

# Integrating traditional and local ecological knowledge into forest biodiversity conservation in the Pacific Northwest

Susan Charnley<sup>a,\*</sup>, A. Paige Fischer<sup>b</sup>, Eric T. Jones<sup>c</sup>

<sup>a</sup> *USDA Forest Service, Pacific Northwest Research Station, P.O. Box 3890, Portland, OR 97208, United States*

<sup>b</sup> *Department of Forest Resources, Oregon State University, 280 Peavy Hall, Corvallis, OR 97331, United States*

<sup>c</sup> *Institute for Culture and Ecology, P.O. Box 6688, Portland, OR 97228, United States*

## Abstract

The potential for traditional and local ecological knowledge to contribute to biodiversity conservation has been widely recognized, but the actual application of this knowledge to biodiversity conservation is not easy. This paper synthesizes literature about traditional and local ecological knowledge and forest management in the Pacific Northwest to evaluate what is needed to accomplish this goal. We address three topics: (1) views and values people have relating to biodiversity; (2) the resource use and management practices of local forest users, and their effects on biodiversity; (3) models for integrating traditional and local ecological knowledge into biodiversity conservation on public and private lands. We focus on the ecological knowledge of forest users belonging to three groups who inhabit the region: American Indians, family forest owners, and commercial nontimber forest product harvesters.

We argue that integrating traditional and local ecological knowledge into forest biodiversity conservation is most likely to be successful if the knowledge holders are directly engaged as active participants in these efforts. Although several promising models exist for how to integrate traditional and local ecological knowledge into forest management, a number of social, economic, and policy constraints have prevented this knowledge from flourishing and being applied. These constraints should be addressed alongside any strategy for knowledge integration. Also needed is more information about how different groups of forest practitioners are currently implementing traditional and local ecological knowledge in forest use and management, and what the ecological outcomes are with regard to biodiversity.

© 2007 Elsevier B.V. All rights reserved.

**Keywords:** Traditional ecological knowledge; Pacific Northwest forest management; Biodiversity conservation; American Indians; Family forest owners; Nontimber forest product harvesters

## 1. Introduction

The potential for traditional and local ecological knowledge to contribute to biodiversity conservation has been widely recognized, as reflected by Article 8(j) of the United Nations Convention on Biological Diversity, which states that the knowledge and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity should be respected, preserved, and applied (Multilateral, 1993). In the Pacific Northwest, there is interest in learning more about traditional ecological knowledge and how it can be integrated into forest biodiversity conservation (Nelson et al., 2006). Despite support for the concept, applying the ecological

knowledge of local people to biodiversity conservation is not easy.

In this paper, we synthesize literature on traditional and local ecological knowledge related to forest management among American Indians, family forest owners, and commercial nontimber forest product harvesters in the Pacific Northwest to critically evaluate what is needed to accomplish this goal. We argue that (1) integrating traditional and local ecological knowledge into forest biodiversity conservation is most likely to be successful if the knowledge holders are directly engaged as active participants in these efforts; (2) more information is needed about how different groups of forest practitioners are currently implementing traditional and local ecological knowledge in forest use and management, and what the ecological outcomes are with regard to biodiversity; (3) although several promising models exist for how to integrate traditional and local ecological knowledge into forest management, the social, economic, and policy constraints that prevent this knowledge

\* Corresponding author. Tel.: +1 503 808 2051; fax: +1 503 808 2020.

E-mail address: [scharnley@fs.fed.us](mailto:scharnley@fs.fed.us) (S. Charnley).

from persisting and flourishing should be addressed alongside any strategy for knowledge integration. Our literature synthesis focuses on Washington, Oregon, and northern California, but our findings are broadly applicable for integrating traditional and local ecological knowledge into biodiversity conservation elsewhere.

### 1.1. Definitions

We adopt Berkes (1999) definition of traditional ecological knowledge (TEK) as a cumulative body of knowledge about the relationships living things (including people) have with each other and with their environment, that is handed down across generations through cultural transmission. TEK includes knowledge, practices, and beliefs that are more-or-less integrated with one another. It is dynamic and evolves as people build on their experiences and observations, experiment, learn from others, and adapt to changing environmental conditions over time. TEK is place-based and geographically specific, and is most often found among societies that have engaged in natural resource use in a particular place over a long time period, such as indigenous peoples (Berkes, 1999).

However, new knowledge is created all the time, and indigenous peoples are not the only ones who have ecological knowledge of value. This more recent local ecological knowledge (LEK) is defined here as knowledge, practices, and beliefs regarding ecological relationships that are gained through extensive personal observation of and interaction with local ecosystems, and shared among local resource users. Local ecological knowledge may eventually become TEK. We discuss both traditional and local ecological knowledge here, recognizing that both can have value for biodiversity conservation, whether developed over a few years or over centuries.

There is a debate in the literature about what makes traditional and local ecological knowledge different from western scientific knowledge, and whether the criteria used to distinguish them are valid (Agrawal, 1995; Ellen and Harris, 2000). We agree that separating “traditional” from “western scientific” knowledge creates a false dichotomy, but recognize some general distinguishing characteristics. Western scientific knowledge tends to be driven by theoretical models and hypothesis testing, and generated using the scientific method; not necessarily utilitarian; often generalizable and not always local; generated by research institutions; and documented and widely disseminated in written form. TEK and LEK tend to be driven by a desire for utilitarian information that will help people survive and maintain a natural resource-based livelihood; generated through practical experience with the natural world in the course of everyday life; locally based and specific; and transmitted orally or through demonstration (less true for commercial harvesters) (Ellen and Harris, 2000).

We use the term “forest practitioners” here to refer to people who spend time in forests and derive a portion of their economic livelihood from them, have social or cultural ties to forests, operate at a small, nonindustrial scale, and hold TEK or LEK about the forests they spend time in. Forest practitioners

belonging to three groups are the focus of this synthesis: American Indians, family forest owners, and commercial nontimber forest product (e.g., wild mushrooms, ferns, boughs) harvesters. Not all members of these groups can be considered forest practitioners given this definition, and the depth of TEK and LEK held by individual practitioners will vary, as will their individual behaviors. Forest practitioners also possess varying degrees of western scientific knowledge; these knowledge systems are not mutually exclusive. There is also a great deal of cultural diversity within the three groups. In the interest of covering three different groups we do not examine variation within them, but rather speak in general terms about them. Forest practitioners also belong to other forest user groups in the Pacific Northwest, such as loggers and tree planters. We focus on American Indians, commercial nontimber forest product (NTFP) harvesters, and family forest owners because we found the most literature about them.

### 1.2. The relevance of traditional and local ecological knowledge for biodiversity conservation

Why consider traditional and local ecological knowledge in biodiversity conservation efforts? Forest practitioners spend a great deal of time in forests observing, experiencing, experimenting, working, and tinkering. In the process, they learn things that could be of value to western scientists and other forest managers; they are a potential source of experimental, anecdotal, and/or observational data on forest ecosystems. A main proposal of this paper is that partnerships in which forest practitioners, western scientists, and forest managers share their knowledge are likely to provide a better understanding of the natural environment and how to conserve biodiversity than these groups could achieve alone.

Another reason to consider TEK and LEK in biodiversity conservation stems from the observation that commercial timber production on private industrial and public lands in the Pacific Northwest – based on western science, belief, and value systems – have emphasized the production of a small number of commercially-valuable species on short rotations in plantations using even-aged management techniques, with negative effects on the structure, composition, and function of forest ecosystems (Carey, 2006; Wilson and Puettmann, 2007). In contrast, many forest practitioners have an interest in managing forests for a broad set of species and values, often with an emphasis on the forest understory or on ecosystem services. For example, over 200 species of nontimber forest products are known to be harvested on private and public lands in the region (Alexander and Fight, 2003), and this number could be much higher because 370 commercial nontimber forest product species are known to occur in Oregon alone (J. Weigand, personal communication, 2006). Indigenous peoples of the Pacific Northwest coast traditionally used about 300 plant species for food, medicine, materials, and other purposes, and some of these uses persist today (Deur and Turner, 2005a). And, family forest owners are known to manage their forests for a diversity of values. Forest management for a diversity of products, uses, and values is more likely to maintain biodiversity than forest management for

Download English Version:

<https://daneshyari.com/en/article/90558>

Download Persian Version:

<https://daneshyari.com/article/90558>

[Daneshyari.com](https://daneshyari.com)