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New Tribe/Park Partnerships

The Use of Ethnobotany in the Restoration of Indigenous Landscapes

The cocoa-tree supplies the Indians with bread, water, wine, vinegar, brandy, milk, oil, honey, sugar, needles, thread, linen, clothes, caps, spoons, besoms [brooms], baskets, paper, and nails; timber, coverings for their houses; masts, sails, cordage for their vessels; and medicines for their diseases; and what can be desired more?

Cotton Mather, 1720[1]

Uses of plants, and lists of plants, are as old as human history itself. Descriptions of plants as sources of medicine are found on Egyptian scrolls, and in the works of Aristotle as reflected in translations of early Arab texts. The 15th-century herbals of Chinese and Europeans reflect a long history of human knowledge about, and reliance upon, plants for medicinal uses.[2]

To a large extent, the Reverend Cotton Mather's practical interests in natural history and medicine and respect for New World Indian use of plants indicated in the quotation above reflect a long history of plant use and knowledge by a long line of shamans, curers, and physicians, throughout time, and from all parts of the globe. And to a lesser extent, his list reflects a general knowledge of the many uses of plants that is all but lost to us today.

Upon second reading, Mather's impressive catalog of practical uses may be even more remarkable for what it only implies. The list does not speak to the volume, scope, and complexity of traditional technical knowledge that had to exist in order for Indian peoples to make use of the cocoa plant as extensively as they did. It does not provide information on the horticultural system that fostered or altered the growth of *Theobroma.* Nor does it define the important role that the plant undoubtedly played in the tribe's social, religious, and cosmological views of the world.

Below, a Navajo medicine man speaks to the medicinal use of plants—and also to the broader role and complex purpose of plants in human society. He speaks to human cosmology (origins)—to seeing plants from inside a culture that uses them—to typologies of plant uses—and to connections between plants and other plants, plants and animals, and between plants and people.

> All plants are medicine, put here by the Holy People. They explained the uses of the plants to the Navajo. Sheep, goats, horses, and cattle eat all of these plants. That is why they are so healthy. There are big medicines and little medicines. The little ones help the big ones like children helping parents. You use the little ones when you are not very sick. Anyone can use these. The big medicine's use is known only by the medicine people. You have to pay to use a big medicine because the medicine people have to pay the plants with turquoise.[3]

However suggestive, these words are only a brief introduction to the delicate weave of

*Balsamroot (*Balsomorhiza sagittata*) was used as a food and medicine and for spiritual purposes by the* K'tunaxa *(Kootenai) and the* Piikani *(Blackfeet).*

complex belief systems and practices that centers on the place of plants in the Navajo worldview. It becomes clear that such human-plant relationships are overlooked by simple lists of plant uses like Mather's.

Managing "Pristine" Landscapes

In part, one underlying motivation for establishing many national park areas has been the preservation of ecosystems that have not been affected by the kinds of human-plant or human-environment relationships described above. Noble though this motivation may seem, it may not be based on demonstrable fact. Population estimates for the North American continent before the arrival of European emigrants vary between a modest two million and a more expansive 18 million (lower estimates may be due to observations resulting from the effects of disease introduced by immigrants, while higher estimates may attempt to neutralize these effects by relying on assessments of available resources that could have supported a larger population). Regardless of the range of estimates, there is little doubt that the forests, plains, and mountain valleys of the continent were by no means "humanless" landscapes. Rather, prior to the 15th century, they were well-populated by a wide diversity of distinct linguistic and cultural indigenous groups that had been busy for millennia managing and shaping the floral landscape to ensure their own physical and cultural survival.[4] Much of the continent at the time of "discovery" was very far indeed from what early preservationists viewed as "wild landscape" or "pristine wilderness."

To what extent Indian peoples managed the land and its resources is open to debate, but there is growing evidence that they used a wide variety of tools and techniques to ensure that subsistence resources would be available for thousands of years. One tool—fire—appears to have been widely used to modify forests, brushlands, grasslands, and entire landscapes and ecosystems—to clear forest understory, create more productive wildlife habitat, recycle nutrients, reduce plant competition, and generally increase the size and number of plants for the manufacture of utilitarian items.[5]

Obviously, then, the National Park Service is not the first landlord of the "pristine" and "untouched" landscapes we now call national parks. In fact, in large part due to the profound influence American Indians have had on all levels of biological organization within ecosystems,[6] the very concepts of "pristine area" and "wilderness area" are now being dismantled. By setting aside protected areas, it is recognized that the Park Service has succeeded in halting disturbances by hordes of arriving immigrants—but it is also recognized that this very same setting aside has put an end to much of the traditional environmental management of lands and plant communities by indigenous populations.

Combining Traditional Plant Ecology with Modern Resource Preservation

It is perhaps a bit too simplistic to claim that the confluence of the 19th-century preservation ethic and the ever-increasing immigrant population of the West gave rise to the establishment of the national park system. Undoubtedly, many factors led to political decisions to set aside large tracts of land in the West. Nevertheless, the preservationist ethic was a motivating factor, and, to a large extent, the government was successful in halting all human use of those lands set aside for protection. But these early preservationist efforts had a tendency to generalize the uses of all human populations as negative. As areas were set aside for protection, the Service sought to remove the presence of all human use from parks. Unfortunately, this effort to halt the tide of development by removing all humans from the landscape became the means by which indigenous resource management techniques were also removed. In essence, this policy of removal threw the baby out with the bath water. At the time, calling a halt to impacts resulting from western expansion was undoubtedly considered an extraordinary and positive step from the view held by preservationists. But, in the long run, the removal of Indian peoples and indigenous resource management techniques may prove to be far less advantageous for the long-term preservation of the structure of ecosystems as they had been shaped by thousands of years of use.

The fact of environmental manipulation related to cultural practice is not the whole story. As the earlier quote from Cotton Mather illustrates, there is more to culture and heritage than the corporeal or material culture that results from specific behavior. The traditional technical knowledge necessary to produce these results is equally important to consider from the standpoint of cultural preservation. Also important to consider are the roles that these practices played in the worldview of Indian peoples on a tribe-by-tribe basis. The cross section of biology,

traditional behavior, and cultural value systems provides a more complete picture of the ethnographic reality—that is, how cultural practice and cultural heritage effects, and is affected by, environmental factors.

The Role of Ethnobotany in the Restoration of Indigenous Landscapes

If American Indian traditional cultural practices were in large part responsible for the very shape and character of the landscape before the arrival of emigrant groups, it would seem important to recognize that the heritage of these indigenous groups should be a major focus of any landscape preservation effort. From this standpoint, it may be worth comparing methods of restoring selected elements of landscapes (in parks and other federal lands) to those that existed when American Indian peoples were managing them. While early visitors to the American West marveled at its landscapes, and were motivated to preserve what they saw and experienced, we should be again reminded that these landscapes were essentially the product of millennia of ecological and environmental manipulation by American Indian peoples. If the very shape and character of "wild" lands that so impressed early preservationists were the products of Indian environmental manipulation, it may well be worth looking at indigenous management techniques that may help restore these landscapes to the condition they were in when they were set aside.

Camas (Camassia quamash) *was an important root food for the* K'tunaxa *and* Piikani. *The bulbs were collected in large quantities and cooked in large, stone-lined ovens.*

Ethnobotany and ethnobiology offer methods for not only understanding the condition of specific plant species in landscapes before non-Indian settlement, but also for providing experimental methods that point to the potential restoration of these species to indigenous managed conditions. It is apparent that many North American Indians remain a substantially untapped source of knowledge regarding present and former plant uses, management practices, and vegetation change. While using traditional knowledge systems is not without its problems, it may well be possible to work with Indian peoples to gain greater understanding. Additional studies in the aboriginal use of fire, and irrigating, harvesting, pruning, coppicing, and collecting plants, along with manipulating wildlife habitat techniques, would provide the information necessary for attempting such a restoration on a limited basis in carefully selected areas.[7] By combining natural and cultural research methods such as phytolith analysis, palynology, ethnographic interviews, early landscape descriptions, comparison photographs, and early herbarium specimen collections, it may be possible to provide an accurate reconstruction of plant species composition and community structure in selected areas.[8] Such restoration would mean working with contemporary American Indian communities and individuals to determine if traditional knowledge of plant horticulture, use, collection, and environmental manipulation has survived decades of acculturation pressure. It would also mean that park managers would have to be willing to enter into a new kind of partnership with American Indian peoples to allow them to apply traditional techniques to attain such a restoration—even on a limited, experimental basis.

The benefits of such efforts on an experimental basis would be many, while the risks would seem to be few. A major benefit for the national park system would be a return of some selected areas in a landscape to a condition approximating what they were in at the time some parks were established—at least from the standpoint of selective plant productivity and condition. This would amount to a historical reconstruction of landscape elements that more closely reflects the condition of the land and resources when non-Indian peoples first arrived. If such limited experiments were successful, the concept of "cultural landscape" would be expanded to recognize the resource-managing skills of Indian peoples. For the natural scientist, experiments that reveal the effect of plant horticultural and collection techniques on the range, morphology, and productivity of native plants should also be of great importance. If such experiments are conducted, they can be allowed under a scientific permitting system, thereby avoiding

Several of the Piikani elders who participated in the ethnobotanical study for Glacier National Park, from right George and Molly Kicking Woman, Doris Many Guns, Margaret Plain Eagle, and Elsie Crowshoe.

Photos courtesy Brian Reeves and Sandy Peacock.

conflict with existing restrictions on the collection of plant materials in parks.

For American Indian peoples, attempts at limited restoration using traditional cultural knowledge could mean the preservation of important aspects of their own heritage. As Indian peoples with the traditional knowledge pass on, there is less likelihood that such knowledge will be transmitted to younger individuals. Partnerships between park managers and tribes focusing on the re-introduction of traditional plant management techniques could allow one means for tribal elders to pass cultural knowledge on to a new generation.

Conclusion

It is not suggested here that there should be—or could be—any wholesale restoration of national parks to the environmental conditions of centuries past. Ecology is a stern and mysterious master, and it would be arrogant for us to assume that we understand enough to control all possible outcomes. However, there is every indication that park lands are still used by some Indian peoples for plant-collecting. Parks are receiving requests from neighboring tribes to allow them to collect plant materials that have traditional cultural significance—and some parks have negotiated memorandums of agreement with neighboring tribes to allow such collection. In one such instance, involved tribes have actually agreed to help parks monitor resulting impacts. And, under the direction of Muriel Crespi, the Ethnography Program of the National Park Service has now designed a computer program for storing data that ethnobotanical research provides, for which Indian tribes have cautiously indicated support, and for which they recognize their own need.[9]

All of this points to a healthy climate of park/tribe cooperation, which could lead to additional research and experiments related to indigenous species and landscape restoration. Ethnobotanical and ethnobiological studies could do much to join natural and cultural resource specialists in projects with shared goals. Additional work would give a new and important dimension to the concept of heritage management and cultural landscapes. Best of all, the work would bring American Indian peoples and park managers together for a partnership in which both realize substantial benefits for natural resource and cultural heritage preservation.

Notes

1 From Cotton Mather 1720. *The Christian Philosopher*. In Virgil J. Vogel 1963:44.

2 See Richard E. Schultes and Siri von Reis, 1995

3 See Maria Nieves Zedeno, et al 2001: 60. From Vestral, Paul A. 1952. *Ethnobotany of the Ramah Navajo. Reports of the Ramah Project*, no. 4 Cambridge: Peabody Museum of American Archeology and Ethnology, Harvard University.

4 Bonnicksen, et al. 1999: 439-470.

5 See H.T. Lewis 197 and 1978. Also see Anderson, Kat 1999: pp. 409-422.

6 Anderson, Kat 2001.

7 Kat Anderson, and David L. Rowney 1999. See also Kat Anderson 2001.

8 Ibid.

9 The database program referred to here is formally known in the National Park Service as the Ethnographic Resources Inventory (ERI). Design and implementation of the program has been directed by Mark Schoepfle, an ethnographer in the Washington, DC, office of the National Park Service. Dr. Schoepfle facilitated a multi-tribal consultation meeting on the ERI in Flagstaff, Arizona in late November and early December of 2000. Initial response was positive and the tribal representative asked for a copy of the program for their own resource management use. It must be noted that any work in American Indian ethnobotany must begin with the monumental work completed by Dr. Daniel E. Moerman 1998. His compendium of plants and their ethnohistory is the starting point for anyone interested in this important subject. The University of Michigan-Dearborn maintains a web-

site that is based on Dr. Moerman's work. For more information the reader is referred to his website <http://www.umd.umich.edu/cgi-bin/herb>.

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Southeast Region's Prized Students

Antoinette T. Jackson, a graduate student in the Department of Anthropology, the University of Florida, received the Southern Anthropological Society 2001 Student Paper Award (doctoral division) for her paper entitled "Heritage-Tourism and the Historical Present: Africans at Snee Farm Plantation." The paper was based on research conducted in an ethnography/ethnohistory project for Charles Pinckney National Historic Site, in South Carolina, under contract with the Applied Cultural Anthropology Research Center, University of North Texas, directed by Dr.Tyson Gibbs.

Ms. Jackson continues in the tradition of prize-winning NPS-related student work in the Southeast Region. In 1998, Carol Jo Evans, a doctoral student in anthropology at the University of Kentucky, received honorable mention from the Society for Applied Anthropology in the Student Poster Prize competition at the 1998 Annual Meeting of the Society in San Juan, Puerto Rico. Her entry was: "Local Participation and Collaborating Efforts Between the University of Kentucky and the National Park Service in the New Management Plan for the Big South Fork National River and Recreation Area (BSFN-RRA)." The ethnography project was encouraged by the NPS Applied Ethnography Program, Washington, DC, to support planning for the Big South Fork unit.

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