Can Traditional Ecological Knowledge and Wilderness Benefit One Another?

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Abstract—Traditional ecological knowledge is the system of experiential knowledge gained by continual observation and transmitted among members of a community. It includes spiritual aspects of the proper relationship between humans and their environment. In this context, the Arctic is considered to be "peopled land." More recent uses of the term "wilderness" recognize the presence of certain types of human activity, among them traditional hunting, fishing, and gathering. Protecting these activities often requires protection of basic ecological processes, and thus is compatible with the overall goals of many protected areas in the Arctic. Indeed, protecting areas can help protect traditional activities, which are the basis for accumulating, perpetuating, and transmitting traditional knowledge within a community. Traditional knowledge, for its part, can contribute not only to our common ecological understanding of a region, but also to an understanding of the various perspectives from which an area and its uses are viewed. Such insight can help in the designation and management of wilderness areas by identifying areas of convergent interest to support the core values of both traditional systems and the concept of wilderness.

Introduction

Traditional ecological knowledge (TEK) can be defined as "the system of experiential knowledge gained by continual observation and transmitted among members of a community" (Huntington 1998). As a system of knowledge, TEK is more than an accumulation of facts and conjecture. It is a way of organizing one's understanding of the natural world, and as such it includes spiritual aspects of the proper relationship between humans and their environment. The concept of "wilderness," by contrast, tends to emphasize the absence of humans, or at least the absence of signs of human presence (Klein, this proceedings; Nash 1982). The perception of the Arctic as a vast wilderness is at odds with the views of the region's indigenous peoples, for whom the Arctic is "peopled land."

In considering the role and management of wilderness areas in the Arctic, can the perspectives of TEK and those of "wilderness" find common ground? If so, can each perspective offer useful insights and benefits to the other? In this paper, I argue that TEK can benefit to the extent that wilderness contributes to protecting the way of life upon which it is based, and that wilderness designation and management can benefit from a closer understanding, not only of the ecological aspects of TEK, but also its insights into the relationship of people with the natural world. These benefits are not romantic notions, but practical suggestions drawing on experiences elsewhere.

Traditional Ecological Knowledge

The term "traditional ecological knowledge" often conflates several forms of knowledge and several dimensions of understanding (Agrawal 1995). In a broad sense, it refers to knowledge gained by persons with a long history of living or working in a given area. This knowledge is not static, but reflects changes in resource use patterns and other aspects of the relationship between people and their surroundings, including the influence of scientific and other forms of knowledge. "Local knowledge" is related, but may not have the time depth implied by the word "traditional," which indicates continuity over generations rather than only the life of an individual.

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In: Watson, Alan E.; Alessa, Lilian; Sproull, Janet, comps. 2002. Wilderness in the Circumpolar North: searching for compatibility in ecological, traditional, and ecotourism values; 2001 May 15–16; Anchorage, AK. Proceedings RMRS-P-26. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

"Indigenous knowledge" is also used, with the specific reference to certain people as holders of that knowledge.

These and related terms are often used to indicate a contrast with "scientific knowledge," which itself often conflates knowledge gained through the scientific method with a more general sense of knowledge generated through Western traditions of inquiry and teaching. Thus, TEK and related terms sometimes imply not only the holders of such knowledge but also the means of its acquisition. For the purposes of this paper, however, TEK refers to the knowledge that is held by members of a community and that reflects their understanding of their surroundings, regardless of the sources of that knowledge. I also recognize the spiritual dimension of TEK that is often overlooked in the emphasis placed on its ecological aspects.

Within hunter-gatherer societies, TEK was the basis for actions concerned with survival—procuring food and shelter, traveling safely in an often-dangerous landscape, and negotiating the cycles and changes within one's environment. In the modern era, TEK has at times been used, or at least recognized, as the basis for or a supplement to ecological research, or as a contribution to resource management (Berkes 1998; Huntington 2000; Johannes 1993). At the same time, there have been some efforts to document TEK in the Arctic, in part to make it accessible to a broader audience, or to apply it to specific management purposes (Ferguson and Messier 1997; Huntington and others 1999; Johnson 1992; McDonald and others 1997; Mymrin and others 1999; Nakashima 1990). Primarily, such work in the Arctic has focused on species or on regions, and occasionally on environmental impacts (Huntington and Fernandez-Gimenez 1999). Little has been done to examine the relationship of TEK with specific land-management practices, traditional or otherwise.

The use of comanagement approaches to resource and land management is a form of implicit use of TEK. The explicit goals of comanagement typically involve resource users and local residents to improve management practices. Although this approach is sometimes criticized as a form of co-optation (Nadasdy 1999), there are many examples of its success in promoting more effective management (Huntington 1992a; Pinkerton 1989). In Alaska and Canada, there have been attempts to take a limited comanagement approach to certain aspects of resource management in National Parks (Caulfield 1988; Sneed 1997). The success of these efforts is mixed (Huntington 1992b). The groups convened for this purpose have typically functioned more as advisory committees, although more recent structures in Canada have given more weight and scope to the comanagement approach (Huntington 1992a; Sneed 1997).

Elsewhere in the world, research has examined the importance of sacred sites and other forms of local land-use governance (Gadgil and others 1998; Stevens 1997). Sacred groves and sacred sites can function as refugia within intensively used areas such as northeastern India (Gadgil and others 1998). By prohibiting human use of certain areas, harvested species are protected from extirpation. In the subarctic, Berkes (1998) found that Cree hunters rotate harvest areas based on careful observation of local beaver (*Castor canadensis*) population trends and habitat condition. Harvests are adjusted accordingly, based on a detailed understanding of the dynamics of trapping, overpopulation, and recolonization. Although such practices do not include a concept of wilderness, they indicate the relationship of certain traditional land-management practices to ecological outcomes.

How, then, can TEK contribute to wilderness in the Arctic, where there is little traditional basis for such land-use designations? Two aspects of Arctic wilderness can potentially benefit from understanding TEK and its perspectives. First, there are few truly uninhabited regions in the Arctic. People have long used the areas that are now designated as wilderness. As discussed in the next section, those uses are recognized to an extent in North America. But the nature of human involvement with the natural world is not static, and TEK offers a way of understanding how that relationship is shaped in the eyes of Arctic residents—what is important to them and why. Such an understanding may help identify and resolve potential conflicts in wilderness designation and management.

Second, TEK offers ecological insight, which can help in the management of natural resources in wildernesses just as in other areas. Understanding how an ecosystem functions is an essential part of providing effective conservation. Few wilderness

areas are not subject to threats from outside their borders, such as climate change, pollution, and impacts to migratory species. An understanding of how the areas are susceptible and what can be done about it is necessary to address those threats. Traditional ecological knowledge cannot solve every conservation problem, but it offers insights unavailable from other sources, and thus deserves attention. In addition, the inclusion of the knowledge of Arctic residents often opens the door for greater inclusion of their ideas and, ultimately, support for the conservation measures that are developed (Stadel and others, this proceedings). Done properly, this is not a process of co-optation, but a form of negotiation involving compromises and, ideally, leading to mutual benefit.

Wilderness

The concept of "wilderness" has been explored by others in this volume, particularly Klein (this proceedings). Nash (1982) describes the evolution of the concept in the United States and its extension to Alaska through the Alaska National Interest Lands Conservation Act of 1980. In particular, the application of the term "wilderness" in Alaska has accommodated some human activities, particularly subsistence hunting, fishing, and trapping. There has been conflict over interpreting these provisions (Allen, this proceedings). The development of new technologies, such as all-terrain vehicles and their use by residents of Anaktuvuk Pass in Gates of the Arctic National Park, sparked a long battle about the definition of "traditional." Furthermore, there remain divergent views on what "wilderness" is. But the attempt to accommodate humans within the concept of wilderness is, in the United States, a significant step in recognizing the nature of "peopled land" in the Arctic.

How does wilderness designation and management, as practiced in Alaska today, contribute to TEK? The development, use, and perpetuation of traditional practices, including the system of TEK, require access to the land, the waters, and their resources, including some degree of control over the way the resources are used. In other words, the future of TEK depends on the ability of its holders to continue the traditional practices upon which TEK is based, and to provide opportunities for younger generations to learn these practices and to accumulate the knowledge that allows one to conduct them efficiently and safely. Wilderness, in its legal definition, may not be necessary to achieve this goal, but the ecology of the Arctic requires large areas of undisturbed habitat for the sparse and wide-ranging species that support human communities. To the extent that wilderness helps protect the land, and to the extent that traditional activities are accommodated in wilderness management, wilderness areas can help protect the ways people use them, and the relationships that Arctic peoples have developed with their surroundings.

This is perhaps a romantic vision for the relationship between wilderness and TEK. Many forces in today's world affect the ways that Arctic people relate to their surroundings. Wilderness is likely to play only a minor role. Nonetheless, this role can be vital by providing a degree of stability for ecosystems at the scale of landscapes. A stable landscape and "stable" land management, however, are not necessarily the same thing. The latter can easily come to be seen as restrictive, especially as traditional practices and knowledge evolve, but this danger only reinforces the need for active involvement of local people in wilderness designation and management.

Discussion

One way to understand wilderness is as an opportunity for people to see and understand the natural world in a visceral way, through stepping into large landscapes that show no obvious signs of humans, where there is no intermediary between the individual and nature. Such an experience can be fragile—the knowledge that others have come before or the contrails of a jet far overhead can disturb the sense that one is alone and the first to see a place. Yet the expectation of such an experience is itself a human construction, one that shapes the way the landscape is seen and understood. And it is a vision perhaps unfair to those who happen to live in undisturbed regions, as is the case in much of the Arctic. To declare the land as beyond human

touch is to expropriate territories that have been inhabited and used for millennia, and to deny the meanings and purposes local cultures have attached to places.

But, if we understand wilderness to reflect and stimulate an original and deep connection between people and their surroundings, then local cultures may find a place in wilderness, and perhaps "wilderness" may find a place in local cultures (Stadel and others, this proceedings). Such a hope is admittedly idealistic, and putting it into practice is fraught with difficulties. Local cultures adapt and evolve, adopting new technology and practices. Such changes are often at odds with romantic perceptions that indigenous cultures are timeless and immutable, that they are somehow diminished by adopting modern tools and ideas. Modern goods and gear help make the presence of Arctic communities more visible, often, as through litter and vehicle tracks, in ways that offend "wilderness" sensibilities. Yet the relationship and understanding that Arctic peoples have for their surroundings goes beyond the idea of "untracked wilderness," the merits of which lie in aesthetics rather than ecology.

Traditional knowledge offers a way of exploring differences in perception and looking for underlying similarities and compatibilities. There will remain real differences in perception, in philosophy, and in goals between wilderness advocates and local residents. Nonetheless, there should be ample common ground on which to build a sense of shared purpose and outlook. Exploring the relationship between TEK and wilderness is a means by which individuals and organizations can better understand one another. Such an effort is not a naïve hope of finding unity where it may not exist, but a practical approach and one that takes considerable time and effort. The success of some of the groups created to comanage species shows that TEK and western science can be used together with mutual benefit if there is a commitment to do so. In wilderness, such a goal is worth striving for.

References

Agrawal, Arun. 1995. Dismantling the divide between indigenous and scientific knowledge. Development and Change. 26(3): 413–439.

Berkes, Fikret. 1998. Indigenous knowledge and resource management systems in the Canadian subarctic. In: Berkes, F.; Folke, C., eds. Linking social and ecological systems. Cambridge, UK: Cambridge University Press: 98–128.

Caulfield, Richard. 1988. The role of subsistence resource commissions in managing Alaska's new National Parks. In: Freeman, M. M. R.; Carbyn, L. N., eds. Traditional knowledge and renewable resource management in northern regions. Edmonton, Alberta: Boreal Institute for Northern Studies: 55–64.

Ferguson, M. A. D.; Messier, F. 1997. Collection and analysis of traditional ecological knowledge about a population of arctic tundra caribou. Arctic. 50(1): 17–28.

Gadgil, Madhav; Hemam, Natabar Shyam; Reddy, B. Mohan. 1998. People, refugia and resilience. In: Berkes, F.; Folke, C., eds. Linking social and ecological systems. Cambridge, UK: Cambridge University Press: 30–47.

Huntington, Henry P. 1992a. The Alaska Eskimo Whaling Commission and other cooperative marine mammal management organizations in Alaska. Polar Record. 28(165): 119–126.

Huntington, Henry P. 1992b. Wildlife management and subsistence hunting in Alaska. London: Belhaven Press. 177 p.

Huntington, Henry P. 1998. Observations on the utility of the semi-directive interview for documenting traditional ecological knowledge. Arctic. 51(3): 237–242.

Huntington, Henry P. 2000. Using traditional ecological knowledge in science: methods and applications. Ecological Applications. 10(5): 1270–1274.

Huntington, Henry P.; Communities of Buckland, Elim, Koyuk, Point Lay, and Shaktoolik. 1999. Traditional knowledge of the ecology of beluga whales (*Delpinapterus leucas*) in the eastern Chukchi and northern Bering Seas, Alaska. Arctic. 52(1): 49–61.

Huntington, Henry P.; Fernandez-Gimenez, Maria E. 1999. A review of research and application of indigenous knowledge in the Arctic. Indigenous Knowledge and Development Monitor. 7(3): 11–14.

Johannes, Robert E. 1993. Integrating traditional ecological knowledge and management with environmental impact assessment. In: Inglis, J. T., ed. Traditional ecological knowledge: concepts and cases. Ottawa: International Program on Traditional Ecological Knowledge and International Development Research Centre: 33–39.

Johnson, Martha, ed. 1992. Lore: capturing traditional environmental knowledge. Otawa: Dene Cultural Institute and International Development Research Centre. 190 p.

McDonald, Miriam; Arragutainaq, Lucassie; Novalinga, Zack. 1997. Voices from the Bay: traditional ecological knowledge of Inuit and Cree in the James Bay bioregion. Ottawa: Canadian Arctic Resources Committee and Environmental Committee of the Municipality of Sanikiluaq. 90 p.

Mymrin, Nikolai I.; Communities of Novoe Chaplino, Sireniki, Uelen, and Yanrakinnot; Huntington, Henry P. 1999. Traditional knowledge of the ecology of beluga whales (*Delphinapterus leucas*) in the northern Bering Sea, Chukotka, Russia. Arctic. 52(1): 62–70.
Nadasdy, Paul. 1999. The politics of TEK: power and the "integration" of knowledge. Arctic Anthropology. 36(1): 1–18.
Nakashima, Douglas J. 1990. Application of native knowledge in EIA: Inuit, eiders, and Hudson Bay oil. Ottawa: Canadian Assessment Research Council.
Nash, Roderick. 1982. Wilderness and the American mind. New Haven, CT: Yale University Press. 425 p.
Pinkerton, Evelyn, ed. 1989. Cooperative management of local fisheries. Vancouver, BC: University of British Columbia Press. 299 p.
Sneed, Paul G. 1997. National parklands and northern homelands: toward comanagement of National Parks in Alaska and the Yukon. In: Stevens, S., ed. Conservation through cultural survival. Washington, DC: Island Press: 135–154.
Stevens, Stan, ed. 1997. Conservation through cultural survival: indigenous peoples and protected areas. Washington, DC: Island Press. 361 p.