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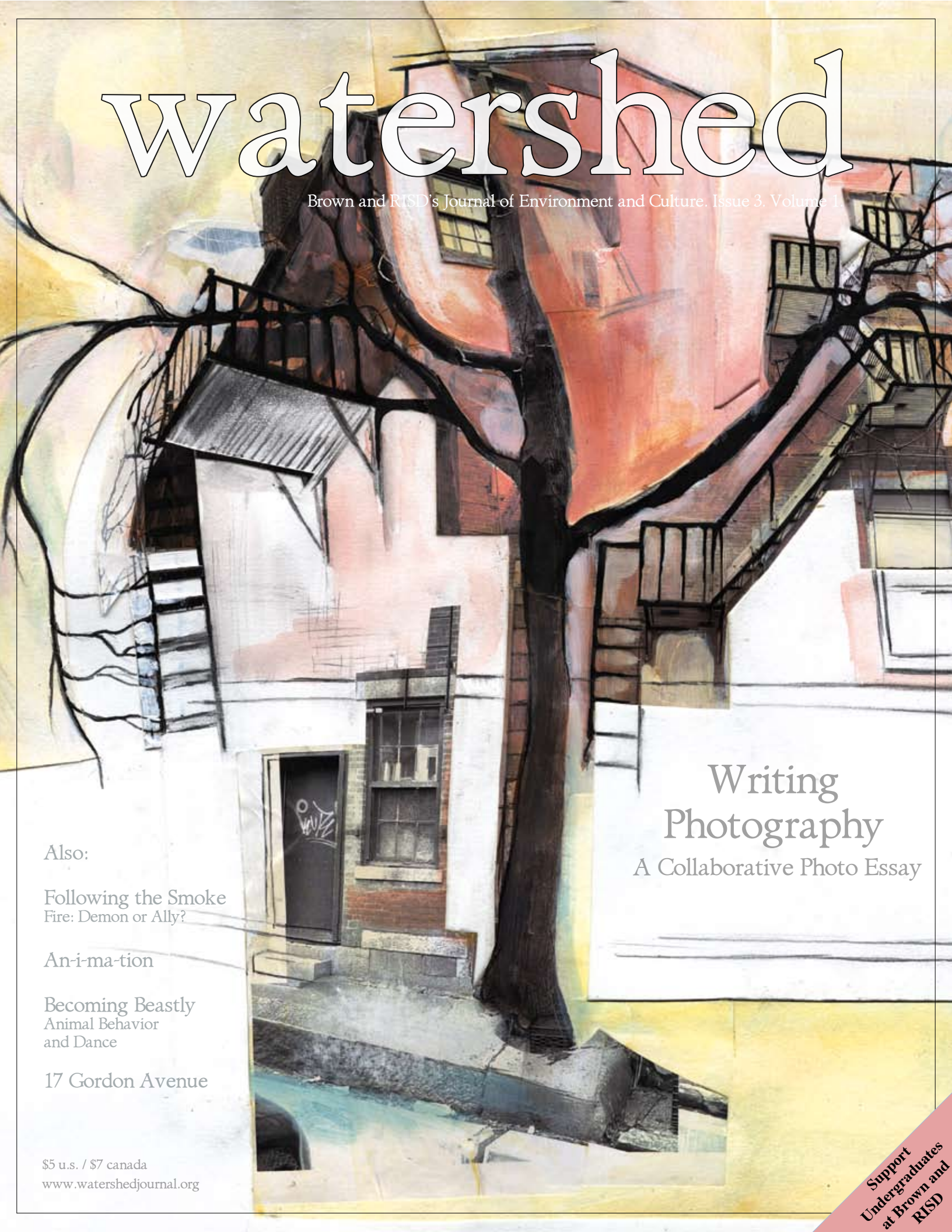

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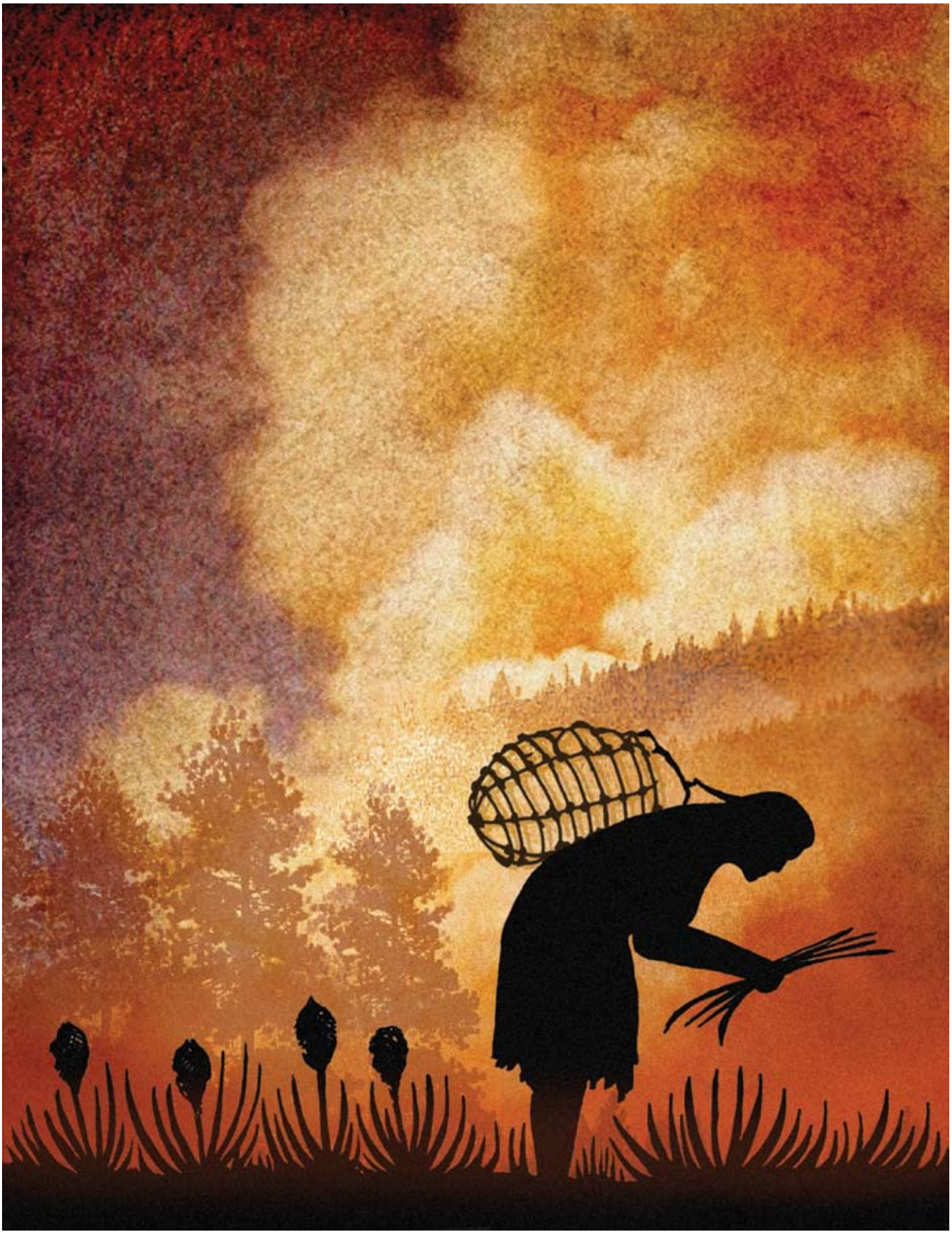

Courtney Martin

Following the Smoke

Fire: Demon or Ally?

Tom Leskiw

U.S. Forest Service Technician

"Together we must forge a worldview that doesn't deny the past, but builds on it, forging a synthesis between the old and new, between Western science and traditional environmental knowledge."

~ Dennis Martinez, restoration ecologist

Shadows have fallen along Camp Creek; the stifling mid-day heat has begun its retreat. As I walk along the edge of a narrow graveled road, my feet crush roadside mint, leaving aromatic clouds in my wake. I'm taking mental notes of what I see, comparing the stream's current condition to how I remember it from when I last visited this tributary of the Klamath River to assist a cooperative salmon-rearing facility in the early 1990s. I've returned to Camp Creek, located in northwestern California, to participate in a week-long celebration of Native American values and practices known as "Following the Smoke." I leave the road, wending down the slope. A small gully ends abruptly at a rock weir, its massive boulders crossing the channel at a forty-five degree angle to the bank. To the uninitiated, the uneven line of rock appears natural, but because I've designed and inspected similar structures I know better. The weir's purpose is to collect spawning gravel for salmon.

Downstream, I slip into the water. The pool is a dandy; its current gently ricochets off a rocky point, creating an eddy that returns me to the head of the pool. Beneath a row of alders, I towel off and begin to retrace my steps to Basket Camp. As I walk, Bryan Colegrove and Kathy McCovey, whose Karuk roots run deep here near the confluence of the Klamath and Salmon Rivers, pull up in a Forest Service pickup. She asks me if I have seen the short path that leads to a small spring with several skunk cabbage plants. "It's just down the road," she says, "The path takes off from the lone fig tree on the left side of the road. If you come to the apple tree, you've gone too far. You know, skunk cabbage is pretty scarce here, away from the coastal slope. I wonder if it may have been imported, perhaps for medicinal uses?"

I leave the road at the fig tree. Within several steps, I encounter a tree whose bark is familiar, yet foreign. The shiny, reddish, unfurrowed bark is peppered with tiny, white, oblong spots. I recognize these white flecks as lenticels, natural orifices that some trees use to respire when their roots are flooded during the growing season.

I take a closer look, because few local trees have lenticels. The tree's bark and leaves identify it as cherry. Scanning the immediate area, I note about a dozen cherry trees, ranging in size from saplings to lanky individuals 40 feet tall. In the gathering dusk, I follow the obscure trail downslope to the seep, ringed by several skunk cabbages, where the elevated humidity and the lack of a breeze encourage mosquitoes. The combination of fig, cherry, and apple trees at this location means one thing: the site is an old homestead. Owing to the steep nature of the Klamath Mountains, a flat, well-watered site such as this — with ready access to spawning salmon — was most likely a place frequented by the Karuk before that. It's imbued with a presence that whispers of the past.

Six Rivers National Forest, in cooperation with the Karuk Indigenous Basketweavers, sponsors a weeklong program called "Following the Smoke" as part of the Forest Service Passport in Time program. The gathering — 2005 marked its ninth year — is intended to raise public awareness of traditional Native American cultural values and practices on our public lands. In 2004, "Following the Smoke" received two distinguished awards: a National Advisory Council on Historic Preservation Chairman's Award for "teaching Native American traditions through intercultural dialogue and shared activities" and a California State Governor's Historic Preservation Award. The week is a celebration and sharing of Native American traditions, particularly the process of gathering and weaving, which reinforce the bonds of indigenous heritage and identity.

Early in the week, we traveled to the Karuk Community Center for a talk on the difference between traditional ecological knowledge and scientific ecological knowledge by Frank Lake, a Forest Service employee and Ph.D. candidate. Central to the concept of traditional ecological

knowledge is the refutation of the assertion that at the time of European contact landscapes inhabited by indigenous peoples were pristine or untouched. In reality, much of the land was heavily managed prior to the arrival of Europeans. Vegetation was burned, pruned, or severely sheared, which encouraged the growth of materials favored by weavers, such as straight branches of uniform diameter. Burning especially was a critical practice used to reduce plant pests, stimulate browse for deer and elk, and improve habitat for plants that provided food, cordage, medicine, and basket material. Historically, many anthropologists have failed to acknowledge the broad scope and far-reaching effects of these activities. However, over the past two decades those who study Native American cultures have embraced the idea of a more actively managed original landscape.

Frank presented an array of examples of Native American land management and its effects. Native women, through harvesting and translocation of corms and bulbs, enhanced plant populations by releasing young cormlets—much like splitting a daffodil bulb. The Karuk set fires to promote oak trees over conifers, since acorns are central to the diet of the Karuk and their neighboring tribes, as well as wildlife. Frank explained how traditional burning has, in some cases, dramatically increased water yield in streams and rivers. The objective of traditional burning was to rejuvenate brushfields and remove dense clusters of pole-sized timber, known as "dog-hair" stands. Low to moderate intensity fires affected the distribution and abundance of trees, shrubs, and grasses, reducing evapotranspiration and thus increasing in-stream flows important to fisheries and other aquatic organisms.

One hot afternoon, we visited Frank's willow study plots at the mouth of Camp Creek. His work at this site measures the effectiveness and timing of burning willow tops with propane torches and pruning branches to stimulate regeneration suitable for wildlife and baskets. Frank shared that prior to the construction of dams on the Klamath River there was less need for traditional burning at this site, as seasonal flooding kept populations of bugs — most importantly stem borers and gall formers, which damage willows — in check.

Frank has collaborated with restorationist Dennis Martinez to integrate traditional ecological knowledge into natural resources school curricula in an effort to educate future resource managers — Native American or otherwise — about the connection between healthy land and cultural diversity (1). In a variety of published works, Martinez makes the following points:

- "Unless we more or less match the seasonality, the intensity, the frequency and duration of Indian fires, we're not going to trigger the genetic memory resulting from the coevolution [of plants and Indian fires] that's going to produce optimum plant responses from the burns" (2).

- "[Thoreau's] 'In Wildness is the preservation of the world…' was voiced not only to save vast acreages of 'wildness,' but Indians in their native 'Wild' habitat, thereby preserving, in Thoreau's view, the keepers of true wisdom and wildness" (3).

- "Western-based environmentalism is too negatively oriented (preservationist) to adequately defend Native agro-ecology" (2).

This last observation prompted me — a Western-trained, Anglo scientist — to reexamine my beliefs. If Euro-American attachment to wilderness stems from the havoc wrought by the Industrial Age and resultant overpopulation, then implicit in this viewpoint is the belief that humankind is a scourge, that the longer we inhabit a particular place, the more degraded and imbalanced it becomes. In contrast stands the Karuk's philosophy of positive engagement with land, a perspective expressed by the plant gatherers' maxim, "If you don't take care of the plants and talk to them and relate to them, they get lonely and go away" (4).

Funding is becoming scarce for projects like "Following the Smoke," which is unique in that most Forest Service Passport in Time projects are of finite duration, consisting of, for example, the recording of an historic or pre-historic site. Alternatively, "Following the Smoke" focuses on contemporary cultural use and land management and underscores the degree to which the Karuk interact with their environment. Although concepts such as Native burning to foster diverse plant communities were not new to me, I had not previously grasped the full scope of the tribe's active management of the landscape.

Those who embrace scientific ecological knowledge are often skeptical of traditional ecological knowledge, especially when it's supported only by statements such as "If you don't take care of the plants and talk to them and relate to them, they get lonely and go away." A likely scientific response to this aphorism is something akin to "Thanks for sharing your opinion. Now bring me the results of your study — a study that includes statistically significant data, replicable methods, and peer-review." Of course, over the past decade or two a number of researchers have done just that:

- Researchers have confirmed that using fire to eliminate the older blades of beargrass changes the structure of the new shoots that emerge in the middle of the plant. These shoots lack a prominent central vein that reduces the water-tightness of baskets woven from the plant. Burning allows the cells to grow closer together, providing more strength to the blade when it is twisted during weaving (5).

- In the North Fork Eel River watershed in California, fire

suppression has facilitated the encroachment of Douglas fir and black oak on to white oak woodlands, decreasing white oak habitat by 44 percent. Fire suppression has allowed the buildup of fuels and increased the risk of stand-replacing fire (6).

• East of the Cascades, fire suppression has altered forest ecology, replacing fire-adapted understories of grasses, forbs, and low shrubs with flammable "ladder fuels" that seriously threaten forests when fire does occur. Catastrophic, stand-replacing fires have been identified as a threat to species that include the threatened Northern Spotted Owl (7).

• The desert oasis known as Quitobaquito in southern Arizona's Organ Pipe National Monument lies thirty miles north of the Mexican oasis known as Ki:towak. The chief difference between the two sites is that Ki:towak is a "working" oasis with farmers, whereas Quitobaquito has been unoccupied since the monument was designated in the late 1930s. At Ki:towak, the tilling of soil creates habitat for a wider assortment of grasses and forbs, and enhances cottonwood generation. Not surprisingly, ornithologists have consistently detected double the number of bird species at Ki:towak (8).

Viewed in this context, the assertion "If you don't take care of the plants and talk to them and relate to them, they get lonely and go away" is merely another way of stating what scientists have supported. Ecosystem health and diversity is often the result of disturbance: natural fire, floods, or human management, including purposeful or controlled burning.

My experience at "Following the Smoke" prompted a host of intriguing questions. Can plant communities that evolved during six thousand or more years of cultural burning be considered "natural"? Can and should a distinction be made between pristine and natural? Since the cessation of cultural burning in northwestern California around 1910, local vegetation communities have undergone drastic changes. Conifer encroachment into historical oak woodlands is one example, and the trend is significant, because acorns — full of fats, complex carbohydrates, and proteins — are an ideal and important food for wildlife: deer and birds (and, of course, humans). Do contemporary land managers have a responsibility to perpetuate this critical food resource? Shouldn't the plant communities here at the time of European contact — the result of the Karuk's long tenure and active management of this place — qualify as the most-appropriate benchmark available?

We are now seeing the consequences of disregarding traditional ecological knowledge. There is near-universal agreement that a century of fire suppression has abysmally failed to safeguard "natural" landscapes. Communities — both urban and rural — struggle with the adverse impacts of purposely excluding fire from nature's equation. In response to these concerns, a plethora of local, grassroots fire-safe councils have formed — partnerships between private citizens and public agencies whose efforts include fuels reduction projects. Scientists now better understand that low-intensity periodic fires are vital for minimizing fuel concentrations. A number of factors, such as the urban-wild interface, accumulated fuel loads, and budget constraints, preclude quick, boilerplate solutions, but there is ample opportunity to move forward. We take the necessary first step by regarding fire as an ally, rather than a demon.

As someone who works in the field of watershed management, I've always felt a degree of confidence in my ability to look beyond today's snapshot landscape, to envision what a pristine or a recovering watershed should look like. Participating in "Following the Smoke" was a humbling experience. While I have fair grasp of the ebb and flow of nonhuman processes in a watershed, it's the cultural component — how humans have affected the evolution of present-day plant communities — to which I'm less attuned.

Somehow, we need to complete the cycle, to integrate those lessons that many of us have recently learned. Humans are a part of — not distinct from — nature. We are a keystone species. Removing us from the equation comes with consequences: loss of both cultural and vegetational diversity. Human interaction with plants has a long and storied tradition. Among Native peoples, the relationship has been one of reciprocity. More and more, I think about what the future holds in store for the Forest Service, the

Courtney Martin

land it manages, and the people and wildlife that dwell on that land. The commitment of creative, insightful, Forest Service employees like Kathy McCovey and Frank Lake, intent on using traditional ecological knowledge to improve current land management policies, bodes well for the future.

I'm reminded of what Kathy said to me my first evening at Camp Creek. "You know, skunk cabbage is pretty scarce here, away from the coastal slope. I wonder if it may have been imported…?" If I'd have found the skunk cabbage on my own, I would have acknowledged it, yet not really seen it. I may not have listened to what it had to say: *This is a good place. There's water and suitable soil. Long before the homesteaders, there were people here: thinning, burning, pruning — experimenting with plants. Caring for this place.* ■

Notes

1. Frank Lake and Dennis Martinez, *Educator's Guide to American Indian Perspectives in Natural Resources: Curriculum of the Northwest Center for Sustainable Resources*, DUE # 0101498 (Salem, OR: Chemeketa Community College, 2005).

2. Dennis Martinez, "Defining the Forest; A Native American Perspective," *Terrain Magazine,* Winter 2000.

3. Dennis Martinez, "Protected Areas, Indigenous Peoples, and the Western Idea of Nature," *Ecological Restoration* 21 (December 2003): 4.

4. Dennis Martinez, "First People – Firsthand Knowledge," *Winds of Change* 12 (Summer 1998): 3.

5. Erin D. Rentz, "The effects of fire on plant anatomical structure in native Californian basketry materials" (Masters Thesis, San Francisco State University, 2003).

6. United States Department of Agriculture, Forest Service and United States Department of the Interior, Bureau of Land Management, North Fork Eel River Watershed Analysis, Version 1.0, Arcata, CA, June 1996.

7. S.P. Courtney, et al., *Final Report: Scientific evaluation of the status of the Northern Spotted Owl,* Sustainable Ecosystems Institute, Portland, Oregon, section 11-8.

8. Gary Paul Nabhan, *The Desert Smells like Rain: A Naturalist in Papago Indian Country* (New York: North Point Press, 1998).

9. Henry T Lewis, *Patterns of Indian Burning in California: Ecology and Ethnohistory in Before the Wilderness: Environmental Management by Native Californians,* eds. T. Blackburn and K. Anderson (Banning, CA: Ballena Press, 1993), 55-116.

Walking in Savannah With My Landscape Architect

When it was good, he noticed
daffodils unfurling — yellow signs
of rebirth bursting through green shoots.
He pointed to Spanish moss and walled
gardens of clivia and ivy.
He asked if I remembered
names of sidewalk gardens sparked
with marigolds, begonias, impatiens.
He always admired the weeping
willows, magnolia trees and live oaks.
Everything reaches for warmth,
he whispered once, leaning
his head on my shoulder.

~ Megan Alder