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ARTEMISIA

Native Plants and Climate Change: Indigenous Perspectives Part I

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Protecting California's native flora since 1965

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ARTEMISIA

VOL. 49, NO. 2, OCTOBER 2023

Dear Reader,

We are approaching the one-year anniversary of the 15th Conference of the Parties (COP15) to the United Nations Convention on Biological Diversity, during which 190 nations adopted an unprecedented agreement to protect at least 30% of the Earth's lands and coastal waters by 2030. Scientists worldwide agree that we must conserve a minimum of 30% and as much as 70% of our lands and waters to prevent the worst impacts of climate change and biodiversity loss. But this global effort is about more than conservation alone; it recognizes the central role the world's Indigenous Peoples play in stewarding and protecting biodiversity.

We have arrived in a new era of conservation, one that acknowledges people as part of nature, not merely as agents of extraction and perpetrators of harm. Movements like 30x30 compel us to work together in a spirit of humility, openness, and optimism. A major part of that involves Tribal sovereignty and respect for the generations of Indigenous knowledges that preceded colonialism across the globe.

For these reasons and more, we were thrilled when our guest editors—Megan Mucioki, Jennifer Sowerwine, and Daniel Sarna-Wojcicki—reached out to us about their work focused on culturally important native plants and climate change. Today, we are honored to bring the product of those early conversations to you as Part I of a two-part special issue.

We are deeply grateful to this issue's contributors, North Fork Mono Tribe Chairman Ron Goode and co-authors, Christina Oraftik and Hannah de la Calle; Melinda Adams; and Julia Coredero-Lamb, who have generously shared their experiences and insights in the pages that follow. These experiences and insights inform their decisions about terminology and style—extending even into grammatical choices in which the decision of which words the authors capitalize is itself a lesson.

For some readers, these articles may introduce an entirely different way of seeing the world: Where a botanist might describe a plant's range, leaf form, or flower type, here Coredero-Lamb considers multisensory inputs like tensile strength and flexibility, sap viscosity, and flavor. Where scientists track climate change through computer-generated models, Chairman Goode and his co-authors share the closely observed drought-impacts on culturally important plants like elderberry, sourberry, and oaks. Where some relate to an ethos of environmentalism, Adams envisions Indigenous Matriarchal Ecologies. What an exciting opportunity to experience a more complete picture of our collective wisdom at this point in history!

We also wish to thank CNPS Publications Program staff, past and present, who helped advocate for and support this important edition: Emily Underwood, Talya Meyers, Krystle Ramos, and Ian Vorster.

We invite you to learn and be moved by what you read in the pages that follow. In gratitude,

—Jun Bando, CNPS Executive Director
—Liv O'Keeffe, CNPS Senior Director, Public Affairs



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Above: Indigenous Matriarchal Ecologies in action, placing cultural fire at the Leok Po, good fire demonstration at the Tending and Gathering Garden. November 2022. Photo featured in *Indigenous Ecologies* by Melinda Adams (page 20). Photograph by Tišina Ta-till-ium Parker (Southern Sierra Miwuk/Kutzdika'a Paiute/Kashia Pomo).



INTRODUCTION: BIOCULTURAL STEWARDSHIP AS CARE FOR PLANTS, PEOPLE, AND RESILIENT FUTURES

Megan Mucioki

Settler colonialism is increasingly acknowledged to be a cause and sustained driver of climate change. For the first time, the Intergovernmental Panel on Climate Change Sixth Assessment Report centered an entire chapter on wild foods, climate change, and entangled place-based systems and people (Bezner Kerr et al. 2022), while identifying settler colonialism's role in the growing climate crisis (IPCC 2022). Farrell and colleagues (2021) substantiate this conclusion by showing that present-day Aboriginal territories of Tribes in the United States experience more extreme temperatures, less precipitation, and greater risk of wildfires than Tribal Homelands prior to the waves of land grabbing, relocation, and forced displacement.

In California, this complex interplay between century-old policies and contemporary changes unfolds before our eyes. California has been experiencing the longest drought, the lowest precipitation, and the highest temperatures on record (Diffenbaugh et al. 2015; Griffin and Anchukaitis 2014), all in landscapes that have not been managed for water deficits or resilience in the last century. Drought in Western forests is well documented in causing decreased growth and mortality, and increased stress (Clark et al. 2016). Stressed plants are more vulnerable to a range of pathogen and pest invasions and related mortality, as prolonged stress weakens chemical defense mechanisms—a plant's innate immune system to external threats. Dry, crowded forests are at elevated risk for high-severity fire (Littell et al. 2016). As the climate crisis presents

very tangible impacts across the state, the First Peoples of what is now known as California continue to care for invaluable plant species found in forest layers, meadows, grasslands, river bars, and spaces between.

This two part special issue of *Artemisia* serves as a gathering space for Indigenous stewards, leaders, and scholars, along with their allies. In these pages, they consider how climate change is impacting culturally significant native plant species and landscapes, and how Indigenous Peoples throughout California are leading plant, landscape, and community adaptation, restoration, and revitalization.

Culturally significant plant species have been used for generations for food, fibers, medicines, and technologies by Native Americans. This includes a variety of oaks, Western raspberry (*Rubus leucodermis*), Western redbud (*Cercis occidentalis*), and Blue elderberry (*Sambucus mexicana*), which are gathered for sustenance and a range of life-giving values so carefully described and shared in these issues. Assemblages of plants in relationship with Indigenous Peoples support ecosystem resilience and sustainability across the state and in some cases, are guideposts for discovering identity and home.

California is a state rich in biological and cultural diversity. There are approximately 200 Native American Tribes (federally recognized, and those seeking federal recognition) in the state. California is one of the most biodiverse regions of the world, with one third of native plants in California found nowhere else on the planet (CNPS 2022). Indubitably, cultural and biological diversity occur in concert, with Indigenous stewardship protecting and promoting biodiversity. The knowledge and experiences in this two part special issue represent just a fraction of biocultural diversity throughout the state, but geographically spans the state, from intertribal collaboration in Southern California to the Coastal Chumash around Santa Barbara, the North Fork Mono Tribe in the Sierra Nevadas, the Amah Mutsun Tribal Band in the Central Coast, the Tending and Gathering Garden on Patwin California Indian land, the Yurok Tribe and the Karuk Tribe in the Klamath River Basin region of far North California. Desire for Tribal food and stewardship sovereignty and revitalization, land back, and intergenerational sustainability links the articles. The perspectives expressed in these issues impart Indigenous responsibilities to plants and landscapes as kin and relations. Adams and colleagues center their rhetoric and approach to caring for plants as Relatives—rather than plant species.

California Tribes increasingly work in partnership with federal and state agencies, nonprofits, and universities to join different types of responsibilities to people

and lands. The members of these partnerships work toward a common goal of diversifying knowledge and perspectives in stewardship and supporting the ongoing relationships of plants and landscapes by Indigenous Peoples. In this special issue of *Artemisia* we learn about many different roads to caring for plants and sustaining responsibility through Tribal partnerships with NGOs, national parks, the US Forest Service, and universities. This illustrates the importance and fundamental need for centering Indigenous perspectives and collaborations.

Indigenous plant gatherers hold an exceptional breadth of plant knowledge that informs stewardship and restoration, and temporal and spatial shifts in plant health, phenology, and harvest quality and abundance. Chairman Ron Goode (North Fork Mono Tribe) has documented “harvest windows” of plants on North Fork Mono land for 17 years, noting unusual growth, routine failed harvest, mortality, and more. The Karuk Agroecosystem Initiative, through the Karuk-Berkeley collaborative, includes Karuk plant gatherers who have observed incremental shifts in plant health and harvest in berry, nut, and weaving species throughout their lifetime, with systematic records for two-plus years as part of the collaborative effort (see The Karuk Tribe UCB Collaboration forthcoming in Part II).

Indigenous women are keepers of ethnobotanical knowledge and leaders of plant conservation through active use and management. Adams delves into this particular role through “Indigenous Matriarchal Ecologies.” Basketweavers hold a special role, which Cordeiro-Lamb describes as that of “master horticulturalists.” Basketweavers have keen observations of climate change and its impact on the quality and abundance of weaving materials, essential to giving life to baskets. Explanations of climate-sensitive harvest windows, and precise quality and management needs demonstrate how climate change impacts phenological and physiological cycles, harvest quality, and California Native American basketry.

Indigenous science and knowledge are applied alongside Western methodologies in ecology, forestry, plant science, GIS, and archaeology (and many more) to support restoration and adaptation of culturally significant plant species and landscapes. In Part II of this issue, the Amah Mutsun Tribal Band applies ecoarcheology to learn about food systems and stewardship, as well as geospatial analysis to identify eco-culture-rich sites for restoration, in their territory. Lake and colleagues consider pathways to tanoak, black oak groves, and grassland restoration, given the climate projections for the Yurok Aboriginal territory, along with the tradeoffs of different species, using the Forest

Simulator Software. They consider the success of transplanting lower-elevation tanoak, more adapted to hot climates, to middle-elevation forests. Meanwhile, the Climate Alliance, in Southern California, is working with Tribes in the propagation of acorns from coast live oak and Engelmann oak in a greenhouse setting with the goal of selecting for biological climate resilience.

Soil health is a key component of plant health and restoration. Adams and Goode are at the forefront of understanding the importance of healthy soils during pre- and post-fire management. Many soils today are in various states of exhaustion, and studies have shown that colonial agricultural efforts particularly have drained soils of nutrition (Spiegelhaar and Tsuji 2013). In the forthcoming second installment, Karuk cultural practitioners, in collaboration with UC Berkeley researchers and the US Forest Service, consider how measurements of forest health, age, diversity, and cover can be integrated with perspectives and priorities of plant gatherers to co-develop an “Agroecosystem Condition Assessment.” This method has been applied to understand present conditions of culturally significant plant species and landscapes as well as longitudinal change. Cultural fire is a common thread throughout the special issues in California’s low-intensity fire-adapted landscape. Many plants described are experiencing climate stress amplified by fire suppression stress.

Caring for culturally significant plant species is not only about building the capacity of ecosystems to buffer disturbance, shock, and change, but also about building the capacity of communities to develop and plan for adaptive capacity and sustainable pathways of knowledge transference and stewardship under the leadership of Indigenous Peoples. This radiates as a strong component and goal across the issues. In Cordeiro-Lamb’s plant walks, Adams’s description of passing of coals through fire stewardship, and resilience of culturally significant plant species is about ensuring that knowledge is passed on.

As climate change becomes life, we must see California native plants as treasures among a cloud of uncertain futures to be stewarded through Indigenous leadership and partnership in active efforts of restoration, diversifying ways of knowing and managing plants, and teaching and learning. The articles compiled in this two part special issue, taken together, are an exceptional account of climate change’s impact on biocultural systems and plant species in California as well as contemporary applications of stewardship. As we all learn how to be better stewards in our world, let’s reconsider the ideologies and practices that have

failed us, and embrace those that offer us a better, more resilient future.

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CONTRIBUTORS



Melinda M. Adams, PhD (*N'dee* San Carlos Apache) is a UC Davis graduate and professor in Geography and Atmospheric Science and Indigenous Studies at the University of Kansas. She is a cultural fire scholar and practitioner who works at the intersection of ecology, environmental policy, and Indigenous ways of knowing and being.



Julia Cordero-Lamb is a community herbalist and has practiced Indigenous Traditional regenerative horticulture in Chumash Country for 27 years. She is an enrolled member of the Coastal Band of the Chumash Nation.



Chairman Ron Goode is Tribal Chair of the North Fork Mono Tribe and a lifelong cultural burner and steward of his Homelands. His colleagues and co-authors, **Christina Oraftik** and **Hannah de la Calle**, have been assisting his efforts to bring fire back to the land.



WHAT IS, AND WHAT CAN BE: TRADITIONAL REGENERATIVE HORTICULTURE IN SYUXTUN (SANTA BARBARA)

Julia Cordero-Lamb (Coastal Band of the Chumash Nation)

// **H**ow long did it take you to make that basket? How did your ancestors figure out which medicinal plants to use? How were your people capable of living here for so long without ruining everything?”

They are simple questions.

My Relatives and I have our pat answers—sometimes friendly, sometimes salty—that we’ve developed over years. I have fumed over people not engaging with the really important questions: “How can I help your Tribe get your land back?” Or, “How can I add my voice, money, and body to Indigenous efforts to protect land and water?”

Those are the questions allies ask, and that our advocates act on.

But one day, the person who asked me one of *those* questions (the frustrating ones) was a child. I could not just toss out one of my pat answers to this innocent child. So, I told her the real story: how the plants

taught all our ancestors—dinosaurs, birds, animals, fishes, humans, and insects—over eons of time. How the plants are the experts, and they are in charge of everything here. How they literally make the air, and regulate the water. I said to her, “You know the mushrooms? Their roots are huge, like a gigantic web of stars under the ground, like the brain of the forest.” She responded as one should: “Whoaaaa.”

Beyond merely responding to external stimuli, plants also decide. Their consciousness is different from ours, but more and more plant scientists are learning about plants’ ability to demonstrate agency.

Traditional Indigenous regenerative horticulture is the science of discerning what the plants tell *us* they need in the current season of coiled-in winter

Above: January Cordero-Johnston, Isa Saldivar, Marissa Velez, Gloria Lopez, Julia Cordero-Lamb, Jo Anne Sanchez, and Chimaway Lopez with qayas or blue elderberry at the San Marcos Foothills Preserve in 2018.

dormancy, or unfurling abundant spring growth, or season after season of drought. It is the art of listening—with all of our senses—to what *is*. Not what we think should be. Or what was and what we want to go back to. It is the science of being in an intimate relationship with these elder, wiser, and unfailingly honest family members.

We make mistakes when *we* decide what is and what can be. For example, modern humanity has made decisions about farming that in two generations have wiped out carbon-capturing wetlands, and degraded arable soils, aquifers, and pollinators, all of which are the sources of life on our planet.

When we are listening and doing what the plants tell us is necessary—regenerative horticulture, which my ancestors tested millennia after millennia by assigning primary agency where it belongs—with the plants and the land, provides food and medicine for all without ruining anything. Its name speaks its power. Our methods consistently regenerate life.

THE FIRST INSTRUCTIONS

If you have participated in long-term, regenerative, seasonal caretaking with a garden, or while pruning fruit trees, berry canes, or grapevines, you know how that collaboration grows and shifts with each passing year. It changes the way the plants grow and, when done properly, improves the soil. It changes us as individuals. We learn things about our role here, and about our responsibility. We learn over time that while we might control the skill and the timing of our contribution to what *is* now happening, many, many more factors are entirely beyond our control.

Now imagine this regenerative dance writ inconceivably large: your seasonal instructions from the trees and shrubs, grasses, flowers, berries, medicinal plants, lichen, and fungi. All that your hands cultivate with knowledge and love is coming from the entirety of the regional landscape where you and your family live. Imagine that it's California. And if you're thinking, "That's too big. I can barely keep up with my little patch of land. No one can prune California," of course you are correct. No *one* can.

But families, Nations of people who remember that this is their primary collective work, can. And, when we have access to our traditional Homelands, we do.

Indigenous Californian basketweavers and herbal medicine practitioners are the master horticulturalists of California. I and many other California First Nations People first learn to tend the land by helping basketweavers, food cultivators, and herbalists cut, coppice, prune, and squelch our toes in the sandy mud

of the riverbanks where sedges and rushes grow; massaging rhizomes into the long, strong, and clear materials that they eventually grow into—rain willing.

The information we gather is multisensory—not merely population numbers, but the tensile strength and flexibility of willow, the squeaky sound of healthy vines, sap viscosity, flavors, bark and flower color, insect interaction and infestation, tightness of wood grain, and medicinal effectiveness.

We learn our traditions, including our principles of economy and trade, through this hands-on practice of learning the seasonal round of listening, observing, and adjusting our expectations and our goals, based on what the plants are telling us. An increasing number of practitioners are doing what it takes to bring back the good fire practices of our ancestors, an essential piece of what the fire-adapted plants here have always needed.

LAND BACK

But while this is a story about how my Coastal Chumash family and our adopted allies are practicing regenerative horticulture in the Syuxtun region, this is not a story about our unbroken relationship with the land. This is not a paper that contains hard, multisensory, up-to-date information on how the plants are changing during a time of unprecedented climate disruption.

Our intimacy with our lands was violently broken by European and Anglo-American settler colonists who removed the knowledgeable humans from the land, and, further, who continue to actively contest our right to enact our most important responsibilities by dividing our families based on invasive, archaic ideas about blood purity, family lineage, and Tribal membership. The land is gated. Our access to the dance of renewal that ensured our ancestors' economic, spiritual, and physical health through periods of massive upheaval (including the last Ice Age) has been overwhelmingly denied to the Coastal Chumash. The Coastal Chumash families are organized into several bands, none of which are recognized by the federal government as Tribes. This means that for the past century and a half, we have had no land base.

The colonization and coerced removal of our families to the Spanish Missions—and for far too many kidnapped Indigenous children, to the Catholic residential schools—economically and educationally marginalized us until, in stark contrast to our wealthy and intellectually respected Chumash ancestors, we now carry the trauma of genocide, and too many of

us continue to suffer economic, educational, and linguistic poverty. And the land suffers in even greater measure.

Over the past several decades, and against all odds, the Coastal Chumash have shown tremendous determination to revitalize key aspects of our culture. With the support of the National Oceanic and Atmospheric Administration and the Channel Islands National Marine Sanctuary, we recovered our canoe-building and navigation culture. Our traditional foods are making a comeback through the dedication and innovation of many of our best gatherers and chefs. We have at least one basketweaver whose level of artistry matches that of basketweavers who practiced a century ago. Chumash family members in our northern unceded Tribal territories near San Luis Obispo are making tremendous headway in establishing further vital marine protected areas. But our lands and waters continue to suffer. So, these tremendous efforts must be seen as starting points.

The immense economic pressure of living without a land base in one of the most expensive coastal cities in the world has caused many Syuxtun families to move away, including my own. In search of a life immersed in nature for our children, my family moved to a small farm in western Washington. If my people were still the caretakers of our lands, I and many others would be home. This is what *is*.

You cannot talk with Indigenous Californians about Traditional Ecological Knowledge and practice without talking about our current lack of access to our lands, and about how both we and the land need us to return permanently. For us, conversations about traditional plants and climate change are hardbound to the current realities of the colonial occupation of our unceded Tribal territories and the destructive overdevelopment and extraction of raw materials by the capitalist-driven global marketplace. This, also, is what *is*.

Humanity's entire relationship to nature and the nature of economic health is in need of a complete overhaul. But what does this actually look like in practice? Are we truly fated to continue our relationship with the land in this abusive and narcissistic vein? We take what we want, and we give nothing back. We treat nature as an object, literally a resource that needs nothing in return. And when nature pushes back, we are infuriated and seek to control the narrative about what it's doing. Not only do we not learn from the natural consequences, we lie about them. We continue to say that what we are doing is working. This is an abusive relationship. The evidence is all around us, and inescapable.

Traditional practices have never been more important. They are invaluable tools tested since time immemorial that can help humanity adapt our economies and ways of life to survive the coming decades, and perhaps even centuries. We are inspired by the First Nations who possess or have found the financial means to conduct large-scale data-gathering that supports our traditional ecological practices. My own family is indebted to the organizations and individuals who have supported us as we pick up these tools our elders kept sharp for us, tools that have been shown again and again to demonstrate their importance and power to bring us back into balance with our planet. These are the tools of good ancestors.

THE SYUXTUN PLANT MENTORSHIP COLLECTIVE

I come from a Tribal community whose traditional economy lasted in place for many millennia while feeding thousands of people, and provided ample leisure time for the deep development of science, art, and trade. This way of being persisted through periods of global climate change, pandemics, and invasion, and could have continued indefinitely.

What worldview grew such an economy? And what future economy can we collectively imagine and grow with this worldview as the seed?

I can't answer that second question alone. But I can tell a story about how the Syuxtun Plant Mentorship Collective has begun to replant this worldview in ourselves by embodying the practices passed on to us by our elders.

In February of 2016, while I was back home in Syuxtun visiting family, several of the young people in our community asked me to take them on a medicinal plant walk in the Santa Barbara Botanic Garden, where I had worked as the education program assistant from 1996–2001.

After 30 years of study and practice, I'm now a community herbalist for my family at home in Syuxtun, and for many others where I now live in Washington state. I know the Santa Barbara Botanic Garden intimately, and am still close friends with some of the gardeners and botanists there, so our access was free and anticipated with great enthusiasm. Many knowledgeable people were on hand to facilitate this important effort for Chumash youth.

Our two-hour walk turned into a six-hour exploration of our ancestors' seasonal round of tending the land. We talked about medicines and basket, tool, and canoe plants. We talked about how to correctly identify species, and how vital it is to get it right. We



spoke all the Šmuvič names we remembered for all the plants we could (Šmuvič is one of seven Chumash languages). I listened to these brilliant young people talk about the nongendered nature of nature, marvel at the decidedly queer reproductive strategies of some plants, imagined what an economy based on regenerative principles might look like today, and discuss how the plants themselves will be, as they have always been, our best teachers for the years to come.

By the end of that springtime walk, we had formed the Syuxtun Plant Mentorship Collective.

It was deeply sobering for us to realize that during the past decade, we have lost far too many of the Syuxtun elders who kept our pre-Mission traditions alive. We knew that if we didn't pick up their pruners, digging tools, and gathering bags, gain access to the natural areas that have escaped development, and put into practice the instructions they left us, all our knowledge of our 15,000-plus-year-old *materia medica* (material used for medicine) and Traditional Ecological Knowledge would continue to fade out of existence. We know of practitioners in Indigenous Nations to the north and south of us, but we could not find anyone who could teach us the deeper ecological practices unique to this place, our home. We found this unacceptable.

QAYAS

Our work to remember the instructions of our plant elders has borne literal fruit. We have countless stories to tell about many plants that have taught us how to listen to their needs, and that have in turn provided our families with a taste of the abundance enjoyed by our ancestors. Here, I tell the story of one plant that has been perhaps our most consistent teacher: qayas or blue elderberry (*Sambucus mexicana*).

By the end of 2016, after a long process to gain access through Santa Barbara County, and raise money for my travel back home several times a year, we had for the first time in generations completed the first community-led seasonal round of regenerative plant tending that our family had performed in the perennial bunchgrass oak woodlands area now called the San Marcos Foothills Preserve.

We were accompanied during our first work period by Ken Owen, the director of the plant restoration contractors retained by Santa Barbara County to replant the San Marcos Foothills Preserve with plants native to the area prior to European contact, and who had been key to opening the gate between our collective and the county. He came along on our first few trips into the foothills at the insistence of the county, which wanted

Severely drought-stressed qayas or blue elderberry (*Sambucus mexicana*) at the San Marcos Foothills Preserve after initial pruning by members of the Syuxtun Plant Mentorship Collective in 2016.



Members of the Syuxtun Plant Mentorship Collective, tending khapšik or white sage (*Salvia apiana*) in the Los Padres National Forest in 2019: Julia Cordero-Lamb, Andrés Loyola, Andy Amaya, Isa Saldivar, Hana Aqiwo, Chimaway Lopez, and Casmali Lopez.



Members of the Syuxtun Plant Mentorship Collective harvest qayas or blue elderberry at the San Marcos Foothills Preserve in 2018: Chimaway Lopez, Marissa Velez, Gloria Lopez, and Diane Martinez.

to be sure that the Chumash “foragers” wouldn’t damage anything. Apologizing profusely for that bureaucratic requirement, Ken was deeply respectful of our history and right to be there, and he carefully and quietly observed our process.

The land was dry as burnt toast in the height of the drought, but so many of our tough fire-dependent and drought-tolerant plants were hanging on—dark and dusty green against the dead annual grasses. We stopped at the plants we knew, said their names, and talked about everything we remembered about them. All of us had precious pieces to share from our parents and grandparents.

We kept going, further up and further in, something drawing us to the heart of the hills. Wading through dead poison hemlock (*Conium maculatum*), black mustard (*Brassica nigra*), wild radish (*Raphanus raphanistrum*), and dwarf malva (*Malva neglecta*), we encountered a massive qayas untended for a generation. It was nearly dead from the dried and brittle weight of overgrowth, which, now surrounded by the palatial homes of the wealthy, had never had the opportunity to burn. We then knew what our first tending project would be. With our clippers and pruning saws, we needed to be the fire for this Elder.

The First Instructions are to listen, to make offerings to the plant (our collective brings water offerings), and to ask the plant Elder permission to tend and gather. In the quiet space of listening, we observed the habitat provided by this tree, as well as its overall symmetry, and where branches were irritated by rubbing and storm damage.

Everyone in the collective who already knew how to prune began work by teaching the people who didn’t. We talked about header cuts and shaper cuts; how to spot disease, hidden habitats, and unhelpful insect damage; and how to tell live wood from dead by touch. The people who know about soils scooped fragrant handfuls and talked about gut flora, soil flora, and how they both do similar things for the organisms they support. Our insect enthusiasts showed us tiny local bees, as they worked the scanty flower heads on the drought-stressed qayas.

While our collective is led and organized by the most knowledgeable among us, we founded our group and continue our work as a collective for the simple and eternally true reason that it is not possible for any one person to bring all the necessary information and perspectives to the task of tending the vast diversity of this coastal bioregion. Regenerative power structures are horizontal. Our Elders, the plants, taught our ancestors about survival of the most successfully cooperative.

We worked over several seasons to bring this elderly qayas back to health. On some days, depending on the season, we were fortunate to have our family weavers along. Those skilled artists talked about the timing and deeper techniques of pruning, coppicing, and processing, and about the vital role of fire in regenerating the robust health of materials. On other days, we discussed pollinators, bird and insect relationships, and the role of certain birds as seed planters. One of the older members pointed with their chin to a scrub jay and said, “Oak tree gardener.”

But always we talked about medicine—and not only the precious plant medicines that have proven again and again to be exactly what we need with each new medical predicament encountered by current generations, including COVID-19. The big medicine is being on the land, listening, moving our bodies, working in the cold dawn, sweating in the heat of the day, and cleaning up our work during the peace of the evening birdsong. And in the quiet moments of openness, when no one is talking, the plants taught us the dance of listening, observing, and feeling with our bodies how these plants wanted to be.

In 2018 came the day that for me represents an inflection point in our community’s revitalization of an ongoing practice of Indigenous regenerative horticulture, particularly with youth. This was that “aha” moment that all teachers live for, years in the making.

It started like any other day spent tending our gardens. Everyone was happy to be back out on the land in the warm sunshine after the rainy season, ready to sing and work and pray, and just be with our Relatives, human and non-human. And as we quietly chatted our way down the path, we rounded the corner and encountered the absolutely explosive abundance of the plants we had been tending. We slowed down to take it in. The wall of purple berries on the huge qayas tree showed us that our work had produced not only orders of magnitude more than in previous years, but more than enough for everyone, human and non-human. We stood for a moment in awe. I had been part of projects like this before, and I had been anticipating this moment: when things really “pop.” But the generosity of our well-tended earth when we have carefully followed that season’s instructions is never anything but overwhelming.

As I looked around at the collective members, I saw expressions filled with light and understanding. A few of our members told me later that in this moment they understood down to their bones, some of them for the very first time in their lives, what it means to belong to a place. To be someone the plants are happy to see coming down the path. To be a good ancestor to all

species. And that they were learning not what *will* happen in our climate-altered future, but that they now had some of the tools to bring about what *can* happen, from year to year, to ensure the survival and abundance of all of the plants that are with us on this unpredictable journey.

Ken Owen wrote to me later that year, explaining that while we still needed to notify the county about our trips and provide signatures of all current participants, our work had gained the full confidence and deepest admiration of himself and his work crews. They used words like “magical,” “unreal,” and “off the hook.”

And then came COVID-19.

WHAT IS, AND WHAT CAN BE

Through the time of the pandemic lockdown, I was stuck at home on my farm in western Washington state. I lived for the texts from the Syuxtun Plant Mentorship Collective youth:

“Auntie. I’m on my day off and I’m at the qayas tree. There are so many birds. The bees are off the hook, Auntie. The little, tiny native ones.”

“You did that.”

“Stop. I’m cryin’.”

“It’s like that sometimes. What else are you doing, mija?”

“Just sitting and praying, Auntie. And listening. I don’t know if I’d be alive right now if it wasn’t for this place.”

“I get it. Soak it up.”

A pause of several hours. And then:

“Auntie. Can I gather some qayas berries for you? And some eucalyptus?”

“My family would be really grateful for both of those medicines, mija. COVID is bad up here.”

“I gotchu, Auntie.”

Its label covered in original art, the slightly sticky bottle of elderberry syrup I received in the mail is dark purple, nearly black, and smells of raw honey, rich fruit, and lemon peel.

The fragrant, dried eucalyptus leaves started their lung-clearing magic before I even got the bag open. The herbalists who rely heavily on this overly abundant, problematic, and destructive plant can be part of the solution to keeping it in better balance. Highly invasive in California, and unlikely to ever be eradicated, eucalyptus is a powerful medicinal plant. It sorely needs to be taught better manners in the landscape. And everyone knows that no one teaches manners better than the Aunties, who are themselves schooled by the land and its old ways.

The medicine those gifts contain is antiviral, regenerative, pollinator-friendly, locally abundant, bioregional, mutually reciprocal, mad-respect, anti-teen-suicide, naturalized, land back, climate-adapted, traditionally ecological. And it can continue indefinitely. A re-Indigenized distillation of what can *be*.

The youth members of the Syuxtun Plant Membership Collective have continued to work toward what can be. They have done so even when, in the midst of the pandemic, the entire foothills area was under threat of development unless millions of dollars could be raised in a breathlessly short time. They chained themselves to the fences to protect the land and were arrested. But between their efforts and local community activism, enough money was raised to save a significant portion of the foothills. To the detriment of all of life, the rest is being supplanted with luxury homes.

CONCLUSION

“How were the Chumash able to live here without ruining everything?” This is the question that child asked me. The people in my Chumash family group, and our allies, are all recovering the long-term answers to this question. And we are trying to tell you.

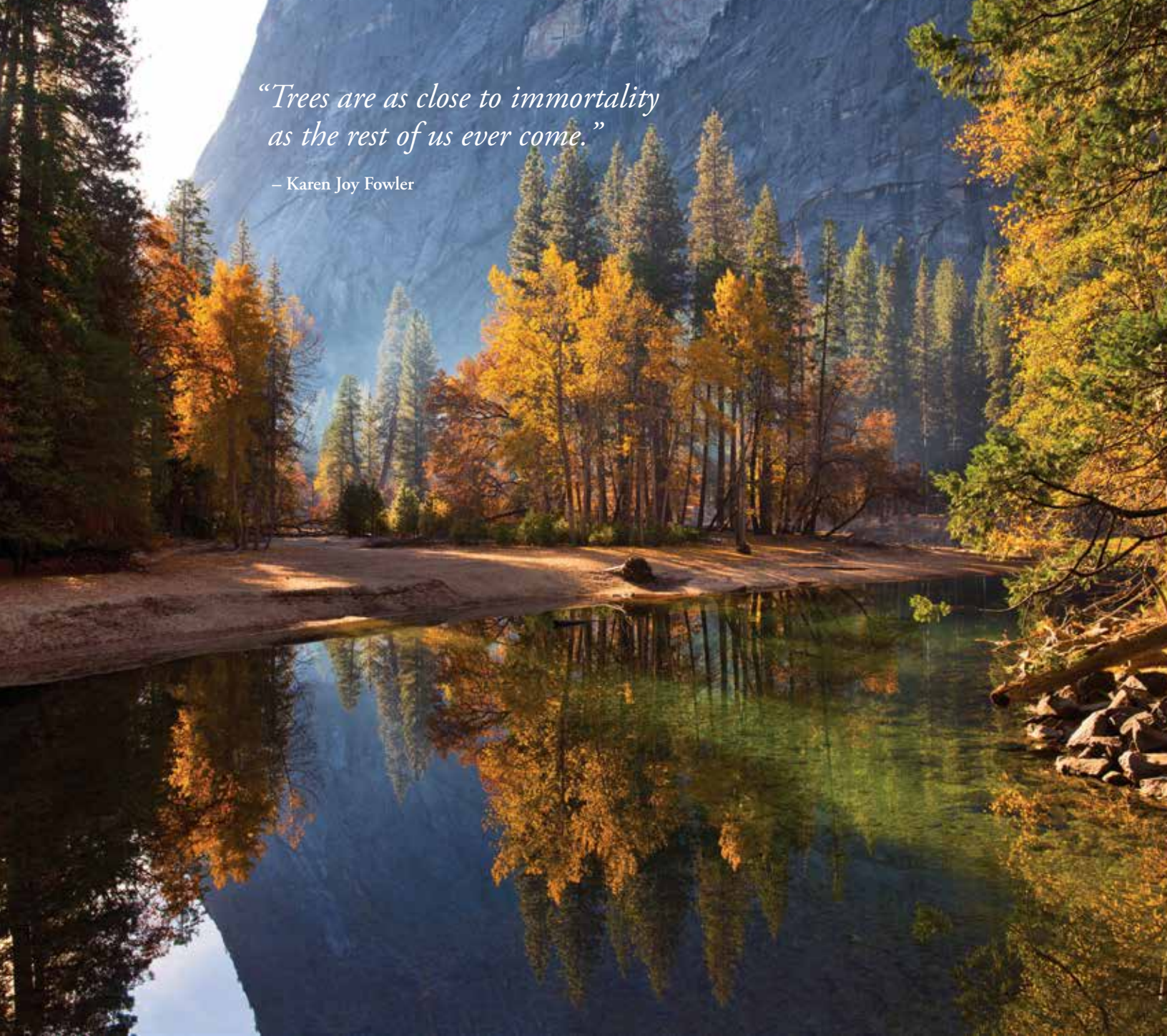
I hope that anyone who has read this essay and is not already in the process of letting go of their cherished but ultimately unsustainable ideas that separate us from all our Relatives—our family—can begin this process. Right now. The ideological separation of groups of human beings from each other, and humanity from our non-human Relatives, is the root cause of the greatest moment of extinction since the Chicxulub meteor strike 66 million years ago. That is what *is*.

Our family is waiting for us to remember who we are. But not for long.

Julia Cordero-Lamb is a community herbalist and has practiced Indigenous traditional regenerative horticulture in Chumash Country for 27 years. She is an enrolled member of the Coastal Band of the Chumash Nation.

*“Trees are as close to immortality
as the rest of us ever come.”*

– Karen Joy Fowler



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CLIMATE CHANGE'S EFFECTS ON TRIBAL CULTURAL PLANT RESOURCES

Tribal Chairman Ron Goode, Christina Oraftik, Hannah de la Calle

Climate normalcy is a period of stable and predictable water cycles with only occasional extreme events such as flooding or drought. Normalcy allows us to make predictions (e.g., it's going to rain in mid-September and early October, or frost will come by November and then snow by December). Weather anomaly is an unpredictable climatic pattern: drought, flood, drought, El Niño, drought, snow-pack, extreme heat, and extreme chill, all on a roller-coaster continuum of climate change. This abnormality is now being called “climate chaos.”

The trees, shrubs, flowers, and grasses have to find normalcy (resilience) in an abnormal atmosphere. In our sixth drought in the past 35 years, resources struggle to survive; trees are hit by invasive pests such as mistletoe, Sudden Oak Death, worms, and weevils. The outer limbs of the oak die during the drought, but the trunk regrows fresh limbs when the abundance of

water returns. This is one example of a cultural resource dealing with climate change. This article on impacts to culturally significant native plants will take a deep dive into the swirling effects on a variety of Tribal resources affected by the abnormal climatic conditions.

In the “Summary Report from Tribal and Indigenous Communities within California,” from California’s Fourth Climate Change Assessment, Tribes from the South-Central San Joaquin Valley reported their climatic issues, and included their cultural resources (2018). California’s Native American Tribes are using fire to fight fire—Indigenous Traditional Ecological Knowledge (ITEK) to address resource restoration, and Traditional Cultural Practices (TCP) to find “culture stability.” Indigenous Peoples set the fires for better regrowth. Proper and respectful harvesting means

Above: Sourberry (*Rhus aromatica*) regrowth after a cultural burn. All images provided courtesy of Chairman Ron W. Goode unless otherwise noted.

that plants can reproduce again the next year — just as caring for a meadow ensures water for all. The plants themselves are resilient, but the practices of the people that have stewarded the land for thousands of years help the plants maintain resilience.

INTERCONNECTEDNESS

Resilience holds its foundation in the soil, from within Mother Earth. The inner-world protects her life from the chaotic middle and upper worlds. Climate change on Earth has been here since time immemorial; its normalcy is in the fact that the climate is always in a state or condition of change. The rate of climatic events is where focus is placed; one or two events each decade allows normalcy, whereas a continuum of events decade-in and decade-out causes the solastalgia of alarm. An atmospheric rise and fall of chaotic climate conditions has blanketed the landscape in the last 35 years. Plants are rooted in place and cannot seek shelter during extreme weather—they must adapt. However, when the climate is changing so rapidly from year to year, they are unable to adjust properly.

HARVEST WINDOW STUDY

Native plants have struggled over the past 12 years. Chairman Goode's research, some of which was also documented in the report, recorded what is known as the "window" of harvest time. The study looked at Black Oak (*Quercus kelloggii*) and Gold Cup Oak (*Quercus chrysolepis*) acorns, the Sourberry (*Rhus aromatica*), Elderberry (*Sambucus* spp.), and Tobacco (*Nicotiana* sp.), examining the harvest window from 2010–2017, a period that included the fifth drought in the past 35 years spanned from 2012–2015, but politically was extended to two more years to continue drought related funding (2017).

CULTURAL RESOURCES:

Tobacco (*Nicotiana* sp.)

During a period of five to seven years, the harvest window fluctuated but essentially stayed within the parameters of the harvest period, (i.e., Tobacco gathering is mid-May through June). During drought periods, the plant would give a "false" harvestable product one-and-a-half months ahead of time. This meant the Tobacco plant grew around the first of April and matured by early May. The problem was that the plant had but a few leaves on the bottom, while the rest of it grew tall (two to three feet) and flowered on a spine stem with no leaves. Then, weeks later, a second version of growth sprouted that was full of leaves, grew

four to five feet tall with white flowers, and reproduced seeds on top.

Sourberry (*Rhus aromatica*)

The same scenario that occurred with Tobacco repeated itself in the three-leaf Sourberry bush, giving a "false" berry, which had no seed inside of it in the late spring-time. Then, by mid-June (beyond the early harvest time), new berry seeds sprouted. The harvest window normally would be early June to late July, but instead it was shortened to mid-June to mid-July.

During the past 12 years, there have only been three prime harvests of the Sourberry: 2010, 2014, and 2019. Several harvest years in between the prime years produced a light-to-no berry crop production. In these circumstances, the gatherer has to harvest enough product to last until the next prime harvest year. It also means the gatherer has to find solutions to process the berries, so the product can be stored. There are three techniques for storing: making a juice and storing in bottles; grinding berries into a seasoning; or storing the fresh berries in cardboard boxes in a dark facility, which allows them to stay semi-fresh.

Acorns

Acorn harvest time is normally mid-September to late November. There were acorns falling in July and August during the drought, but these were not harvestable or edible. Over the past 12 years, the acorn harvest window fluctuated from late September to early December. Whereas acorns might normally get three harvest periods, instead, at times, there would only be one harvest window (i.e., late October to mid-November), staying within the parameter of the harvest period.

Elderberry (*Sambucus* spp.)

The Elderberry's reaction to the climate chaos has been to die off. The stalks that were hit by the Elderberry beetle dried up and died on the shrub. Some new and young shoots grew, but it's the older stalks that retain the berry. If the main stalk survives the drought, it will eventually grow into a tree. Trees have berries that are harvestable mainly by birds, but the Elderberry is a source of resistance to the COVID pandemic. Not only is the berry juice a healthy source of medicine, so is the inner-bark. The yellow flower has long been used as a pre-combative resource for colds and flus. The sturdy stalks are used for musical hand-clappers, in ceremonies, and hand-game activities; they're also used for pop-guns and dart guns. In Creation stories, the stalk is used to travel from one world to another, such as escaping from the middle world to the upper world to avoid a predator.

Western Redbud (*Ceris occidentalis*)

Another important resource (not listed in the 2018 report) is the Western Redbud. The shrub and its shoots, which Native basketweavers use for their traditional baskets, have been impacted. This resource is generally harvested November through January. The harvest window is kicked off by a heavy frost late October and early November, which causes the leaves to drop off the plant. By late December, the new buds are beginning to appear, and by mid-January, the bark is loosening on the shoot and no longer a good basketweaving resource (if the shoot is to be used in a basket with the bark on). However, the abnormal weather impacts have created havoc: Leaves are not dropping in November, and gatherers are harvesting in late January and early February because of the lack of frost during the drought years.

DRY CLIMATE SPECIES

Some species thrive in drier and/or high carbon climates. The California Tobacco grows well along roadways. When there have not been fires, mistletoe, California dodder, Italian thistle, bull thistle, yellow star thistle, velvet grass, Scotch broom, and goathead

Wildflowers, sky lupine (*Lupinus nanus*) and purple owl's clover (*Castilleja exserta*), blooming several years after a cultural burn, Mariposa County 2023. Image courtesy of Christina Oraftik.

puncture vine are a few noxious weeds that will become quite devastating. They can become dominant and spread rapidly, pushing the native plants and grasses out of the way. Even the common tarweed will take over a space or landscape, and Sudden Oak Death will also flourish when not regulated by fire.

As these noxious weeds cover California landscapes and replace native species, they alter the ecosystem. They are often unpalatable to grazing animals, and once established, it can be very difficult to eradicate large populations of weeds such as yellow star thistle. Often, these invasives make areas more susceptible to high-severity fires. In order to restore native ecosystems that are resilient against climate chaos, many Indigenous practitioners continue to utilize Traditional Cultural Practices (TCP) such as cultural burning.

INDIGENOUS TRADITIONAL CULTURAL PRACTICES

Traditional Cultural Practices of burning and tending are one way of putting stability back into the resource(s). Cultural burning incorporates many specific techniques to apply fire on the appropriate resources at the right time, and finishes that fire by creating a midden nutrient that gives the soil resiliency. This technique is managing the ash and charcoal by massaging the ash back into the soil, giving the root system food as well as the opportunity to hold water and moisture. This



process rejuvenates the soil and roots, allowing the plant resource to regenerate back to a healthy, vibrant, and reproducing cultural resource plant.

Indigenous Traditional Ecological Knowledge becomes vibrant when the TCP is in place. When the cultural practice is implemented and repeated, the ecological knowledge becomes apparent as the practitioner applies the generational knowledge with the practice. In other words, the figurative knowledge is saying that the Native Americans burned and used fire as a tool; the literal knowledge comes when the practitioner understands the different concepts of burning and the variable resources being burnt through their own personal experience with the practice. Cultural burning is about the culture. Cultural burning is the cultivation of the landscape and the resources.

TCP CASE STUDIES

Through the use of TCPs, including cultural burning, the North Fork Mono Tribe has worked to restore meadows throughout the Sierra Nevada. Clearing overgrown vegetation allows for the water table to rise and the meadows to properly function as a sponge. New native plants that spring up from recently burned

areas will store water that will eventually continue to flow down the watershed in a gradual manner. Therefore, creeks and streams will hold water for longer in the summer when there is no rainfall.

Indigenous Native cultures have been using fire as a tool to steward the land for thousands of years.

More and more of the world's leaders are recognizing the need to give back to nature rather than just take, as well as the important role of Indigenous Peoples in that stewardship, both in the past and today. Prior to colonial contact in California, the land was well-taken care of by the Native American Peoples both before and shortly after the Euro-American arrived. The Euro-Americans reaped the rewards of giant trees and timber for their operations in the latter 1800s here in California, but they never restored and never put back—they just took. Then in the early 1900s they did the opposite. They did not allow fire in the forest, instead planting thousands of trees and never “tending the garden;” they just let the trees grow. This inconsistency of managerial practice, targeting the economy

Blue elderberry (*Sambucus mexicana*) regrowth following a cultural burn. Image courtesy of Christina Oraftik.





Chairman Goode and team burning Sourberry in Mariposa County, 2022.

of their pocketbook, has enhanced the climate chaos' impacts on California landscapes.

To combat problematic parasites, weevils, worms, and noxious weeds, native plants need smoke, and they need fire. The large statewide fires of 2008, 2015, 2020 and 2021 burned 2% to 4% of California (CAL FIRE, n.d.), laying smoke down on the landscape for weeks and months at a time. That smoke curtailed the parasites and allowed the vegetal resource to rejuvenate and to regenerate.

During the drought, even the lichen becomes an attacker. When assessing and observing the condition of the Sourberry, Indigenous practitioners look at the color. Is the bush green/gray? Is it a gray or a tan/brown? Is the stalk reddish, greenish, or yellowish? These are all stages of the deterioration of the shrub. If the grassland is brown or orange, but not golden, then the tarweed is the dominant resource. One must see the grasslands' health by its color. The same applies to the meadows. Lush green, blue-green, yellow-green, brownish with patches of green—these are the color indicators, not only describing the health of the meadow, but the health of the forest, the wildlife and nature's economy itself, because these are all interconnected and rely on each other.

ACORN MONITORING

Cultural burning is being implemented throughout the United States. Tribes in Florida, Wisconsin, Arizona, and Oregon are all struggling with state and federal policies to get cultural burning done and done properly. Here in California, an accounting of how Tribes and practitioners once burned, would like to burn again, and/or are burning is being conducted by the authors. Many Indigenous practitioners and gatherers are burning on their own private or Tribal lands.

The North Fork Mono Tribe has been burning and monitoring the oaks and the acorn production for 20 years on two meadows and Oak orchards of Black Oak and Golden Oak in the Sierra National Forest; and on two Oak orchard plots of six and nine acres in Sequoia National Park. There were 91 Blue Oaks (*Quercus douglasii*) on the six acres and 115 Blue Oak and Interior Live Oak (*Quercus wislizenii*) on the nine acres. This research was conducted over a three-year period, recording the condition of the trees, the acorn production before the burn and who utilizes the acorn as a primary food source.

The Tribe compiles a species list for every project they work on. This is the responsibility of the agency in charge of said landbase (i.e. the National Park Service, US Forest Service, or the state or county; however, the species focus is often too narrow, typically accounting only for endangered species. But the agencies should know the entirety of who they are supposed to be feeding and maintaining a healthy habitat for, including bears, turkeys, deer, coyotes, foxes, woodpeckers, blue jays, squirrels, chipmunks. In other words, these agencies need to have a complete list of their wildlife, not just the endangered species list. However, when requested to produce a list of species on their land, their list will only include those of special or protected status.

The Tribe's study was conducted from 2017–2019. As reported in the climate report, the first year of monitoring showed that 36% of the oak trees produced acorns in some manner, i.e., light cover to heavy cover of mostly all “caps” of the acorn. The animals ate all the good healthy acorns by late November when the first study was done. When Good smoke (the right amount and intensity of smoke) was applied through a broadcast burn, then the following year produced an acorn-producing tree count of 54%. This was an increase of 18% of blue oaks producing acorn. A couple of one-gallon bags of very healthy acorns were gathered as a sample and given to the local Native maker of traditional acorn foods. Although a third of monitoring following another burn was unable to be conducted, a large flock of turkeys was seen, and bear sightings were reported. This is an example of native species restoration.

CONCLUSION

Restoration of the resources and landscape is a means to restore the culture. Traditional Cultural Practices have been implemented and refined over millennia to take care of the plants so that they are healthy and can play their roles in the ecosystem. These practices take chaotic, unstable unpredictable middle and upper worlds and create normalcy via the under-world—the soil of Mother Earth. This creates a soil that gives enough nutrients and holds a sufficient amount of water that encourages the resource to *want* to survive no matter what the erratic weather provides. When a nutrient is mixed just right, the resource will respond with a healthy plant recovery, even with as little as a half inch of rain. Refreshing the cultural resources affords the basketweaver, harvester, berry gatherer and native medicine enthusiast a happy heart. If these practitioners can tend their own resources, they don't have to trek up steep rugged hillsides, or cross fences and

get shot at, or fined for gathering on private or public properties without permits. Most of all, cultural burning done right brings back a higher quality and larger quantity of cultural resources.

Cultural burning is more than doing something for the Indigenous practitioner and restoring the plants, flowers, and grasses. It restores the water. Regenerated vegetation holds water closer to the surface, recharges groundwater, and releases the water more slowly downstream. Not all ash piles and burns are fully mixed. Elders give instructions to be sure to leave a couple of ash deposits and charcoal for the animals. When at a burn, animals from the deer to the squirrels, will be observed rolling and pawing at the biochar to remove fleas, ticks, and mites.

Therefore, cultural burning and other Traditional Cultural Practices strengthen the land and all the creatures that live on it, including humans, in the face of climate chaos. Traditional Cultural Practices have stood the test of time and been passed down through the generations because they create the right conditions for all life to flourish. This is why California needs Indigenous practitioners and must support Traditional Cultural Practices—these ways hold the key to help steady our plant and animal Relatives in a changing world.

Ron Goode is Tribal Chair of the North Fork Mono Tribe and a lifelong cultural burner and steward of his Homelands. His colleagues Christina Oraftik and Hannah de la Calle have been assisting his efforts to bring fire back to the land.

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INDIGENOUS ECOLOGIES: CULTIVATING FIRE, PLANTS, AND CLIMATE FUTURITY

Melinda M. Adams (N'dee, San Carlos Apache)

Indigenous Peoples are currently being called on to participate in the public discourse on climate change and resilience. Since time immemorial, many Native American Tribes conducted *cultural fires* as an ecological approach to tending and caring for our lands (Ericksen and Hankins 2014; Lake and Christianson 2019; Long et al. 2020). Cultural fires are low-temperature burns that not only improve the ecosystem's plants and animals, but provide socio-cultural medicine, which strengthen the intergenerational bonds between Tribal members. Indigenous Peoples' relationship to native plants is part of myriad land stewardship practices that Tribes have held for millennia. In what is now known as California, Tribes have been applying culturally-led fire to landscapes for the revitalization of plants, soils, and cultures. Further, placement of slow, low-temperature prescribed fire has been proposed for

broader implications that include mitigation of wild-fire and the effects of climate change in California, and in the West more broadly. Conceptually, this piece braids together eco-cultural restoration efforts centering Indigenous Ecologies, concentrating on climate futurity—the act of living out the futures we wish and the creation of the conditions for these futures (Harjo 2019), and grounded in Native American studies frameworks. This research moves away from dominant approaches that center Western concepts of fire and science. Instead, the purpose and protocol are to acknowledge local Indigenous knowledge as an equally

Above: Indigenous Matriarchal Ecologies in action, placing cultural fire at the Leok Po, good fire demonstration at the Tending and Gathering Garden. November 2022. Photo featured in *Indigenous Ecologies* by Melinda Adams. Photograph by Tisina Ta-till-ium Parker (Southern Sierra Miwuk/Kutzdika'a Paiute/Kashia Pomo).

relevant knowledge system (Kimmerer 2003, 2019; Kawagley 2006; Lam et al. 2020; Hausdoerffer et al. 2021), and specifically Indigenous women's knowledge and practice of "good fire" (Adams et al., forthcoming). Good fire can be interpreted as Indigenous-led prescribed fire conducted with the goal of ecological, cultural, and social restoration.

Here, I seek to center what I am terming *Indigenous Matriarchal Ecologies*, land stewardship practices led by Native women toward the betterment of ecological, social, and cultural systems. Indigenous Matriarchal Ecologies prioritize *relationality* (relationships to the land, more-than-human Relatives), *reciprocity* (connectedness that positions people in relationships with each other and with the environment), *remembering* (collective and individual connection of bodies with place), and *futurity* (intergenerational exchanges) (Archibald 2008; Wilson 2008; Nelson 2008; Smith 2012; Johnson et al. 2016). These protocols are commonplace in Native American and Indigenous studies, and have the potential to be deployed by allied scholars, community members, and certainly by those who care for our shared California environment.

The Tending and Gathering Garden (TGG) is a notable location where Native American women practice and lead Indigenous Matriarchal Ecologies. The TGG sits on two acres of Patwin (Southern Wintun) California Indian land dedicated to the restoration of native plants used for basketry, food, fiber, and medicine utilizing Indigenous land stewardship practices, including cultural fire. The TGG is a collaborative effort between the Cache Creek Conservancy (CCC) in Woodland, California, and the local Indigenous community.

Nearly 30 years ago, representatives from the California Indian Basketweavers' Association (CIBA) envisioned land return to cultivate culturally significant local plant species on this former gravel mining site (Middleton 2011; Ross et al. 2012). Today, the TGG protects two acres of restored lands and waters with native plants within the Cache Creek watershed. The TGG serves as a public space for hands-on education incorporating plant identification, plant use, and traditional management methods. Throughout the course of multidimensional field observations, the effects of cultural fire were compared on pre- and post-burn ecological properties. Additionally, visual field observations led by Indigenous women basketweavers, and fire practitioners compared the quality of plants cultivated by cultural fire that are then used for basketry. Reflections from these Indigenous Matriarchal Ecologies emphasize the positive effects of cultural fire on environmentally degraded soils and culturally

significant plants, creating favorable conditions toward the improvement of basketry materials: Western redbud (*Cercis occidentalis*), deergrass (*Muhlenbergia rigens*), dogbane (*Apocynum cannabinum*), and tule (*Schoenoplectus* spp.), while building native plant and soil resilience toward climate and cultural futurity that all California communities can enjoy.

Throughout this work, I will refer to plants as *Relatives* (versus species) and encourage others to do so in an effort to Indigenize the way we approach ecological restoration and as a way to connect more closely to the places we live and care about (Wildcat 2009; Kimmerer 2013; Hernandez 2022; Adams 2023). As a stylistic practice, and to Indigenize this article, I will refer to the plants by their Wintun names. These names were gifted by the Elders central to this work and referenced in this article; Pam Gonzales (Wintun, Concow, Huchnom) and practitioner-cultural expert Diana Almendariz (Wintun and Maidu).

NATIVE PLANT RELATIVES

Lul, the Wintun name for Western redbud, is a native winter deciduous tree/shrub that can be seen from February to April; and can be found in plant communities such as oak woodland, chaparral, mixed conifer forests, and riparian woodlands (USDA NRCS n.d.). Lul is highly valued by Native American basketweavers for its vibrant red branches used in the design of baskets (Anderson 2005).

Nope Laol, Wintun for deergrass, is a native perennial bunchgrass found in a wide range of ecotones including grassland, riparian, chaparral, mixed conifer, and oak woodland communities. Nope laol is a significant Relative to many Tribes who use the flower stalks in the beginning of coiled basketry. Culms are gathered in the spring or early fall (Anderson 2005). Ecologically, deergrass provides cover during mule deer fawning, and the younger tufts are grazed by ungulates and cattle. It gains increased browsing activity when first resprouting after a burn. Ecologically, deergrass provides streambank stabilization from its vast root systems, mitigating soil loss from erosion (USDA NRCS, n.d.).

Dogbane, known as Collie in Wintun, is a native perennial forb/herbaceous Relative found near streams. Many Tribes in California tend this plant for its fibrous materials for fishing and carrying nets, for ropes, and for weaving and cordage materials. It is important to first speak of this plant Relative's usefulness and role it continues to play in Native American culture and the construction of cultural memory and stories. This is integral because dogbane has been known to be

poisonous and/or noxious amongst ranchers due to its invasive growing behavior and its toxicity to livestock. This labeling has contributed to the decline and eradication of a valued plant to California Indians (Almendariz, discussion).

Tule is known as Tlaka in Wintun, and is a native perennial herbaceous sedge, and obligate wetland Relative. Tule can be used for marsh restoration and to control erosion along streams, levee banks, canals, and other places where land meets water (USDA NRCS, n.d.). Many forms of wildlife will utilize the plants for food and cover. Young tule shoots can be eaten raw or cooked. Amongst Tribes, the rhizome is used for black coloration in basketry designs. Tule and cattail can be used together as insulation for matting, bedding, and roofing materials (Vasquez 2019; Almendariz, discussion).

INDIGENOUS ECO-CULTURAL RESTORATION

As California plant communities continue to experience the effects of climate change, scientists work to understand adaptable measures to build resilience in the places we all live and care about (Williams and Underwood 2021). There are numerous examples of ecological and cultural restoration with cultural fire that centers Indigenous knowledge and practices to regenerate ecological diversity as well as cultural identity reclamation (Goode et al. 2018; Long et al. 2020; Mucioki et al. 2022; Tom, Adams, and Goode 2023; Adams 2023). In the author's restoration work led with Indigenous Matriarchal Ecologies, we center the perspectives of Indigenous Peoples, prioritizing that of our Native women. Within traditional Native societies, often the decision-making power was held within women's circles or councils as the de facto process (Goeman 2013; Risling Baldy 2018; Gray 2022). Eco-cultural restoration led by Native women invokes societal roles held since time immemorial while also offering a unique perspective of the environment, including land tending and care.

Inclusivity and the centering of Indigenous women's knowledge also allows opportunities for us to contemplate plant and soil health, remediation, and rematriation of the quality of our plant and soils to provide a beneficial support structure that enables our native plants to thrive. Numerous cultural fire practitioners directly, and indirectly, emphasize the importance and value of storytelling the land; they are also reiterated during on-the-ground cultural fire training, demonstrations, and workshops (Tom, Adams, and Goode 2023). For example, Braiding

Sweetgrass author Dr. Robin Wall Kimmerer (Citizen Band Potawatomi) says, "to be a good ancestor, you have to build good soil!... Building good soil enables resilience in the face of change, buffering against shortage and stress, so that life force can go into something more than survival—into becoming: Soil, to me, is a worthy ancestor for it is simultaneously the repository of what has come before and garden for what is to come" (Hausdoerffer et al. 2021). And so, by centering Indigenous Ecologies led by Native women, or Indigenous Matriarchal Ecologies, these practices provide an opportunity to enrich restoration goals of landscapes, soils, and native plants—in addition to Indigenous cultures and landcare for all.

THE RETURN OF FIRE

In California, and in the West more generally, wildfire has now become seasonal—setting records of acreages burned, lives lost, and rising economic costs (Sommer 2020). Historically, many Native American Tribes conducted cultural burning as a spiritual and ecological approach to fire use. However, as early as the late 1800s, federal resource management agencies began suppressing the use of Indigenous burning. This reunification with fire as a land conservation tool and medium to reclaim cultural identities is being called upon by state and federal entities who are making strides toward working with Tribes and Tribal groups to hold more cultural burn demonstrations, trainings, and experiences. In holding these collaborative burns, practitioners, agencies, community members, and students all play a vital role in mitigating the effects of wildfire season, which continues to devastate communities in the West through prolonged megafire seasons. These climate change threats that are imposed through the deadly wildfire season add to emissions, pollution, and public health concerns from prevailing wildfire smoke, particulate materials release, and greenhouse gas emissions.

But one of the most devastating climate threats we are experiencing is land degradation through ecological collapse: losing the places of familiarity and the lands and waters, which form our identities as humans. Therefore, it is up to many of us, including Native American cultural fire practitioners, traditional gatherers, and all Californians to rebuild our connection to and relationship with fire. It cannot be solely on the shoulders of agency representatives to meet prescribed fire goals or land conservation efforts through California's 30x30 policy. Instead, educational awareness around cultural fire could be learned to support Tribes

30x30 IN CALIFORNIA

In October 2020, Governor Gavin Newsom issued Executive Order N-82-20 to commit California to the international goal of conserving 30% of its lands and coastal waters by 2030. California's Pathways to 30x30¹ strategy identifies three core commitments, one of which is to strengthen Tribal partnerships

through shared decision-making, land return, and other actions. On Oct. 7, 2023, Governor Newsom reinforced California's 30x30 vision by signing Senator Dave Min's (D-Irvine) Senate Bill 337 to codify 30x30 into law.

1 https://resources.ca.gov/-/media/CNRA-Website/Files/Initiatives/30-by-30/Final_Pathwaysto30x30_042022_508.pdf

returning more fire to the ground and the legislative efforts that will support it.

INDIGENOUS WOMEN, HOMELAND HISTORIES¹ AND HOMELAND ECOLOGIES²

Recently, there has been a (re)awakening of Traditional Ecological Knowledge (TEK) leading to a resurgence of Indigenous cultural fire practices (Hankins 2015; Goode et al. 2018; Long et al. 2020; Adams 2023). It is important to acknowledge that there is a wide range of approaches among our Tribal representation and differing practices we each have as cultural fire practitioners. Cultural fire demonstrations involve place-specific land stewardship techniques, but all, for the most part, have the goal of environmental and cultural improvement. While much of the literature uplifts the voices and leadership of Native men, we must also centralize and privilege the role of Indigenous women's fire stewardship toward our collective climate survival and environmental resilience. To ground my theorization of Indigenous Matriarchal Ecologies, I lean on Native American studies scholar Mishuana Goeman (Tonawanda Band of Seneca Nation) and her call, "How might our stories become the mechanism in which we critically (re)map relationships between Native Peoples and communities?" (Goeman 2013) In response to this question, my work (and our collective work as Native women) at the TGG invokes Indigenous Matriarchal Ecologies as a (re)mapping tool in returning our stories, land stewardship lessons, and culture to our lands. Specifically, I work with Indigenous matriarchs who have taken a lead in reclaiming cultural fire. This place-based work invokes an

Indigenous female analytic: "our revitalizations, when built with Native feminisms, disrupt intrusions in our past and contemporary cultures and strives to reclaim our ecological knowledge systems and relations" (Risling Baldy 2018). Reconnecting our Peoples to cultural fire and reinstating the environmental leadership roles of Indigenous women will catalyze the return of our stories and fire to the land. A modality of Matriarchal Ecologies is our conceptualization of Indigenous "Homeland histories" and "Homeland ecologies." *Homeland histories* are the histories of Native people in relationship to their landscapes and waterscapes as articulated through storytelling, storysharing, and Indigenous ways of knowing and being (Gonzales, discussion). Tethered to Homeland histories is what we present as *Homeland ecologies*. Homeland ecologies are Indigenous stewardship lessons of native plants and animals on Indigenous Homelands towards the (re) creation of healthy landscapes and waterscapes. It also involves making "liveable areas" for both human and more-than-human Relatives (Almendariz, discussion).

Our Indigenous women-led good fire (Adams et al., forthcoming) allows participants—whether they are Indigenous, non-Indigenous, agency, or community members—to learn about Indigenous Peoples and our connectedness to lands and waters through Homeland histories and Homeland ecologies. Our Matriarchal Ecologies of fire and native plant revitalization efforts are rooted in relationality, reciprocity, re-membering, and futurity (Archibald 2008; Wilson 2008; Smith 2012; Harjo 2019). This work makes strides to reconnect our people with our land stewardship responsibilities and reinstate the environmental leadership roles of our women.

1. As theorized in partnership with Pam Gonzales.

2. As theorized in partnership with Diana Almendariz.

Author of this article, Melinda Adams, leads a Nope Laol, deergrass cultural fire burn at the Tending and Gathering Garden. Photo by Lynne Haralson.



The intergenerational Indigenous women of the Tending and Gathering Garden. Left to right: Chrissy Almendariz, Diana Almendariz, Pam Gonzales, and Tracy Gonzales. May 2022. Photo by Ameen Lotfi.



Chrissy Alemdariz leads youth in constructing a traditional acorn granary out of native plants. June 2022. Photograph by Ameen Lotfi.



Indigenous matriarchs and practitioners, Diana Almendariz (left) and Melinda Adams (right), gather *Tlaka*, tule to construct a canoe. Photograph by Melinda Adams.

MATRIARCHAL ECOLOGIES AND TENDING FIRE

In 2000, UC Davis geography student Shannon Brawley connected with Kathy Wallace (Karuk, Yurok, and member of Hoopa Valley Tribe), a traditional basketweaver, cultural educator, and cofounder of the California Indian Basketweavers' Association (CIBA); and Jan Lowrey, the former executive director of the Cache Creek Nature Preserve, located in Yolo County, California (Ross et al. 2008). CIBA is a non-profit community-led organization whose vision it is to “preserve, promote and perpetuate California Indian basketweaving traditions while providing a healthy physical, social, spiritual, and economic environment for basketweavers, and to provide access to traditional

cultural resources on public and Tribal lands and gathering sites” (CIBA). Baskets made by California Native weavers are among some of the finest anywhere in the world (Bibby 2004, 1996; Anderson 2005). Together, members of this “Tending and Gathering Garden” (TGG) envisioned land return for a garden of culturally significant local plant Relatives (Middleton 2011; Ross et al. 2008).

Through a combination of empirical plant and soil ecological readings, as well as observations made by Indigenous practitioners and basketweavers, Patwin Elders and I developed a “good fire eco-cultural matrix” to aid in welcoming fire back to Patwin Homelands. Pam, Diana, and I are excited to add a soil health approach to our work with cultural fire, specifically to assess how low-intensity and low-severity TEK-led fire benefits weathered and degraded soil profiles. With regard to climate change, there are current initiatives put forth by agencies in California to build climate resiliency. For example, the Food and Agriculture Organization suggests, when managed sustainably, soils can play an important role in climate mitigation by storing carbon and decreasing greenhouse gas emissions (FAO 2015). By restoring degraded soils and adopting soil conservation practices, such as those practiced in cultural fire and Indigenous Matriarchal Ecologies, there is potential to enhance carbon sequestration and build resilience to climate change. Specifically, good fire shifts nutrient levels that increases organic matter, keep soil surfaces vegetated through the regrowth of plants, and encourages biodiversity. Further, these soil improvements on formerly mined and degraded lands could make soils more resilient to erosion and desertification, while maintaining vital ecosystem services (FAO 2015).

In addition to this good fire eco-cultural matrix, another example of Indigenous Matriarchal Ecologies is the *Leok Po* (“good fire” in the Wintun language) cultural fire workshop held in partnership with the Cache



Above: Collecting soil. Pam Gonzales, Diana Almendariz, and her grandson lead in collecting baseline soil survey and collection at the Tending and Gathering Garden. December 2022. Photograph by Melinda Adams.

Left: Soil layers created by Indigenous cultural fire on formerly mined soils at the Tending and Gathering Garden. May 2022. Photograph by Melinda Adams.

Creek Nature Preserve and the California Department of Forestry and Fire Protection (CAL FIRE). Collaborative initiatives such as these make strides toward supporting Native American cultural burn demonstrations, and provide opportunities to deploy Indigenous land stewardship practices such as Indigenous Matriarchal Ecologies toward our collective climate and ecological resilience. In November 2022, the Tending and Gathering Garden was chosen as the site for one of the first ever CAL FIRE cultural fire workshops and training sessions in collaboration with on-the-ground CAL FIRE firefighters, policy makers, and administrative representatives. This demonstration invoked a new California fire bill, Wildfires AB 642 (2021), which, for the first time, defines a cultural fire practitioner—equating the status to a state-certified burn boss. During this training, three Indigenous cultural fire practitioners, two women, and one man, held the status of “burn boss”, individuals who are qualified to plan, organize, and execute what are known as prescribed, or “Rx”, burns (NWCG 2022).

The CAL FIRE cultural fire training started with, and centralized cultural workshops and approaches to fire stewardship led by Indigenous Peoples. Nearly 100 agency participants took a step back from fire suppression and instead listened, watched, and learned a different way of placing good fire. The *Leok Po* cultural fire training concluded with a live prescribed burn, which exhibited Native women led cultural fire and Indigenous Matriarchal Ecologies. To demonstrate Indigenous relationality, reciprocity, re-mem-bering, and futurity, Diana Almendariz and author of this article (Adams)—two Native matriarchs and Indigenous fire practitioners—designed a family burn for the day so that observers could experience good fire that is started, passed, and carried by four intertribal and intergenerational matriarchs.

Before beginning the burn, Diana offered a brief prayer to ask that the fire be carried slowly and in a good way, speaking her language into action—“*Leok Po*”, proclaiming “we are here for good fire.” Greenville Assistant Fire Chief Danny Manning (Maidu), author of this piece (Adams), and Diana started a small, prepared *Lul* (Western redbud bush) pile burn. Diana instructed that coals from the *Lul* bush pile be carried to the second burn location, which was nearby native grass patches. Next, Diana instructed her family members and burn leaders to place bundles of cattail and *Tlaka* throughout the grass patch to accelerate the cultural fire, allowing it to continue to burn from one end of the patch to the other.

The author (Adams), an Indigenous woman and practitioner, then picked up the coals from the first

fire and carried it to the next designated burn area. The symbolism of passing this second coal acknowledges the exchange of lessons from expert (Diana) to learner (Adams), teacher to protégé, matriarch to matriarch—from one Tribe to another. The grass patch flames carried calmly and slowly, with assistants nearby carrying live fire to other parts of the native grass patch to continue to burn. The third coal was then passed to Diana’s daughter, Chrissy, at a *Tlaka* patch across a path in the garden. The passing of these coals represents lessons of matriarch to matriarch, Tribal to Tribal, and mother to daughter. The *Tlaka* patch lit quickly but calmly, and leaders tended to live flames of grass that surrounded *Tlaka*.

The last and most significant coal was then passed from Chrissy to her daughter and Diana’s granddaughter, Julie. This flame was the most meaningful as it represents the last flame, the future of fire, and the role of Indigenous youth in carrying cultural lessons forward. Julie gently placed the flames, which took to the plants well and resulted in the hottest and most impressive fire of the rotation. Julie’s flames were fed with the prayers, language, and culture of the coals passed amongst all four matriarchs. Indigenous Ecologies of place and culture led the day and were brought to life by the Matriarchal Ecological knowledge embedded within each leader. Participants watched Indigenous Knowledge be put into practice, and experienced the power of regenerative stewardship that is place-based, centered on Ancestral knowledge, and led by Native women.

CLIMATE AND CULTURAL FUTURITY

This project places Indigenous Ecologies and what I term *Indigenous Matriarchal Ecologies* at the forefront of climate change solutions, through the revitalization and reclamation of cultural fire practices, since recently there has been a movement of Indigenous fire practitioners reclaiming their land stewardship roles through cultural fire (Aldern and Goode 2014; Hankins 2015; Lake et al. 2017; Long et al. 2020; Marks-Block et al. 2019; Clark et al. 2022). The native plant and soil restoration, reunification with cultural fire, and intelligence shared by Native women practitioners who are intertwined with these practices allows us to take steps toward climate futurity—for the betterment of all people. In this work, futurity means envisioning an improved environment and relationship with our

Bundled *Tlaka*, tule used to carry fire during the *Leok Po*, good fire cultural fire demonstration at the Tending and Gathering Garden. November 2022. Photograph by Tišina Ta-till-ium Parker (Southern Sierra Miwuk/Kutzdika’a Paiute/Kashia Pomo).



more-than-human Relatives, in abundance, until the end of time. It privileges relationships over resources (Wildcat 2009; Smith 2012) and time together on the land with our kin (Simpson 2017) for the ecological, social, and cultural betterment of our communities (Adams 2023). Futurity also means remembering, acknowledging, and activating our Indigenous Homeland histories and Homeland ecologies that are connected to all landscapes and waterscapes, because everywhere you are, you are on Native land.

There is a role for us to fulfill (Native and non Native Peoples) in listening to our landscapes, caring for our surroundings, and tending to the places we all live and care about. Part of caring for our lands involves recognizing its First Peoples who have been responsible for reciprocal relationships with our more-than-human Relatives for millennia. Culturally, Indigenous women are agents of climate futurity in the heritage lessons we each strive to pass on through Seventh Generation teachings. In our communities, Seventh Generation teachings can be thought of as the decisions we make *now* that will benefit our children and grandchildren seven generations into the future. These teachings concentrate on the futurity we want all of our Relatives (beyond solely Indigenous Peoples, but instead *all peoples*) to enjoy. Through *Leok Po* good fire teachings at the Tending and Gathering Garden and Homeland histories and Homeland ecologies, Native women practitioners share Indigenous Matriarchal Ecologies by restoring formerly mined and degraded soils, and the revivification of culturally significant California Native plant Relatives (species). The improvement of soil health and the protection of native plants through Indigenous cultural fire allows for a rebalance of people, plants, and fire (Suba 2020); restores our connection to place (Hunter 2020); and leverages Indigenous land stewardship toward our collective climate futures (Adams, 2023).

Given California's vast biodiversity, combined with the threat of Relatives' loss due to climate change, it is timely that we not only engage with Traditional Ecological Knowledge toward our restoration goals, but we must deploy what Tribal Chairman Ron Goode refers to as "Traditional Ecological Practices" (Tom, Adams, and Goode 2023) and what I further with "Traditional Cultural Practices", Indigenous knowledges activated as land and water care. This must also include what Indigenous women like Diana Almendariz and Pam Gonzales embody as Indigenous Matriarchal Ecologies—moving beyond commonly static perceptions of what our Traditional Knowledge is and how it is used (Adams et al., forthcoming). Practices such as these at the Tending and Gathering Garden more closely

prompt action of our Indigenous knowledge systems. These experiences also welcome learning from all Californians toward rebuilding our relationships with place, plants, soils, and fire—all toward our collective climate and cultural futurity.

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by Gordon Leppig

Anyone who has had even a slight interaction with the CNPS North Coast Chapter would likely know Carol Ralph.

She is a leader and organizer in nearly all chapter activities, including plant walks, field trips, monthly programs, plant consultations, plant sales, conservation, our Annual Spring Wildflower Show, and tabling at events. She also regularly contributes to *Darlingtonia*, the chapter newsletter. And she manages all this in addition to being chapter President, running monthly Steering Committee meetings, and emceeding our monthly programs.

Carol got involved in the chapter in the late 1990s and served as Treasurer and Secretary for several years before becoming President in 2003. Twenty years later, she remains our Chapter President, and no doubt one of the longest serving in CNPS history.

She has led over 200 plant walks and field trips throughout the North Coast and Klamath-Siskiyou Region. While chapter plant walks and field trips focus on plants, Carol's expertise and joy in teaching extends to birds, wildlife, and natural history writ large.

The chapter holds regular native plant consultations, a free service in which chapter members meet with a landowner, discuss what native plants and habitats they have on site, and review possibilities for establishing native plant landscaping. Carol has been a leader and principal botanist in these consultations for years.

One of our chapter's premier educational and outreach events, the Spring Wildflower Show is a free three-day public event, with attendance of over 800 people. Workshops, interpretive displays, botanical art classes, lectures, docent-led tours for school groups, plant walks, and a native plant sale all figure into the event, so producing it is a complex undertaking. It is unlikely the show, now in its 41st year, would still be in existence were it not for Carol's passionate support and strong organizational involvement.

Carol was born into a family dedicated to field biology and extensive wildlife study. Her mother was a herpetologist and mammalogist, and her father was, for much of his career, the Director of the Museum of Vertebrate Zoology at U.C. Berkeley. When Carol was



Carol holding a gilded *Darlingtonia* bouquet made by Karen Isa and David Callow. Photograph by Nancy Brockington.

four years old, she spent a year high in the altiplano of Peru in a makeshift camper while her parents conducted fieldwork.

Since then, she has spent extensive periods of her youth conducting research in Peru, Argentina, and Colombia, studying and publishing on an assortment of plant, bird, and wildlife species. Despite not graduating high school (she skipped her senior year to live in Argentina), Carol nonetheless went on to earn her doctorate from Cornell University for work on the large milkweed bug. For over 40 years, she and her husband, C.J. Ralph, have worked to restore a severely degraded wildlife sanctuary on Moturoa Island, off the coast of New Zealand.

Given her extensive research and conservation work in South America, New Zealand, and California, Carol exemplifies the “think globally, act globally and locally” work ethic.

As she tells it, Carol was also heavily influenced by her tenure as a Boy Scout leader while her two sons were in a troop. It was then that she honed her leadership skills, contending with large, diverse, and sometimes unpredictable groups out in nature—while, of course, always being prepared.

Chapter volunteers and Steering Committee members are awed by Carol's dedication, energy, plant knowledge, and organizational and people skills. Her manifold talents, combined with her personal warmth and charm, humility, positive attitude, and sense of humor make being a chapter volunteer all the more meaningful, effective, and fun.

Were it not for Carol's decades of leadership, it is highly unlikely that the North Coast Chapter would be as successful, cohesive, and influential as it is today.

Chris Lewis

by Talya Meyers

In 2003, Chris Lewis, then a new member of the Sacramento Valley Chapter of CNPS, noticed that none of her local nurseries grew the native plants she admired on her hikes. Someone else might just have dealt with the status quo, but Chris instead chose to start a native plant nursery that used neither herbicides nor pesticides. Along with a small band of fellow enthusiasts, Chris began holding meetings with Sacramento Regional Parks and Soil Born Farms to find a site for the nursery. Her efforts bore fruit in 2007, when the nursery was established. Today, it's run entirely by volunteers, many recruited by Chris herself, who collect local seeds and cuttings to grow plants that would be difficult or impossible to purchase elsewhere.

In 2005, while her work to develop the nursery was underway, Chris retired from teaching at American River College and began volunteering for CNPS full time. Her work involved leading Friday Walks with Volunteers along the American River Parkway to collect native seeds; attending volunteer nursery workdays; participating in the Sacramento Valley Chapter's two annual native plant sales; and working to develop plant growing partnerships.

Among the highlights of Chris's work has been the Gardens Gone Native Tour, which began in 2011. Chris wanted to develop an event that would introduce people to the beauty, variety, and desirability of native plant gardens. Her efforts have succeeded wildly. The first tour featured seven native gardens and drew a handful of participants. But by 2018 (the last year



Photograph by John Schmidt.

the tour was held before the COVID-19 pandemic), the tour had grown to twenty featured gardens, which were shown to nearly 1,500 registered attendees. As with the nursery, the tour is entirely volunteer run, and Chris herself recruited many of the people involved.

Chris has also helped lead Homegrown Habitat, an ambitious regional campaign to promote the use of native plants in home and public landscaping. Homegrown Habitat aims to replace conventional landscaping plants with local native plants, with the goal of promoting regional biodiversity and creating habitat corridors for local insects, pollinators, and animals. As the Homegrown Habitat Chair, Chris has persuaded homeowners, developers, and managers of public spaces like community parks to rip out their lawns and replace them with local native species.

As the prolific author or co-author of the chapter's monthly e-newsletter and a regular contributor to its written newsletter, Chris keeps people informed of upcoming events, networking opportunities, and educational resources. Her work has been frequently quoted in local news and radio articles. In the larger community, Chris has regularly undertaken speaking engagements and other outreach, trained local naturalists at the Effie Yeaw Nature Center and Master Gardener groups, and even started a gardening club.

Spearheading the Sacramento Valley Chapter's Social Justice Committee in 2022, Chris focused her considerable talents on providing underserved neighborhoods with native trees and shrubs.

Ask a local chapter member how they got involved in CNPS, and the answer is likely to be, "Chris Lewis recruited me." Chris's boundless energy, her enthusiasm, and her deeply felt concern and regard for the planet and its living creatures are an ongoing inspiration to many.



Photograph by John Schmidt.

CNPS FELLOW

Kristin Jakob

by Laura Lovett

For newly named fellow Kristin Jakob, artistic talent and the native plant mission go hand-in-hand. An integral leader of the CNPS Marin Chapter, Kristin's thoughtful input and dedicated support have guided decades of important decisions for the chapter. From her multiple terms as chapter president or vice president to more than 30 years chairing public educational programming and chapter plant sales, Kristen brings energy, creativity, and loyalty to everything she does.

Though her native plant knowledge is entirely self-taught, Kristin has nevertheless become one of the most knowledgeable botanists in the Marin chapter. As part of her self-education, she visited and photographed dozens of California native plant sites from Anza Borrego to the Oregon border—and even Chile—to view and learn about compatible Mediterranean plant communities.

By 2004, she began leading field trips for the chapter, particularly on Tiburon's Ring Mountain at peak time for Tiburon mariposa lily (*Calochortus tiburonensis*) and Marin dwarf flax (*Hesperolinon congestum*), and Mt. Tam's Rock Springs with fairy slipper (*Calypso bulbosa*) in mind. She has continued to do so each year since.

An accomplished botanical illustrator, Kristin studied natural history illustration at the Royal College of Art in London, earning a master's degree in 1981. Since then, her work has appeared in more than 30 group and solo exhibitions, including four solo shows at the San Francisco Botanical Garden at Strybing.

As a scientific illustrator, Kristin creates paintings that are accurate enough to be used for plant identification—a skill that is often put to work for the benefit of CNPS in the form of illustrations for chapter newsletters, a plant sale poster, and a symposium brochure design. Her first illustration commission was for a children's book on poisonous plants of the world, by CNPS member Alan Eschelman. Two of her largest subsequent commissions—the poster, "Wildflowers of the Sierra Nevada" (1985), for which she illustrated 75 different species, and a set of four placemats and



Photograph by Marti Cagwin.

posters depicting California grasses (2004)—were published by CNPS and have generated revenue for the organization. Kristen also illustrated in-depth articles about the genera *Streptanthus* and *Hesperolinon* in the *Four Seasons* (East Bay Regional Parks Botanic Garden annual journal) with precise drawings of the plants and their parts. Her largest project involved pen and ink drawings for a book on the cultivation of California native plants, *Wild Lilies, Irises, and Grasses* (2003, UC Press, Berkeley), which she also co-edited.

Outside of the professional art sphere, Kristin has worked for years as a garden consultant, generously sharing her knowledge with the Mill Valley Outdoor Art Club, the City of Mill Valley's Parks & Recreation Department, Mill Valley Library, the O'Hanlon Center for the Arts, and Mill Valley Bloomathon, for which she designed the logo. In recognition of her many artistic contributions, the City of Mill Valley awarded Kristin its annual Milley Award.

Over the years, Kristin's contributions and talents have provided the force that helped keep the chapter together. Her knowledge, expertise, thoughtful ideas, and good common sense make her a worthy recipient of CNPS's highest honor.

IN MEMORIAM

Barb Castro

by Robin Carter-Ervin, Linnea Hanson, Lawrence Janeway, Gail Kuenster, and Evan MacKinnon

Barb Castro passed away on December 4, 2022, after a long battle with cancer. A lifelong botanist and founding board member of Northern California Botanists, Barb was modest, even though she had academic degrees from Harvard, Stanford, and Chico State Universities. She started her botanical career in consulting in the 1980s, followed by a long stint with Plumas National Forest through the 1990s; she then spent another 19 years with the California Department of Water Resources (DWR).

Even outside of work, Barb was a determined botanist, as captivated by the flora of Upper Bidwell Park as she was of remote, overlooked corners of the state. She was fascinated by plants in serpentine outcrops of the Plumas National Forest. An avid specimen collector and Consortium of California Herbaria contributor, Barb rarely missed an opportunity to key and catalog plants at the Chico State Herbarium. She documented all plants, not just rare ones, constantly scribbling observation details and habitat characteristics in her notebook while her pockets overflowed with plastic bags for impromptu vouchering.

She was also a tireless botany volunteer, helping found the Northern California Botanists (NCB) in 2006, serving numerous roles including board member and secretary. She planned symposia, directed publicity, chaired sessions, organized poster presentations, and contributed to the *Botanical Leaflets* newsletter. She also coordinated the NCB Research Scholarship Program, awarding 138 scholarships to botany students.

Barb was a CNPS Mt. Lassen Chapter member for over 35 years and held volunteer positions including vice president, program chair, field trip leader, wildflower show collection coordinator, presenter, and *Pipevine* newsletter contributor. She and her husband, Lawrence Janeway, were acknowledged for their contributions as a “botanical power couple” in the 2015 *Bulletin* newsletter, which also praised their rediscovery of veiny monardella (*Monardella vernosa*), a plant long since presumed extinct.



Napa County, 2022. Photograph by Lawrence Janeway.

Most recently, Barb became a prominent figure and an authoritative voice for botany at DWR, an agency not often recognized for plant conservation. She never wavered in her passion for plants, even when surrounded by engineers and heavy-equipment operators. Her encyclopedic knowledge made her confident, while her charm and passion for plants helped rally the attention of her audiences. If casually asked for a plant name, Barb would immediately respond with the Latin binomial, along with the plant’s uses, range, and rarity status. If its name had changed or it had experienced a lumping or splitting event during her career, she’d know that too. She fought fiercely to persuade management of the importance of botany in all DWR projects, and she was highly influential in long-term monitoring and conservation of DWR’s vernal pools and in invasive plant early detection.

Barb’s colleagues will affectionately recall her genuine appreciation for her surroundings. Every spring, she assembled weekly wildflower displays in the front lobby of the office at both the Feather River Ranger District and DWR; a thoughtful gesture that gave coworkers an appreciation of our local environment and a reminder of the progressing season. She was enthusiastic and warm with peers and managers, and she devoted countless hours to mentoring others. Her positivity for botany field work is best illustrated by her classic catchphrase: “Can you believe they’re *paying* us to do this?”

IN MEMORIAM

Phyllis Faber

by Paul da Silva, Kristin Jakob, and Laura Lovett

The California Native Plant Society and Marin County lost a visionary leader on January 15, 2023 with the passing of Phyllis Faber, 95.

Phyllis grew up in an apartment in New York City but went on to become a champion for California native plants and a CNPS Fellow. Over the course of her life, she would wear many hats, including coastal commissioner, natural resource advisor, environmental consultant, teacher, editor, founder, and friend.

Phyllis received a bachelor's degree in zoology from Mt. Holyoke College, and a master's degree in microbiology at Yale University. In 1971, Phyllis and her husband, Ed Faber, moved to Marin County, where they raised a daughter and two sons. Phyllis continued her botanical education while studying with Herbert Baker and Robert Ornduff at UC Berkeley. Phyllis became an environmental consultant and ultimately a principal with Madrone Associates, specializing in marshland vegetation. As a wetland biologist, she monitored restoration projects in San Francisco Bay for more than 20 years. She also taught biology classes at both the College of Marin and Antioch University.

CNPS Fellow Wilma Follette was an inspiration to Phyllis, who attended many of Wilma's guided wildflower and taxonomy walks through Marin County. The two women formed a lifelong friendship and together helped form the CNPS Marin Chapter in 1974. Phyllis served on the board of the chapter into her 90s.

Phyllis also shaped CNPS statewide. In the 1980s and 1990s, she served as the longtime editor of this journal, then named *Fremontia*, and was an instrumental leader in the CNPS Publications Program, shepherding books including, *California's Changing Landscapes* and the celebrated *California's Wild Gardens*. She also dedicated her time as a member of the CNPS Development and Membership Committee, and on the Marin Chapter Board as legislation chair. In recognition of her many contributions, she was named CNPS Fellow in 1996.

In 1972, Phyllis helped lead the campaign to create the Coastal Zone Conservation Act, Proposition 20,



Photo by Lou Weinart.

which established regional planning for coastal benefits. "Proposition 20 changed California," she noted, "and it was a citizen initiative; I'm really proud of the citizens of this state for having passed it." After its passage, Senator Peter Behr appointed her to the regional Coastal Commission, where she served from 1973 to 1979.

Her public service also included many years as chair of the California Department of Fish and Game (now California Department of Fish and Wildlife) Advisory Committee to the Signature Natural Areas Program, as well as involvement with the League for Coastal Protection and the Planning and Conservation League (PCL). She learned early on that, "to prevail, science has to fit together with policy in a political world."

Phyllis helped found the Environmental Forum of Marin in 1972, where she taught for more than 37 years. Since its founding, more than 1,000 graduates have worked to protect Marin's unique biological communities. In 1980, Phyllis and Ellen Straus brought together local ranchers and conservationists to create the Marin Agricultural Land Trust (MALT)—the first land trust in the nation focused on protecting farmland. To date, MALT has safeguarded 55,000 acres in Marin County, and invested heavily in land improvements and soil health.

Phyllis will be remembered for her tireless work on behalf of the natural world. Always approachable and friendly, she was nevertheless a well-informed and tough advocate for environmental issues. Her accomplishments changed the face of Marin County, leaving a legacy that benefits us all.

The CNPS Marin Chapter filmed an oral history with Phyllis in 2011, which is available at bit.ly/3NYW14E

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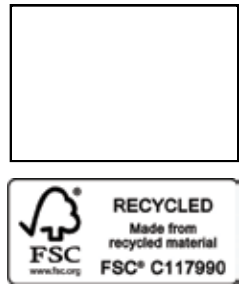


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