

The Past, Present, and Future of Traditional Resource and Environmental Management

Author(s): Dana Lepofsky

Source: Journal of Ethnobiology, 29(2):161-166. 2009.

Published By: Society of Ethnobiology

DOI: <http://dx.doi.org/10.2993/0278-0771-29.2.161>

URL: <http://www.bioone.org/doi/full/10.2993/0278-0771-29.2.161>

BioOne (www.bioone.org) is a nonprofit, online aggregation of core research in the biological, ecological, and environmental sciences. BioOne provides a sustainable online platform for over 170 journals and books published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Web site, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/page/terms_of_use.

Usage of BioOne content is strictly limited to personal, educational, and non-commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

THE PAST, PRESENT, AND FUTURE OF TRADITIONAL RESOURCE AND ENVIRONMENTAL MANAGEMENT

Dana Lepofsky

We live in a world where biological and cultural diversity are being lost at dizzying rates. As ethnobiologists we know that losses of diversity in both of these realms are inextricably intertwined. The loss of habitats and species, in combination with a plethora of socio-political factors, prevents local and indigenous peoples from interacting with their surrounding environments in traditional ways (e.g., Deur, Turner et al., Weiser and Lepofsky this volume). Traditional practices are important not just because they are often efficient or sustainable ways to harvest and tend economically important resources, but because, for many peoples, these traditional practices are inseparably linked to cultural heritage and cultural survival. Understanding and documenting these practices also can be critical for modern conservation efforts since they often rely on understanding how ecosystems functioned in non-industrial settings, the role of humans in modifying environments, or how human-environmental interactions changed through time and space (e.g., Heckenberger et al. 2003; Pauly 2001; Weiser and Lepofsky this volume). Given that humans had a hand in modifying most landscapes worldwide, understanding the role of humans in ecosystem history is a fundamental first step in managing ecosystems today.

This volume arose out of the awareness that 1) there is a welded link between cultural and biological preservation, and 2) there can be considerable benefit in bringing together the ecological knowledge and practice of local and indigenous peoples with current efforts to understand, manage, and conserve today's ecosystems (e.g., Frazier 2007; Johnson et al. 2005; Lertzman this volume; Lyman and Cannon 2004; Willis et al. 2004). The authors in this volume bring together these topics by examining past, present and future human-environmental interactions that fall under the rubric "traditional resource and environmental management" (TREM; Fowler and Lepofsky in press). Following the lead of others, Kay Fowler and I define TREM as "*the application of traditional ecological knowledge (TEK) to maintain or enhance the productivity, diversity, availability, or other desired qualities of natural resources or ecosystems*".

The term *traditional* here means the knowledge and practice that are passed down inter-generationally. There is nothing static implied by the term. Rather, it recognizes that such knowledge and practice are built over generations of experimentation and observation about what works given particular cultural and ecological settings (e.g., Berkes and Turner 2006). Sometimes this ecological knowledge emerges from an intimate relationship with one's surroundings that

began several millennia earlier (e.g., Ford and Nigh, Smith, and Weiser and Lepofsky this volume). As demonstrated by the contributions of Deur and Wyndham, such knowledge is often passed down through children, who are active observers and participants in TREM. This knowledge is further perpetuated through tangible remains on the landscape that act as reminders of the importance of these actions (e.g., culturally modified trees [CMTs]; Deur, Turner et al., Wyndham this volume). In this issue of the *Journal of Ethnobiology*, we are interested in following these threads of knowledge and practice across time and space.

Although there is a growing recognition among scholars of the importance of linking the past with the present of resource management (e.g., Foster 2000; Haggan et al. 2006; Jackson et al. 2001), there are conceptual divides that can prevent true integration of different kinds of ecological knowledge. Among western scholars such as archaeologists, cultural anthropologists, and ecologists, differences in methods, kinds and scale of data, and disciplinary language can impede true integration (Hayashida 2005; Lepofsky et al. 2003). Even within anthropology itself, archaeologists and cultural anthropologists often hold different views about traditional management systems, stemming from their disparate data sets. Whereas archaeologists tend to work with data that reflect large-scale, long-term, and often detrimental human-environmental impacts, cultural anthropologists are in a position to observe the less obvious aspects of resource and ecosystem management as it is practiced daily. Wyndham (this volume) introduces the phrase “subtle ecologies” to describe these kinds of human-environment relationships.

Despite the indisputable value of integrating remembered and current ecological knowledge with understanding past TREM, there is some reluctance among archaeologists to do so. In part, this reluctance may arise out of the more general distrust of “ethnographic analogy” that has plagued archaeology for the past three decades (e.g., Gould 1980; Wobst 1978). But, to deny the possibility that current ecological knowledge is evidence for past practices is to ignore the fact that such knowledge, by definition, often has deep historical roots. Furthermore, given that many of the TREM practices are subtle and/or will not leave an easily detectable footprint in the ecological or archaeological records (e.g., Lepofsky et al. 2003; Smith this volume), in some cases the widespread documentation of these practices in the early historic period may be among the strongest evidence of pre-contact occurrences. As Wyndham and Deur point out in this issue, an untrained observer could easily miss these subtle aspects of traditional management even when directly observing them. How, then are we to detect in the archaeological or paleoecological records the subtleties of people’s actions and inactions, never mind try to understand the intent of such practices?

The search for management in the past and its integration with present knowledge requires a paradigm shift. Once we break down prevailing archetypes such as “traditional agriculturalists as landscape destroyers” or “hunter-gatherers as non-managers,” expanded descriptions of human-environmental interactions begin to emerge. This rethinking of old paradigms is clearly exemplified by the contributions of Deur, Ford and Nigh, and Weiser and

Lepofsky in this issue. To better understand TREM, researchers need to be willing to explore the full potential of human-environmental interactions. Furthermore, as Lertzman suggests here, we need to accept that our inability to document intent to conserve or manage in past systems is not proof of the absence of such intentions, and that the failure to conserve among some does not signal the absence of a conservation ethic among others. Finally, researchers may need to employ multiple lines of evidence from diverse disciplines to detect the more subtle human-environmental relations of the past. Ford and Nigh, Smith, and Weiser and Lepofsky in this volume take such a multivariate approach.

Other issues arise when trying to actually integrate TREM into modern management contexts. In fact, many scholars object to the very term "management" in the context of indigenous and local knowledge, arguing that it compartmentalizes and isolates the knowledge and practices from their cultural contexts (Fowler and Lepofsky in press). For many indigenous peoples worldwide, interactions between people and their environment are often integrated in a web of ordinary and extraordinary events, which may or may not have "resource management" as an explicit goal. Such interactions may be guided simply by their understanding of "the right way to do things," or more specifically, by practical or spiritual goals (e.g., Deur, Turner et al., Wyndham this volume). For these researchers, unraveling these "subtle ecologies" from this cultural context, and then applying them in a western management setting, risks losing the threads that hold together these management systems. Lertzman suggests in his paper that the more encompassing term "management systems" better reflects the reality that all management practices (indigenous and western alike) are embedded in and guided by societal world views.

Ethnobiology is an interdisciplinary field based on integrating ecological knowledge of the past and present. As such, ethnobiologists are ideally situated to span the cultural divide between academic disciplines and western and non-western ecological knowledge and practice (Lertzman this volume; Nabhan 2009). Such integration forces us away from the obvious and easy conclusions about human-environmental interactions towards new ways of looking at these relationships. Wyndham's paper in this issue, for instance, offers a framework that helps us, as outsiders, understand how the Raramuri conceptualize relationships between people and other living beings. Similarly, Smith's contribution here expands our understanding of human-environment relations among pre-contact societies of the Mississippi River Valley by focusing on how ecological knowledge and management practices lead to sustainability (see also papers by Deur and Ford and Nigh).

Although the authors of this volume have diverse backgrounds, they are joined by the view that such integration of knowledge is a productive and valuable way of exploring resource and environmental management. Some of the contributors are archaeologists who work primarily with the bits and pieces of material culture that represent past management practices, while others are cultural anthropologists who work with living knowledge keepers or ethnographic texts. All, however, see the importance of integrating cultural and biological knowledge at different spatial and temporal scales. Lertzman comes to

the discussion as an applied ecologist who integrates western management with approaches and ideas of indigenous management systems. From this perspective, he argues that there is less of a divide between western and non-western management than has been suggested by ethnobiologists and anthropologists more broadly. While some ethnobiologists may object to the idea that there is considerable common ground between traditional and modern management, this perspective provides a foundation for integrating management systems cross-culturally.

With the exception of the Turner et al. paper, which has global coverage, all other contributions in the volume are focused on the Americas. However, the themes that arise from the papers, and the data on which they are based, are relevant universally. Collectively, the papers bring together the multiple lines of information used by ethnobiologists to bridge the past and the present: direct observations and conversations with ecological knowledge keepers, ethnographic and historical documentation, archaeological remains, and paleo- and neo-ecological records. CMTs, in some ways like today's traditional ecological knowledge holders, are particularly valued as sources of data because they are living legacies of past management systems. Similarly, the structures of many of today's ecosystems are also legacies of, and sources of data about, past management. This is exemplified in the Deur, Ford and Nigh, and Weiser and Lepofsky contributions in this volume.

The papers here document the breadth of traditional management practices. In the highlighted case studies, paralleling other parts of the world, people use well established biophysical (e.g., weeding, replanting and transplanting) but also spiritual practices (e.g., Deur, Wyndham, Turner et al.) to maintain or increase biodiversity and abundance, particularly of early successional species. As Lertzman points out, many of these same practices (such as size- or species-selective harvesting) are also used in modern management contexts. The contributions of Deur, Ford and Nigh, Smith, and Weiser and Lepofsky further expand our understanding of these practices by documenting them in places and times that have previously been under-explored in the scholarly literature.

Beyond documenting the depth and breadth of TREM, the authors in this volume are interested in understanding what we can bring from TREM to the management of today's ecosystems. In many places, the cessation of traditional management practices has resulted in a loss of species abundance and diversity (e.g., Deur, Weiser and Lepofsky) as well as cultural diversity (e.g., Turner et al.). These losses challenge us to make thoughtful societal decisions about what is "natural" and for what qualities of ecosystems we want to manage (e.g., esthetics, diversity, food security, heritage, etc.). Garibaldi's paper in this volume on the application of the cultural keystone species (CKS) concept to restoration ecology is just one example of ways ethnobiologists are working to reconnect people to their landscape and resources—even when the landscape has been severely altered by development. The CKS concept is an ethnobiological approach at its core because it recognizes that people can interact with and experience individual plant and animals in multi-dimensional ways. Garibaldi's case study also shows us that while we can more easily reestablish culturally

important resources, it is much harder to heal the broken spiritual connections between people, place and other living beings.

Collectively, the papers in this special issue take us one step further towards understanding the breadth of beliefs, knowledge and practice that are incorporated into traditional resource management—both past and present. As a result, we are better situated both to honor this knowledge and to incorporate it into the conservation of today's natural and cultural landscapes.

Acknowledgements

Many thanks to Ginny Popper and Heather Trigg for their enormous support in putting together this special issue, and to the contributors who graciously addressed my multiple edits. Also, a huge thanks to the 2009 SFU Field School students who put up with me editing this volume at the same time as running a field project.

References Cited

- Berkes, Fikret and Nancy J. Turner.
2006 Knowledge, learning and the evolution of conservation practice for social-ecological system resilience. *Human Ecology* 34:479–494.
- Foster, David R.
2000 From bobolinks to bears: interjecting geographical history into ecological studies, environmental interpretation, and conservation planning. *Journal of Biogeography* 27:27–30.
- Fowler, Kay and Dana Lepofsky.
In press Traditional resource and environmental management. In *Ethnobiology*, ed. G. Anderson. Wiley-Blackwell, New York.
- Frazier, J.
2007 Sustainable use of wildlife: The view from archaeozoology. *Journal for Nature Conservation* 15:163–173.
- Gould, Richard A.
1980 *Living Archaeology*. Cambridge University Press, Cambridge.
- Haggan, Nigel, Nancy Turner, Jennifer Carpenter, James T. Jones, Quentin Mackie, and Charles Menzies.
2006 12,000+ Years of change: linking traditional and modern ecosystem science in the Pacific Northwest. *Working Paper Series* 2006-02. Fisheries Center, University of British Columbia, Vancouver.
- Hayashida Frances, M.
2005 Archaeology, ecological, history, and conservation. *Annual Review of Anthropology* 34:43–65.
- Heckenberger, Michael, Afukaka Kuikuro, Urissapa Tabata Kuikuro, J. Christian Russell, Morgan Schmidt, Carlos Fausto, and Bruna Franchetto.
2003 Amazonia 1492: Pristine forest or cultural parkland? *Science* 301: 1710–1714.
- Jackson, Jeremy B.C., Michael X. Kirby, Wolfgang H. Berger, Karen A. Bjorndal, Louis W. Botsford, Bruce J. Bourque, Roger H. Bradbury, Richard Cooke, Jon Erlandson, James A. Estes, Terence P. Hughes, Susan Kidwell, Carina B. Lange, Hunter S. Lenihan, John M. Pandolfi, Charles H. Peterson, Robert S. Steneck, Mia J. Tegner, and Robert R. Warner.
2001 Historical overfishing and the recent collapse of coastal ecosystems. *Science* 293:629–658.
- Johnson, David C., Timothy A. Kohler, and Jason Cowan.
2005 Modeling Historical Ecology, Thinking about contemporary systems. *American Anthropologist* 107:96–107.
- Lepofsky, Dana, Emily K. Heyerdahl, Ken Lertzman, Dave Schaepe, and Bob Mierendorf.
2003 Climate, humans, and fire in the history of Chittenden Meadow. *Conservation Ecology* 7:5. Available at: <http://www.consecol.org/vol7/iss3/art5> (verified 21 September 2009).
- Lyman, R. Lee and Kenneth P. Cannon, editors.
2004 *Zooarchaeology and Conservation*

- Biology*. The University of Utah Press, Salt Lake City.
- Nabhan, Gary.
 2009 Ethnoecology: Bridging disciplines, cultures, and species. *Journal of Ethnobiology* 29:3–7.
- Pauly, Daniel.
 2001 The importance of the historical dimension in policy and management of natural resource management systems. In Proceedings of the INCO-DEV International Workshop on Information Systems for Policy and Technical Support in Fisheries and Aquaculture, eds. E. Feoli and C.E. Nauen. ACP-EU Fisheries Research Report 8:5–10.
- Willis, K.J., L. Gillson, and T.M. Brncic.
 2004 How “virgin” is virgin rainforest? *Science* 304:402–403.
- Wobst, H. Martin.
 1978 The archaeo-ethnology of hunter-gatherers or the tyranny of the ethnographic record in archaeology. *American Antiquity* 43:303–309.