and governance (Anderson 2018; Lightfoot et al. 2021). Similarly, Ron Goode and the North Fork Mono and Southern Sierra Miwuk Tribes have reached out to UC and CSU students, local, federal, and state agencies, and others to help expand their cultural burning and resource survey operations near Mariposa, California (Goode et al. 2022). An ongoing UC Berkeley-Karuk collaborative research project is another example of how Tribes working with universities in California continue to build relationships to leverage resources for stewarding cultural foods, revitalization efforts, youth engagement, and community health (Sowerwine et al. 2019). This sort of leadership enacts in the present the relationships and fire futures that these communities are building and maintaining for their future generations.

### **Conclusion: Indigenous Fire Futurity**

Indigenous land stewardship contests colonial approaches to the climate crisis, and it is also an expression and a creation of Indigenous fire futures. Indigenous fire futurity is a continual and iterative movement toward action that creates innovative, community-centered solutions (Lake and Christianson 2019). Since settler colonial invasion, Indigenous peoples in California have faced many barriers to the implementation of cultural burning. And yet this complex and diverse practice has been retained throughout Indigenous communities in California and is being restored in areas where it was previously prohibited (Anderson 2018; Goode et al. 2022). The continuance of the practice is a direct expression of the vision of Indigenous communities, a testament to radical hope and a multigenerational manifestation of a future where this knowledge would once more be applied by Native people to their landscapes (Tripp 2020). As cultural burning becomes a more widely accepted approach to land management, it is important to recognize the work that Indigenous communities have leveraged to resist the settler colonial erasure of their practices, knowledges, and ecosystem relations.

Indigenous cultural fire practices are distinct from other controlled fire uses because relationships among land and community are at the forefront of how practitioners prioritize sites for burning (Adlam et al. 2021; Goode et al. 2022). It is not enough to simply learn from Indigenous people and apply their knowledge. This tactic is settler colonialism at work and directly supports settler futurities of erasure, appropriation, and replacement (Tuck and Gaztambide-Fernández 2013).

Stewarding relationships to both human and nonhuman kin is an essential decolonizing strategy for Indigenous futures and climate justice. Relationality is about engaging the account-

abilities we have to each other and the land; it is a way of life and an expression of caretaking based on interdependency and respect (Yazzie and Risling Baldy 2018). However, the disruption of this network of beings could lead us beyond a “relational tipping point” past which shared decision-making and collective action toward climate justice might be impossible (Whyte 2020b). Relational tipping points are analogous to ecological tipping points past which ecosystems are irreparably harmed by environmental changes. In disrupting Indigenous relationships to ecosystems and fire, settler colonization in California has increased the risk of surpassing both relational and ecological tipping points.

Even as Indigenous fire practitioners make headlines, some scholarship in fire science and management continues to propose solutions that ignore Indigenous fire stewardship. In other cases, Indigenous fire knowledge is being incorporated into scientific understandings of California landscapes. This article has cautioned that the integration of “TEK” and “Western science” will reproduce colonial relations of power and property and result in further dispossession unless it is partnered with structural changes such as the repatriation of Indigenous lands and the redistribution of resources toward Indigenous fire initiatives. An ecologically informed and sustainable future management paradigm that continues to be premised on Indigenous marginalization would be little more than greenwashed eco-colonialism (Hernandez 2022).

In contrast, Indigenous fire practitioners are part of a broad spectrum of anticolonial movements and communities currently striving to demilitarize and decarcerate their environments and enact more viable, regenerative futures (The Red Nation 2021). Moving forward, fire scholars should seek to integrate an interdisciplinary suite of anticolonial, critical race, and abolitionist frameworks in their research (Heynen and Ybarra 2021; Liboiron 2021; Pellow 2017; Pulido and De Lara 2018) to challenge the myriad forms of exploitation wrought by fire suppression institutions. As the ongoing resurgence of Indigenous fire practitioners builds momentum, there are numerous opportunities for generative, collaborative research that centers Indigenous fire futures. Ultimately, Indigenous peoples have sovereign rights and responsibilities that precede—and will outlast—the settler colonial state of California.

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