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## Indigenous Environmental Knowledge

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## Indigenous Environmental Knowledgeindigenous environmental knowledge

Multiple terms have been used to describe the environmental knowledge and cultural resource practices of indigenous peoples, including *indigenous environmental knowledge*, *traditional ecological knowledge*, *indigenous technical knowledge*, and *ethnoecology*. The Western study of indigenous environmental knowledge is centuries old (e.g., Carl Linnaeus's 1732 publication, *Iter Lapponicus*, included extensive descriptions of Sami indigenous environmental knowledge from Northern Scandinavia). There is a central paradox in the description and analysis of one knowledge and belief system from within the context of another, and the Western study of indigenous knowledge has been critiqued and challenged by numerous indigenous writers, in part because of the common assumption of the superiority of the Western tradition.

The United Nations Permanent Forum on Indigenous Issues states that there are around 370 million indigenous people in 70 countries across the globe. They have different social, cultural, economic, and political characteristics to those of the dominant societies in which they live. They are the descendants of those who inhabited a country or a region subsequently colonized by people of different cultures or ethnic origins. Territory and place are often central to indigenous identities, expressed through concepts such as land rights, sacred sites, and traditional resource use. These concepts are underpinned by unique indigenous environmental knowledge systems. While individually unique to particular people in specific geographic locations, there are nevertheless common aspects to these knowledge systems.

### Characteristics and Interpretation

Some characteristics of indigenous environmental knowledge include a local or regional focus, oral transmission, a basis in practical engagement in everyday life, dynamism of form and content, integrated and holistic perspectives, and a situation within a broader cultural context. Although some of these characteristics are likely to be common to most systems of indigenous environmental knowledge, it is important to remember that terms such as *indigenous* and *Western* risk over-generalizing what are diverse, complex, and dynamic groups. Similarly, separating indigenous environmental knowledge from its social and institutional context is inappropriate—it is unlikely to function merely as an adjunct to Western science, in isolation from the local social norms in which it was created. Many indigenous systems are based around cultural values such as respect and reciprocity, which are also a core element of the management processes that use the knowledge. Unsatisfactory outcomes are likely if these values are replaced by a simple resource utilitarianism.

While indigenous environmental knowledge is based on extensive empirical observation, its interpretation can be radically different from conventional scientific or Western paradigms. Fikret Berkes stresses that indigenous environmental knowledge centers on *relationships* between living beings, including humans. In contrast, heritage paradigms, among other common influential conventional scientific theories of value, have a focus on objects, entities, and places while the all but invisible background of relationships, behaviors, nonhuman entities, and kinship structures that arguably shape people-environment relations are ignored. Within indigenous environmental knowledge, there is often a strong correspondence between attitudes toward the environment and a belief in the *sacredness* of the living world, reflected in English translations of indigenous terms such as *caring for country*, *a community of beings*, and *all my relations*. The Native American Tewa scholar Gregory Cajete uses the term *native science* to describe indigenous holistic and inclusive approaches to considering environments and their occupants and stresses the aliveness and connectedness of all things. "Native science" focuses on learning about an intricately interlinked universe rather than objectively explaining it. It also acknowledges mutual reciprocity: The world is not a resource for human use but a family of beings with mutual obligations and needs. This acknowledgment has compounded attempts at integrating indigenous peoples' social and cultural values into natural resource management (e.g., in relation to water resource management in a thirsty agricultural continent such as Australia).

### Indigenous Environmental Knowledge and Resource Management

The increasing recognition of the value of indigenous environmental knowledge in natural resource management during the past few decades is embedded in a historical controversy surrounding the sustainability of indigenous environmental management. This controversy is arguably the result of a general lack of knowledge of, and lack of informed literature on, indigenous actors' motivations behind environmental

management practices in distinct socioeconomic and political contexts.

During the colonial era, indigenous environmental practices were often strange to the mindset of many Europeans. Limited European knowledge of the physical dynamics of tropical environments, for example, led to the dismissal of indigenous burning practices. Indigenous use of fire was instead labeled as an "evil" practice during the early 20th century, perceived to result in forest degradation and loss of colonial property. Such labeling of indigenous environmental management as unsustainable has increasingly been critiqued and refuted with the acknowledgment of nonequilibrium ecology. The recognition of savanna ecosystems as "unstable" has, for example, led to a gradual change toward acknowledging the value of fire in traditional indigenous shifting cultivation systems and bush-fire protection schemes in savanna environments. The indigenous use of fire in maintaining Northern Australian landscapes and ecosystems has been extensively investigated in collaborations between Western scientists and managers and indigenous experts. These attempts at collaboration provide recognition of the relationship between the importance of biodiversity in indigenous environmental knowledge systems and the acknowledgment that Western social and economic traditions have contributed to extensive global environmental degradation. Thus, in attempting to find solutions to the ongoing environmental decline, researchers have investigated worldviews that value the intrinsic rights of nonhuman others, suggesting that Westerners can learn from these belief systems.

However, environmental managers' attempts in particular situations to incorporate effective indigenous practices into contemporary Western land management are often controversial and by no means broadly accepted, even in situations where indigenous people are numerically dominant. Indigenous environmental knowledge is also still often challenged today through a form of "ecological imperialism" that justifies an assumption of the superiority of Western knowledge over indigenous knowledge systems. In her notion of the colonization of discourses, Sandie Suchet proposes that Eurocentric discourses construct indigenous people and indigenous environments as resources to be developed or conserved by undermining or rendering indigenous environmental knowledge silent through a portrayal of indigenous people and their environments as pristine and unspoiled examples of nature.

While being alert to the dangers of essentializing and decontextualizing indigenous knowledge systems, it is also inappropriate to romanticize indigenous lifestyles and uncritically think of indigenous peoples as "ecological angels" or the "original conservationists." There is a danger of seeing indigenous knowledge as something of an elixir for all the ills befalling communities in modern-day society. There usually is a range of environmental behaviors demonstrated in any group, which may include actions that have negative outcomes. Some reasons for this are that knowledge often is unevenly distributed among individuals, young people may have different views or knowledge, and detailed local knowledge may be inadequate without knowledge on a broader scale, especially in changing environments. Some researchers have argued that conservation outcomes from indigenous environmental behavior are derived from a focus on optimal harvest efficiency rather than a desire to conserve species or habitats per se. Simply because it is deemed "indigenous knowledge" does not mean that it is necessarily more suitable than the knowledge of perceived "outsiders"; it must be fit for the purpose.

## Research on Indigenous Environmental Knowledge

Indigenous environmental knowledge has been investigated by several Western disciplines, including biology, geography, and anthropology. In biology, the congruence between indigenous knowledge and practice has been linked to concepts of adaptive management, and there is extensive work on the similarities between ethnotaxonomies and scientific ones. As examples, there are numerous studies of circumpolar peoples' environmental knowledge systems that have repeatedly demonstrated the significance and efficacy of this knowledge. In Alaska, biologists conducting whale censuses had significantly more accurate results once they incorporated the knowledge of indigenous whalers. The 2004 Arctic Climate Impact Assessment, commissioned by the Arctic Council, used collaboration with indigenous peoples to access unique, long-term knowledge of weather patterns and flora and fauna distribution in compiling a compelling picture of rapid climate change in the Arctic.

In geography and anthropology, recent discussions about the extent and age of human influence on the environment have been linked with the voices of indigenous writers who are concerned with the place of nonhuman others in overall social and environmental relationships. This point, about the agency and intent of nonhuman actors, is probably most difficult for Western science to accept but has been repeatedly stressed by indigenous academics. The Maori biologist Mere Roberts argues against the removal of the spiritual dimension from scientific enquiry, emphasizing the presence of a moral universe. Indigenous writers have also challenged the primacy of nonindigenous researchers in these discussions, arguing that it is not valid to interpret one belief system within the structures of another. Western concepts of objectivity undermine the distinctive position of indigenous knowledge systems that adhere to the rightness of their views. Increasingly, indigenous geographers themselves are exploring these issues, along with nonindigenous geographers working on indigenous geographies. These explorations, together with the increasing political voice of indigenous people, have shown that a distinction between indigenous environmental knowledge and perceived "outsider" knowledge does not by itself provide an adequate way to understand or overcome conflicts over land

management and rights to land. Environmental knowledge is instead interwoven with, and divided across gaps in, daily resource politics at various scales—local, national, and international.

Christine Eriksen and Michael Adams

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## Further Readings

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UN Permanent Forum on Indigenous Issues: [www.un.org/esa/socdev/unpfii](http://www.un.org/esa/socdev/unpfii)

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