

# Traditional Environmental Knowledge

By Dennis Martinez

The translation of Traditional Environmental Knowledge (T.E.K.) into a foreign language (English) and a constricting conceptual framework (Western science) is problematic at best, and downright misleading at worst. Finding knowledgeable elders who speak English and who are also willing to share their knowledge is not easy. Yet, it is the main purpose of this article to encourage Native youth educated in western science to seek out their tribal community elders so that traditional knowledge is passed on to coming generations in a form that Native English-speakers educated in western classrooms can understand.

The link between T.E.K. and cultural survival is obvious. But connecting T.E.K. and cultural survival with the survival of our environment, and ultimately with the greater society that we are at least partially connected to, may not be obvious. Equally unclear to many will be the connection between preservation of sacred sites or religious freedom and the ability of Native cultural advocates to muster arguments which are both scientifically and traditionally sound before the courts and legislative bodies in defense of Native spirituality.

Let's take the religious issue of Native sacred site protection and access. A case is yet to be won in U.S. courts on First Amendment freedom of religion grounds. The dominant culture's Judeo-Christian heritage--in the final stages of becoming a secular religion--separates spirit from matter, belief from behavior and people from the land. In the few cases where sacred sites have received statutory--as opposed to constitutional--protection, as in the 1987 case of the confederated Salish and Kootenai tribes winning protection of a vision quest site at Kootenai Falls, Montana, from a proposed hydroelectric project, economic and environmental arguments have determined the outcome. Since the publication in 1859 of Charles Darwin's *The Origin of Species* and the subsequent development of the environmental sciences of evolutionary theory, genetics and ecology, western scientists have gradually become aware (at least theoretically) of the connectedness of all life. This new-found awareness is still mostly in the possession of an educated elite, but there is a trickle-down process which is beginning to inform school science curricula, environmental agendas, natural resource management and legislative and court opinion. But this is not without problems.

The very word "environment" implies a separation. In Western culture the natural environment has historically served more as a stage prop for a Divine-human drama of the conquest of lands and peoples by State and Church. The peopling of British North America in the last half of a thousand-year European population explosion led inevitably to continental transverse of peoples who had already learned to distinguish "wilderness" from "civilization." European identity in a strange land was defined by reference to what it was not: "wild", "heathen", "savage." Obstinate savages as much as obstinate land were to be conquered and civilized.

The Manifest Destiny of the settlement of western North America in the 19th century was a variation of the Divine- human drama that put tens of thousands of Euro-Americans on old Indian trade trails in covered wagons headed west over lands perceived to be under populated and among indigenous peoples perceived to be doing nothing more than passively living off the land. The principle justification for genocide was that Indians were doing nothing productive with the land. Colossal ignorance and arrogance prevented Euro-Americans from seeing the complexity and sophistication of Native ways of land care- giving which helped create and maintain the almost unbelievable abundance enthusiastically described in every early account of the land.

I make this historical digression to show that the present failure of the courts to acknowledge the intrinsic way in which culture and land are connected for Native peoples is basically unchanged from past justifications of genocide and enforced assimilation. The point I want to stress in this historical context is that white perception of Native peoples as passive unproductive players on the land needs to be corrected by Native people who are willing to bring forth T.E.K. as an environmental argument for a number of cultural survival issues, including sacred site preservation, religious freedom, treaty-guaranteed hunting- gathering, fishing rights and intellectual property rights of medicinals and other Native-developed cultural products.

We need now to take a closer look at the environmental perspective of western science. Recalling the Kootenai-Salish case, we see that the environmental arguments for statutory protection of a sacred site had more to do with the *negative* environmental effects of the proposed hydroelectric project than with any environmental *benefits* associated with the vision quest. Environmentalism is in fact negatively oriented--not only as strategy--but also philosophically.

The western concept of "sustainable development" illustrates well this philosophical negativism. The latest thinking on how to develop land, harvest timber, etc. *and* preserve ecological integrity is for "good science," i.e., that scientific opinion which supports your political stance, to determine through "risk assessment" how far land use can go and still leave enough for ecosystems to function on their own. Scientists guess that, say, 70% spotted owl population left after timber harvesting will be enough owls for species survival, or a "viable population" level. Tree snags, downed logs, uncut stream corridors, and green tree retention are examples of leaving enough "biological legacies" to sustain both land and industry in perpetuity. Strict preservationists, less optimistic than developers, are more inclined to put "wilderness" completely off limits to development of any kind are more willing to sacrifice other places for human commodities.

Since inventory and monitoring-evaluation of plant and animal communities has been largely neglected on both private and public lands, estimates of "viable populations" are not much more than educated shots in the dark. Proponents of untouched preserves assume a steady-state condition of Nature that bears little resemblance to the real world of constant and usually unpredictable change. Fragmented and unmanaged reserves become ecologically degraded over time.

T.E.K. and Native caregiving land practices teach us that through thousands of years of occupancy of particular places humans have accumulated a considerable body of knowledge which encompasses and explains far more than western science. It embraces the whole of human experience. One valuable lesson of T.E.K. in the context of the negative orientation of western science is that indigenous peoples learned to work with Nature in a positive way. Change was recognized as fundamental to life. Disturbances of many kinds and at many levels were understood and mimicked. Fire was the main disturbance tool.

The modern sciences of Biogeographical Island Theory, Patch Dynamics and Disturbance Theory, Chaos Theory, Fire Ecology and Wildlife Management support this ancient knowledge. Mimicking natural disturbances as a management tool is beginning to seep into the consciousness of some forest scientists. But T.E.K. and western science are still separated by world views which treat human relationships with Nature differently. Westerners view humans as separate from Nature. This is partly for philosophical and historical reasons and partly due to a deep visceral reaction to industrial abuses.

Native land ethics teach not to take more than you need or that the land can provide. But Native ethics as care giving goes even further: If you don't use it, you lose it. Many (although not all) plant communities require disturbance to thrive. So, in the act of using plants, they are enhanced and conserved.

There are hundreds of examples of this in T.E.K. Every time a fire was set, corms and roots dug, the plumpest seeds collected and sown uneaten, baby beavers counted to calculate the seasonal quota, a stem-tip broken deliberately in the taking of fruits and nuts, the strongest deer let out of encircling fires during communal hunts, a tree pruned to encourage straight shoots for baskets, a fishing weir constructed which let more fish through upriver than were harvested--every time humans used the land, the land was made healthier.

The ecologist Aldo Leopold's well-known land ethic--that humans are equal members of the land community--was a step in the right direction but failed to resolve the conflict in western society between human use and conservation. Native ethics *requires* the right kind of use for conservation and enhancement, while leaving untouched those ecotypes where disturbance would be detrimental. The traditional Native orientation to Nature is positive and proactive. While it is necessary to leave "biological legacies" in development (use), it is not sufficient for maintenance or restoration of ecosystem integrity because of our ignorance (and the limitations of western science) and because it separates humans from nature. Increased funding for public land agencies' inventory and monitoring, coupled with increased community involvement, may better define "viable populations", but it will only be T.E.K. integrated with supportive ecological sciences which will be able to harmonize human use with conservation and restoration and preserve traditional Native cultures.

Aboriginal peoples of North America have a relation with the land which is based on kinship. "We are all related", and "All our relations", are phrases heard often in Native

ceremonies. Care giving is a responsibility that comes with membership in the Family of Life. If you take care of the plants and animals, they will take care of you. Plant and animal relatives participate with humans in ceremonies.

Since all of Creation is represented in ceremonies, there can be no separation between land, culture, and spirituality. And since only Native Peoples--through tribal community representatives acting as intercessors between humans and non-human relatives--perform these kinds of ceremonies in North America, Indian peoples have a special claim for protection of sacred sites under both the First Amendment and federal environmental law.

In addition, since 1883 the federal government of the U.S. has assumed the duty of trustee for Indian tribes. That trust relationship entails the responsibility to preserve Native communities "as distinct cultural entities." Clearly, Indian peoples cannot survive as "distinct cultural entities" if free exercise of religion and free access to undisturbed sacred sites is denied (as in the *Smith v. Oregon* and *Lyng v. Northwest Indian Cemetery Association*).

The record shows that environmental concerns far outweigh cultural and spiritual matters where Indian religion is at issue. The Supreme Court *Lyng* decision of 1988 to put government property rights ahead of Indian freedom of religion and allow the Forest Service to build a road ("G.-O. Road") through a sacred site used by three tribes in Northwest California was superseded with respect to that particular place only by the passage of a California state wilderness bill which stopped road construction just short of the site. Both Indian and non-Indian activists worked in alliance to stop the road.

Wilderness preservation is, however, a weapon that can cut both ways. Making environmental alliances requires cultural cooperation. This will be mutually beneficial if we as Indian people are sure of our own cultural and spiritual ground. It would be useful to define concepts like "culture", "land or ecological health", "ecological restoration", and "cultural restoration" in terms of kinship and traditional care giving.

I see "culture" as lifeways which provide humans with a way passed down from our ancestors for accessing spiritual communion with them and all of our plant and animal relatives. Culture carries the Original Instructions given all Native peoples as caregivers. Certain plants and animals are required for use in ceremonies, healing, medicine. Ceremonies are performed for world renewal and healing (i.e.. restoration) of family health. Family health is land health--the health of our animal and plant relatives. Care giving land practices have traditionally been carried out along with ceremonies to maintain land health.

"Sacred" means life, and life is happy when healthy, miserable when sick. Our relatives who suffer are not happy. They suffer because the land is sick and the Family of Life is dysfunctional. Some elders say that when the land is sick too long, the spirits leave. Maybe that is why people worship God only in buildings in those parts of the earth which are dying.

"Health" is well being: spirit united with matter--you see it in the eyes of healthy people--to make whole or "holy." Wholeness of Life is Sacred. "Ecological health" (land health) is an ecosystem with enough wholeness or "integrity" to function optimally and includes humans who are able to function optimally within the ecosystem. In terms of western science "integrity" includes ecosystem structure, species composition and function, i.e., intact natural processes. But well-being includes happiness. The quality of life or "quality of habitat" must be added here. Basic ecological features may be intact without good quality habitat. Access to spiritual communion with the land in ceremony must also be included. All of these together make land Sacred . "Restoration" means making whole again, or Sacred.

Just as all plant and animals are Sacred (not just medicinal plants) so too is all land--not just those special places chosen by the spirits for ceremony. Sacred sites then are part of the larger issue of land health. Therefore land health is inseparable from cultural survival.

"Cultural restoration" is the bringing back of those Native lifeways which contribute to spiritual and material wholeness and that maintain our relationship with the Family of Life. Ecological and cultural restoration then are the same.

Our present almost universal state of ecological degradation is a result of industrial development and agriculture combined with prevention by private and public landowners of traditional Native care giving--especially fire and the practice of Native agro- ecology--and lack of access to undisturbed ceremonial places. These modern impacts on land and culture have occurred at such a rapid rate that neither the land nor Native peoples have had adequate time to make the necessary adjustments. Wholeness provides resiliency and the capacity to adapt. Gross ecological instability and cultural instability are occurring simultaneously. That is, there is a lag between older cultural and ecological adaptations and the new demands of cultural and ecological survival in the face of unprecedented rapid change.

Returning now to the question of environmental arguments for preservation of sacred sites--especially as linked to the western concept of "wilderness preservation"--future alliances between Indians and non-Indians need the authority of T.E.K. as represented by traditional elders. Indian people, as the only carriers in North America of a spirituality which holistically connects land and culture through ceremonies and care giving land practices, are spiritually obligated as caregivers to assume leadership in the environmental movement. This spiritual obligation includes expanding the traditional role of care giving into land restoration. In time traditional ceremonies will evolve in ways which will include this expansion of the human care giving role--one that many traditional elders are reluctant to perform because of traditional "divisions of labor" between humans and the care giving roles of other relatives.

Specific ecological tasks are carried out by seed-carriers and pollinators like ants and birds, who assist plant relatives to regenerate; gophers and earthworms, who rejuvenate soils; fungi and rotten logs who complete the Sacred Hoop of Life from death and decay to birth and growth, etc. We now need to assist some of those relatives who are

disappearing by assuming more of their care giving role in Creation. If too many relatives are missing, and humans don't make up the slack through proactive restoration work, the land becomes sick.

We humans have the special responsibility of care giving to the rest of Creation because we possess the gift of foresight. The eagle (or condor) is our highest helper because it sees far--like us if we choose to exercise that power.

Restoration is life enhancing because land health is restored. Restoration of high-quality plant and animal habitat makes our relatives happy. Reference ecosystems (the last known or retrievable natural state) for ecological restoration are pre-contact Indian-influenced landscapes which were generally fire- maintained. Restoring cool forest underburns or light prairie/savannah fires restore a natural process presently missing or used destructively, like timber slash fires. Fire, like earth, wind and water, is a principal helper and is Sacred. Plants and animals possess a genetic memory which is activated at specific levels of fire seasonality and intensity. Plants co-evolved in community associations with other plants, insects, animals, birds and belowground mycorrhizal fungi and bacteria. Historic Indian fires are still not generally acknowledged by western scientists to be a "natural process." They are, however, well documented in the Oral Tradition and in written ethnography, and are an important part of T.E.K. The forest requires these kinds of fires to be healthy. Once the fire- suppression era fuel load levels are reduced through selective thinning, fire will be the main architect of ecological restoration in most North American ecosystems. We don't redesign Nature. Natural processes like fire are directed by humans as required by changing environmental conditions and Native ethics. Fire does the real design work.

Restoration includes retrieval of the heirloom seeds and traditional practices of Native agro-ecology. Agro-ecology is defined as the enhancement of both human and non-human habitat by working within fully functioning ecosystems and with natural processes. An example would be selective harvesting of seeds in order to improve the genetic stock of plants. No hard line exists in agro-ecology between "agriculture" and "ecology." The one enhances the other. Thus the natural pool of diverse genetic characteristics which enable plants to successfully adapt to changing environmental conditions over time is maintained by human agro-ecologists.

Native care giving and T.E.K. as agro-ecology maintains and enhances life and therefore is Sacred. The European myth of passive and unproductive "hunter-gatherers" justifies continuing genocide. Scientists who exclude Indian burning and selective harvesting from "natural processes", and environmentalists who separate "wilderness" from human care giving tacitly support genocide (often with the best of intentions) and, ironically, weaken Native cultural claims to Sacred sites as well as intellectual property rights to culturally developed natural products,

It seems to me that both environmental and legal strategies for cultural resource protection of all kinds need to be connected proactively to the maintenance or restoration of land health (i.e.. the well-being of our relatives). Integration of T.E.K. into Native

school curricula is the essential first step to educating future Indian and non-Indian scientists and resource managers about the connection between healthy land and cultural diversity and survival. Western science without T.E.K. is insufficient to protect Native cultural resources. Western-based environmentalism is too negatively oriented (preservationist) to adequately defend Native agro-ecology.

Court cases of the last 15 years, especially in the Northwest U.S., have tended to support tribal treaty obligations of the U.S. government to maintain sufficient land health for the tribes to carry on subsistence fishing, hunting and gathering activities. If elders no longer can find plants and animals needed for food, baskets, medicines, ceremonies, etc. Native cultures will die. But winning court cases is not sufficient to guarantee that U.S. public land agencies will maintain or restore land health. Co- management authority between the federal government and tribes on treaty-guaranteed lands currently administered by public land agencies need to be given legislative and statutory sanction. For example, the National Forest Management Act governing the U.S. Forest Service could be amended to include co-management authority, mandatory consultation with traditional elders as well as tribal councils, specific protection-- including restorative burning--for culturally important biological species, and protection of special spiritual place. The National; Historic Sites preservation Act could be amended to expand the definition of "cultural resources" to include culturally important biological species, as well as allow traditional elders to define Sacred sites by their own spiritual criteria. Environmental Impact Statements (EIS) need to reflect environmental impacts of land-use decisions on traditional culture--Cultural Impact Statements (CIS).

We need Native models of agro-ecology preserved where they exist, and new models created (cultural restoration) where they have been lost. Only 20-30 million traditional indigenous people globally maintain in T.E.K. and agro-ecology the collective heritage of 6+ billion human beings alive today. The global value of indigenous cultural survival is far out of proportion to actual numbers. Once treaties were made and land payments doled out only on the basis of the small population of Indians occupying ancestral lands-- not on the true value of the contributions of those relatively small numbers to the ecological enhancement and productivity of the land. Valuable land was lost dirt cheap. The true value of indigenous peoples needs to be reassessed by the dominant culture.

Indians all over North America are doing just this: Restoring culture. They are often in conflict with BIA or DIA tribal and band councils. They need to be supported by the people.

In Southwestern Oregon we have been negotiating for a year between the Confederated Tribes of Siletz (24 tribes) and the Rogue River National Forest (U.S. Forest Service) for a "cultural landscape" restoration project of up to 17,000 acres of Forest Service land. On May 14 this year Shasta, Takelma, Chetco, Tututni, Umpqua and others, descendants of tribes relocated 150 years ago from their ancestral homelands in the Siskiyou (Klamath) Mountains to the Siletz Reservation on the north coast of Oregon, came home to the Applegate River. The First Salmon Ceremony in 150 years was performed, as well as the world-renewal Feather Dance brought by the neighboring Tolowa and Siletz.

The land in question was mostly logged, with 75 years of too much fire and 75 years of too little fire. Many relations are missing or reduced in numbers. Others are too many. Ecological instability has resulted from this imbalance in species composition. Shade tolerant and fire sensitive tree and shrub species are invading the Indian-maintained historic oak/pine savannah. The restoration of cool forest underburns will help balance the land and bring back water which is drying up. Through ceremonies and caregiving, the salmon and steelhead will return home. Youth and elders will work together restoring the land. Even though the Forest Service has the final legal say- so, we already have a good working relationship with the agency. We will assist in plant and animal monitoring and work on land restoration within the parameters of their ecosystem management needs. But we will be on ancestral homeland. We will be home and we will survive. And the land will survive.