

Opening the Door: A Discussion about Cultural and Biological Diversity

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Anthropology

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Cultural diversity creates a variety of worldviews and land use practices and behaviors that influence the evolutionary, morphophysiological, and ecological levels of biodiversity in an area, and play an important role in conserving, maintaining, and increasing biological diversity. Cultural models of traditional groups generally create land ethics and practices that involve interconnectedness with nature and coevolution with plants. Human land uses like agriculture and water control create patchy ecosystems with many stages of succession, and human behaviors such as selection and expansion of plants' natural ranges rapidly alter the composition of an area's flora. Together, these actions performed by different cultures increase biological diversity in an area.

People's cultures shape their worldview, which in turn influences how they interact with the world around them. Western cultural models of the environment generally separate humans from nature. In a chapter of *Biodiversity & Native America*, Enrique Salmón argues that the Western model of biodiversity is a "direct result of Christianity," and is ranked hierarchically, placing humans above nature and one step below God. This model encourages dominating and controlling nature, generating human behaviors that destroy biodiversity. In contrast to this multileveled model, traditional cultures typically consider humans as just one aspect of a complex system of nature—a multisegmented model, as Salmón points out (2000).

Traditional cultural models almost always integrate spirituality and the idea of reciprocity into the relationship between humans and the environment. This type of worldview results in land ethics that are unique to each traditional culture. Since cultural models affect human interactions with the environment, these ensuing land ethics inform land use practices and create social mechanisms for ensuring that the practices are effective in conserving, maintaining, and increasing biological diversity in an area. For example, the Rarámuri of Chihuahua, Mexico,

have the cultural model of *iwígara*, which encompasses the idea that all life is interconnected in a perpetual cycle. It considers humans caretakers of the land, rather than rulers, who play one of the many roles within a complex web of relationships between living things (Minnis & Elisens 2000). This ethic of taking care of the land that we are a part of, shaped from the Rarámuri worldview of *iwígara*, results in land use practices that prevent overharvesting of plants used for food and medicine such as only collecting plants “at certain times and in certain places to avoid disturbing or offending [them or the places they grow]” (Minnis & Elisens 2000). In this way, the variety of non-Western worldviews that accompanies cultural diversity help increase biological diversity in an area.

Human actions and land use, which also vary among cultures, likewise play a crucial role in the increase of biodiversity caused by cultural diversity. Through managing and altering the landscape to create desired outcomes such as creating irrigation channels and terraces for water control or using prescribed burning in an area for increased plant productivity, humans create disturbances in their ecosystems. Similar to when a tree falls over and creates a gap in the canopy that lets in more sunlight and water, human disturbances to an ecosystem allow succession to occur. A patchy ecosystem in several states of succession has more biological diversity than an ecosystem in one stage of succession. Additionally, human interactions with plants over long periods of time can either consciously or inadvertently influence biological diversity at three levels: the evolutionary, morphophysiological, and ecological levels (Minnis & Elisens 2000).

The process of coevolution between humans and plants is one example of long-term behavior that results in the evolutionary and morphophysiological changes of plants. By either tolerating, encouraging, protecting, or cultivating certain plants and not others, humans select for favored traits and the genes of the plants change. An example of human behavior that results in

ecological changes in biological diversity is the expansion of a plant's natural range by transplanting it to new habitats, thus selecting for the ones that survive and rapidly altering the composition of local flora. The 'man-agave' coevolution influenced biodiversity on all three levels and involved the behaviors of both selection and range expansion.

*Agave* have been culturally important to humans in Mexico since prehistoric times, offering food, beverage, and a source of fiber and carbohydrates during times where sustenance is seasonal or unpredictable. The crucial production of an alcoholic beverage called pulque from *Agave* plants that "alleviate[d] thirst and hunger during stressful periods of the year," and was used in many religious ceremonies among the Aztecs, resulted in selective transplanting and hybridization of different species (Minnis & Elisens 2000). Today, *Agave* are dependent on humans to maintain their populations, because the plant's offshoots are too dense to allow proper dispersal. The central bud is instead destroyed during the collection process, which allows for propagation. This coevolution between humans and *Agave* highlights the role of cultural diversity in increasing biodiversity in an area through land use practices and other behaviors.

Western culture can learn from these examples of traditional cultures' interactions with the environment that humans are an irremovable part of nature and play an important role in conserving, maintaining, and increasing biological diversity. Prehistoric lithic mulch gardens in New Mexico that helped soil retain moisture still work today, even though people abandoned the sites over six hundred years ago, assisting the environment with reforestation and serving as a refuge for rare species threatened by predation in open areas (Minnis & Elisens 2000). This shows that land management practices based on long-term observations and knowledge of an area's ecology can be effective and useful in promoting biodiversity and ecosystem health. It

challenges Western ideals about “pristine” natural environments, and humans being solely contaminants and destroyers.

Unfortunately, globalization and forced “development” by way of introduction to the global economy are causing many cultures and traditional ways of life to disappear. Reduction in cultural diversity consequently results in the loss of traditional ecological knowledge, and alternative worldviews and land management practices. Western science moves in to try and fill the gap that Western culture creates by consuming other cultures, but our forms of management are not effective across the board because they are not adapted to local regions over long periods of time. By respecting, valuing, and protecting cultural diversity, Western culture can begin to understand and incorporate Traditional worldviews, beliefs, and science into our decisions about environmental management and land use practices. Opening the door to conversation will help bridge the gap between Western and Traditional cultures. If Western science leads the way in initiating this discussion and taking Traditional cultures seriously, people in industrialized societies will be more willing to change their behaviors and attitudes about cultural diversity and its positive effects on biological diversity.

Works Cited

Minnis, P. E., & Elisens, W. J. (2000). *Biodiversity and Native America / edited by Paul E. Minnis and Wayne J. Elisens*. Norman, Okla.: University of Oklahoma Press, c2000.