



## RECENTERING ECOLOGICAL RESTORATION WITH TRIBAL PERSPECTIVES

Jonathan W. Long, Ron W. Goode, and Frank K. Lake

Ecological restoration is central to the well-being of Indigenous communities, who have tended, burned, and harvested a variety of resources across diverse ecosystems in California for millennia. Despite having more tribes and more Native Americans than any other state, California has less land under tribal control than most of the states west of the Continental Divide. Consequently, tribes in the state disproportionately depend on public lands for their well-being (Long and Lake 2018). However, through “ecocultural restoration,” both ecosystems and their interconnected Indigenous communities can once again flourish.

Here we describe several examples that show how expanding the scope and vision of ecological restoration can support the interests of American Indian Tribes and Indigenous communities in California. Through examples of meadow, oak grove, and cul-

tural resource restoration projects, many of which have been led by the North Fork Mono Tribe (Fig. 1), we highlight several themes that illustrate how restoration can be broadened to recognize, include, and value Indigenous people and their relationships to ancestral lands in California.

### WELCOMING TRIBAL PERSPECTIVES

Proponents of restoration have often reinforced the perspectives and priorities of privileged groups while discounting Indigenous influences in the past and devaluing Indigenous priorities in the present (Leonard et al. 2020). In particular, the contribution of California Indian cultural stewardship practices to

Above: During a cultural burn in Southern Sierra Miwuk territory, a young Native American guest explores an ancient rock mortar used to process food. [Photograph by Jonathan Long]

the productivity and diversity of conditions prior to European colonization has long been under acknowledged (Anderson 2005).

By rapidly altering ecosystems and displacing the holders of Indigenous knowledge most familiar with past conditions, colonization has accelerated the downward ratcheting of expectations for restoration, also known as “shifting baseline syndrome” (Jardine 2019). This dynamic may lead to distorted targets for restoration that fail to meet the needs of Indigenous people today.

The Society for Ecological Restoration (SER) and other conservation groups have been revising their internal policies to redress colonialism, stating a commitment to “promoting practices that respect cultural diversity and support sustainable livelihoods in the same way we respect ecological diversity” (Society for Ecological Restoration 2020).

## BRINGING BACK WHOLE SYSTEMS AND SUPPORTING WAYS OF LIFE

A particular challenge to restoration proponents is to consider the “why” of restoration as well as the “what” (Martin 2017). Ron Goode, one of the authors of this article and chairman of the North Fork Mono Tribe, has noted, “As we strategize our plans to rejuvenate the forest and bring back the water, we have to look at the whole picture, not just how we preserve our land for those that are endangered or threatened in their existence.” Tribal people are part of the larger system, and Goode explains that ecological conditions should be evaluated based upon whether you could “live off the

land.” This view reinforces that tribes are concerned with reviving their capacity to harvest foods and other resources, which in turn support continued tending and gathering activities (Long and Lake 2018).

Tribal restoration efforts emphasize the need for traditional foods and materials within a broader context of sustaining the larger human and non-human communities. Plants and other living things are regarded as kin, and maintaining reciprocal relationships within this system promotes the well-being of all members. Goode characterizes this view as “bringing back community life,” starting by raising water levels in meadows to support wetland plants as well as oaks that make acorns, which feed the deer, which in turn feed the mountain lion. His tribe purposefully restores oak groves in ways that not only promote mature trees that produce acorns, but also recruit young trees that are browsed by deer.

Sustaining the well-being and dynamism of the system is more important than promoting entirely native species. As an example, Goode recounts a meadow restoration effort in which patches of invasive bull thistle were intentionally retained in order to support butterflies and bees until more diverse native floral sources came back (Long et al. 2020). He explained the cultural underpinnings of this practice: “All the species on the meadow and in the forest are considered relatives in the tribal lifeway. The cultural practice is to always take food when visiting a relative and when you do visit a relative they will always feed you. They (your relatives) may talk about you after you leave but food will always be shared.”



[Photograph by Jonathan Long]



[Photograph by Ron Goode]

Figure 1: The North Fork Mono Tribe has been working to restore a meadow and oaks at Crane Valley on the Sierra National Forest, where tribal members harvest plants such as California mint (*Na-gu-du-pee-wi*, *Pycnanthemum californicum*), shown above.

Many tribes have advocated for reducing forest tree density and canopy cover to recreate more open forest conditions, which Goode has described as a “see-through” forest. Such conditions maintained productivity of key resources and made it easier to hunt deer and keep watch over children. Researchers have reinforced these views of historical conditions by studying historical survey information from the early twentieth century; their studies indicate that forests within North Fork Mono aboriginal territory were far more open then, with canopy cover averaging only 12 percent in ponderosa pine forests and 25 percent in mixed conifer forests (Stephens et al. 2015).

## ADDRESSING TENSIONS WITH WESTERN CONSERVATION SYSTEMS

Western conservation approaches have conflicted with tribal perspectives in both the targets and tools of restoration. Many plant species that are important to tribes may be discounted under management systems that target rare and declining species for conservation and monitoring. For example, the Yurok Tribe has expressed concern about the impact of climate change on coastal redwood, coastal spruce, alder, cedar, madrone, black oak, tanoak, pepperwood, Douglas-fir, manzanita, grey willow, hazel, mushrooms (multiple edible species), huckleberry, salmonberry, thimbleberry, maidenhair fern, deer brush, Woodwardia fern, bear grass, wolf moss, Oregon grape, California wild oat, wild potato, wild lilac, and tobacco (Sloan and Hostler 2014).

Many of these species grow in the forest understory and in meadows and other openings. While most remain relatively common and widely distributed, the supply and condition of such species have often degraded to levels that no longer adequately support tribal uses for foods, basketry, medicines, etc. For example, black oaks and tanoaks are widespread, but the condition of these hardwoods is often unsuitable for reliable nut harvest (Long et al. 2017).

While many societies can shift to substitutes when populations of useful species decline, deeply rooted Indigenous communities may be less willing or able to adapt when animals and plants such as salmon and oaks decline due to the communities’ deep connections to such cultural keystones (Norgaard 2019). The California Native Plant Society (CNPS) policy statement on oaks recognizes many of the ecological services provided by those trees, as well as the need to protect them from losses due to land use and for-

est management. But the long-standing, integral connection of oaks and Indigenous people in California requires consideration of how to bring back the productivity of oak communities, not simply ensure their continued existence (Long et al. 2016).

National forest managers often focus on overstory tree species, which have long been a source of forest products in the form of timber. Increasing reliance on monitoring using remote sensing similarly emphasizes the trees rather than the diversity, abundance, and quality of understory plants such as berry plants, edible geophytes, grasses, and organisms that are particularly important to tribes (Long et al. 2018b). It may be possible to infer understory quality from overstory conditions, but explicitly considering key understory species can help restoration efforts better promote tribal goals (Sowerwine et al. 2019).

Some Western conservation policies and environmental organizations have resisted restoration treatments based upon perceived risks to environmental values such as air quality, water quality, and rare wildlife, despite apparent congruence between traditional tribal perspectives and Western biophysical research on reference or desirable conditions. For example, some groups have contested proposals to thin forests to more open conditions, particularly within areas where old forest-associated species such as owls and fishers reside. However, recent research suggests that maintaining large trees may be more important to owl habitat than maintaining high canopy cover itself (North et al. 2017). In particular, large oaks, which need openings within conifer-dominated forests, are important to conserving such rare species (Long et al. 2018a).

As another example, concerns that burning and digging might cause unacceptable soil disturbance have similarly complicated tribal meadow restoration efforts. In response, Goode has explained that both burning and digging are appropriate restoration tools in meadows. Researchers have noted that Indigenous peoples in California have used such methods for millennia (Anderson 1997, Anderson and Barbour 2003).

## RESTORING FIRE IN SOCIAL AND ECOLOGICAL SYSTEMS

Fire has long been an indispensable tool for Indigenous people in stewarding landscapes (Kimmerer and Lake 2001). Tribes continue to emphasize the essential role of fire in promoting the well-being of socio-ecological systems, particularly through cultural burning. Continuing the ancestral tradition of actively using fire



Figure 2: Ron Goode oversaw a cultural burn in spring 2020 to restore blue oaks (Pa-wi-yap; *Quercus douglasii*) and sourberry (Ta-ka-te, *Rhus trilobata*) plants at the Jack Kirk property near Mariposa, California. [Top photograph by Jonathan Long, bottom photographs by Ron Goode]

promotes many values that go far beyond the objectives of typical burn “prescriptions,” which often focus on reducing fuels and minimizing damage to overstory trees. The current CNPS policy on use of fire currently reflects a narrow emphasis on minimizing “damage to native plant species and their habitats.”

Many California tribes have evolved fire-dependent cultures (Lake and Christianson 2019). They rely on cultural burning to increase the quality and quantity of plants, limit pests, enhance germination or resprouting, and promote desirable forms of growth (Lake and Long 2014). As Goode has explained, North Fork Mono people could not afford to leave their families and travel for miles to gather food every day, so they ensured their larder was full by burning close to where

they lived. Such cultural burn efforts are underway throughout California, including one in a blue oak/meadow system near Mariposa, California, led by the North Fork Mono Tribe and members of other local tribes (Fig. 2). At such events, Goode reminds people to ask, “What are you burning for?” Tribal practitioners consider the relationships among fire, land, water, people, animals, and plants.

#### REESTABLISHING RELATIONSHIPS RATHER THAN SHOWCASING SPECIES

Western approaches to restoration often try to address tribal concerns by identifying species of cultural importance and targeting them for replanting and pro-



Figure 3: A plaque (top photo) located within a degraded and fire-suppressed oak grove at a community park in the Central Valley mentions past use of soaproot (So-o-sibe, *Chlorogalum pomeridianum*); in contrast, signs and plaques at the Tending and Gathering Garden (bottom photo) explain that soaproot and other plants remain priorities for many California tribes today.

[Photographs by Jonathan Long]

tection. In natural areas, they sometimes feature botanical specimens along with their Indigenous names and uses written on plaques (Fig. 3). Some of these displays, like outdated exhibits in a zoo or museum, can obscure the vital and present-day interests of particular tribal communities in restoration. Both species lists and specimen displays can be valuable tools—Goode maintains lists of species observed each year at their meadow restoration projects—but tribes have a much more expansive and inclusive restoration vision. For example, a recent collaboration with the Washoe Tribe considered a list of culturally important species in the Lake Tahoe basin that might be monitored as part of restoration efforts. Through several meetings and field visits, cultural practitioners described a broader vision in which mixed groups of elders and youth would be encouraged to burn, tend, and gather species of particular value for food, basketry, and other practical applications. (For more on the Washoe Tribe’s restoration work in the Lake Tahoe basin, see: [ceqanet.opr.ca.gov/2018112063/2](http://ceqanet.opr.ca.gov/2018112063/2).)



Figure 4: Cultural burning at the Tending and Gathering Garden at the Cache Creek Preserve near Woodland, California, January 2020.

[Photograph by Jonathan Long]

A good example of this deeper engagement is the Tending and Gathering Garden at the Cache Creek Nature Preserve in Woodland, California. A former river mining reclamation area, the garden features culturally important plants that are managed by native people using practices such as cultural burning (Fig. 4) (Ross et al. 2008). This demonstration area illustrates the importance of reinforcing tribal relationships with their ancestral lands through traditional burning and gathering processes. Formal partnerships between tribes and agencies have developed to foster these restoration efforts, including designation of special cultural management areas within national forests (Long et al. 2018b).

## CONCLUSION

Restoration efforts can successfully address tribal concerns when they spring from the understanding that ecosystems and Indigenous communities are integral to each other. Rather than setting a goal of ecosystems

that sustain themselves without human interventions, ecocultural revitalization can promote systems in which people meet their traditional needs while supporting their non-human relations. Such goals can be evaluated in terms of the capacity for areas to support harvest of desired resources by tribal members. Such partnerships will take time to develop, but will ultimately help people live better with the land. As Goode has noted, “Restoring one meadow may very well take ten years.”

—Jonathan W. Long ([jonathan.w.long@usda.gov](mailto:jonathan.w.long@usda.gov)) and Frank K. Lake are research ecologists with the USDA Forest Service, Pacific Southwest Research Station. Frank K. Lake is a Native American descendant of several tribes. Ron W. Goode is chairman of the North Fork Mono Tribe.

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