



Figures 1 & 2. Kade Whitecrane baiting for *Phytophthora ramorum* and Julian Salinas participating in the 2019 SOD Blitz organized by the Karuk Tribe. Photos: Preston, Karuk Tribe

Xuntapan’ámvaan: Acorn Eater - The Karuk and Sudden Oak Death. Ayukii – Hello. My name is Vikki Preston and I’m a Karuk, Yurok, Paiute, and Pit River person. For the last 5 years I’ve participated in work associated with the Karuk Tribe’s Department of Natural Resources and the issue of sudden oak death (SOD). Since the initial community event that drew my attention, I’ve joined a crew of local folks who have interest in learning about SOD and work to monitor its spread, build awareness, and study its potential effects on our community and landscape ecology. Only in the past two decades has SOD been in Humboldt County, or within the area that neighbors the Karuk Aboriginal Territory where our work takes place. Our Tribal community has taken unique focus on this issue, and the impacts, or potential impacts, carry our work forward as we mobilize community and continued education on this disease.

The Karuk Tribe is similar to many of its local tribes in its connection to this issue of SOD, largely because of the cultural, ceremonial, ecological, and personal relationships with the land. *Phytophthora ramorum* has varying effects depending on the plant species, and in Karuk territory there are plant species that have the potential to be hosts, and some species that can become infected with the disease by these hosts and dieback. One of the species of concern in Karuk territory is *Notholithocarpus densiflorus* or the tanoak tree, and in many SOD infected places of California and Oregon these trees have seen incredibly high mortality rates due to the disease. Indigenous people of the Klamath area including Karuk people have an intricate and long socio-ecological relationship with the land that includes the tanoak tree. Along with salmon, the tanoak acorns are one of the people’s main sources of traditional food for this part of Northern California. We call them xunyav, or the “best acorns”; they are numerous and nutritious. Karuk landscape ecology has evolved with and depends on tanoak trees, many animals also eat and count on their acorns every year. Many species of plants and fungi also rely on the lifecycle of tanoak. Karuk people have always tended the tanoak groves with many

traditional processes including the implementation of prescribed fire, and there are many principles of care for tanoak groves that are passed down through families and communities.

As Karuk people, we have always lived here, and we still live amongst the same tanoak groves that our families have always tended and gathered from. The process of eating tan-oak acorns begins with the tending, then gathering, then processing, and then cooking. It takes many hands and a good amount of time to accomplish this, and we live in a way that there is a large social process around tanoaks. Families and villages can come together to gather, and from my own experience this work is extremely beneficial to a person's mental health and well-being as well as physical health from the work and the healthy food provided after.

We have many stories about tanoak: it was given to the people by coyote at the same time salmon was, spread all over the Karuk world so the people could eat. We are who we are today because of these species; and because of our history with them in this place, tanoaks and acorns are a huge part of our identity as Karuk people.

All of these reasons are why tanoaks are important to us, but also why *P. ramorum* has the potential in Karuk territory to be disastrous. We've seen high oak mortality in places where SOD infection has been present for many years. I've talked to other tribal people in places where this has happened, and the death of such important trees has been tragic. These outcomes also further threaten our communities through increased fire danger.

With all this in mind we've strived to educate ourselves, provide educational outreach to our community, and monitor for SOD as it spreads toward our Aboriginal Territory. We collaborate locally with the Mid Klamath Watershed Council and concerned community members. Karuk Tribe Department of Natural Resources conducts annual stream-baiting in six tributaries to the Klamath River with support from UC Cooperative Extension Humboldt County and UC Davis. We have additionally hosted an annual community-based citizen science SOD BLITZ survey in coordination with UC Berkeley Forest Pathology and Mycology Laboratory; and we have extended this opportunity to local youth as part of our Pikyav ("fix-it") Field Institute, K-12 Environmental Education program, where we have added SOD to our integrated Western STEM/Traditional Ecological Knowledge (TEK) curriculum and annual class field trips. In the last several years, we have begun working with U.S. Forest Service and Oregon State University researchers on a study to look at resistance to the disease among Karuk territory tanoaks, and we are hopeful that with this knowledge, we'll be able to strategize protection measures and treatments while we are still *P. ramorum*-free. As a focus of the Department, we continue prescribed fire and fuels reduction techniques, which we are hopeful will lessen the ideal conditions for disease spread. Fire is an important cultural tool and has multiple benefits, including producing plentiful acorn crops and fire-safe conditions for our community. We hope to continue all this work and strive to be good environmental stewards and support the health of our oaks and entire Karuk landscape.

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