

**CHANGES IN FEDERAL AGENCIES PANEL:
HUMAN DIMENSIONS RESEARCH AND
ECOSYSTEM MANAGEMENT:
POLICY AND RESEARCH IMPLICATIONS
FOR RECREATION RESEARCH EFFORTS**

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With an increased emphasis being placed on ecosystem management, the importance of Human Dimension Research (HDR) efforts in management and policy formulation are becoming more important. Developing an understanding of the type of management questions and policy needs that can be addressed by human dimension research is becoming increasingly important and timely. This presentation describes some of the changes occurring in natural resource research efforts relative to human dimensions.

Introduction

In Lewis Carroll's *The Adventures of Alice in Wonderland*, Alice spies a strange-looking rabbit, follows it down a hole and ends up trying to get through a door that is much too small for her. In some ways we are faced with a similar analogy in natural resource management. We have been confronted with a creature called "heightened public awareness" in the management of our natural resources, and followed that creature along unfamiliar terrain (public involvement in decision-making) and have come to a door that is difficult for us to get through (actually integrating the social sciences into policy and decision-making).

At times it appears like the prime directive of natural resource agencies has shifted from "what can we do for the public" to "what can the public do to us?" From a national perspective, questions such as value (Brown, 1984; Bengston, 1993), the impact of attitudes on behavior (Vincent and Fazio, 1992), and the relationship between environment usage and the impact upon social structures (Force, Machlis, Zhang, and Kearney, 1993) are not always easy to ascertain from local-based public meetings and issues. Many of the problems society now faces in the management of its natural ecosystems transcend easy solutions because they are global in nature, represent a longevity of neglect, are cross-cutting in political boundaries and scientific disciplines, involve damage that, in some cases, is irreversible and will require long-term, expensive solutions. From an ecosystem perspective, reality suggests that while the goal of management may be to understand and maintain biodiversity at the genetic, species, and ecosystem levels the fact is that human populations are consuming the ecological capital of the world at ever increasing rates.

What is needed is a re-examination of how research involving the social sciences can be more effectively used to aid in the development of natural resource policy and ecosystem management. Accordingly, this paper will review some of the current issues surrounding science and ecosystem management, discuss some potential roles that the social sciences can play and propose some questions that Human Dimensions Research (HDR) can address that may aid natural resource management.

For this paper, Human Dimensions Research is defined as: "The scientific investigation of the physical, biological, sociological, psychological, cultural, and economic aspects of communities and individuals in relation to the use and appreciation of natural resources.

Current Issues

Botkin (1990) suggests that the various constituents in environmental policy-making play different roles. According to Botkin (1990), the most appropriate source of identifying what goals natural resource management should strive for are the citizens. On the other hand, experts can be used to identify what goals are possible and how these goals can be realized, given the characteristics of the specific natural systems. Government can best be used to ensure standards of knowledge and/or actions of the experts and in identifying and implementing the regulation of practices and policies that ultimately help realize the goals desired by the citizens.

Institutions and agencies of every kind have sometimes misconstrued this mandate by assuming that public involvement and awareness will automatically change public behavior and garner public support. However, it comes as no surprise to those in the social and human behavior sciences, that such reasoning often flies in the face of scientific findings and past history. In this case, science is unambiguous about the ambiguous nature of human behavior being shaped by a variety of internal and external factors (Brislin, et. al., 1986; Clark, 1992; Krahe, 1992)

Moreover, the demands being placed on science by management and policy-making needs are increasing and becoming more complex. Essentially, these demands include four general categories or demands: (1) prediction, (2) policy development, (3) impartial fact finding and (4) inventory and monitoring capabilities.

Given these conditions, what are some components that would constitute a successful Human Dimensions Research program? First and foremost, scientific credibility is of utmost importance. Without it, findings from Human Dimensions Research efforts will be regarded as based on opinion and "common sense" or in a worst case scenario, not even be considered in the policy and decision-making arena.

Other considerations include examining systems instead of focusing solely on the components of those systems, anticipating future events and issues that generate needs for research, developing research that is policy-relevant but not necessarily policy-driven and develop research efforts that are consistent and responsive to broad-based mandates such as those from Congress or scientific academies. In addition, because of the growing complexity and interconnectedness of many of the natural resource issues facing society, successful research programs will increasingly entail efforts that are multi-disciplinary and multi-scale as well as providing aids to decision-making in an adaptive management setting.

Barriers to Human Dimensions Research

There exist, however, a number of potential barriers that can potentially interfere with the development of successful research programs in Human Dimensions Research. At the national level, there is a lack of effective leadership and coordination. Great ambiguity exists concerning what Human Dimensions Research is and what it can contribute to policy development and decision making. Other barriers include the persistent belief that Human Dimensions Research and the social sciences, in general, are less important than the biological and physical sciences. When considering questions that have a social science application, there exists a preponderance of economic viewpoints and methodology. The broad range of other social sciences such as anthropology, social psychology, and political science are often not considered as useful in generating valuable information. Finally, funding levels have not been responsive to the growing

importance of human dimensions with much more funding being allocated to the physical and biological sciences instead of the social sciences. This is true, even though the questions being studied are often human-centered.

Failure to Implement

Failing to implement a comprehensive program in Human Dimensions Research will degrade the capability of the land management agencies and associated institutions from implementing a broad range of effective management strategies. Several of these impacts are listed in Table 1.

Table 1. Impacts from not having a human dimensions research program.

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- Lack of understanding public preferences, motivations, and desires
 - Decreasing ability to communicate with public
 - Reduced understanding of human/natural environment interactions
 - Reduced ability to anticipate and plan for future changes
 - Loss of full capability to develop strategies for environmental stewardship
 - Decreased effectiveness of multi-dimensional programs (e.g., T&E species)
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As can be seen from Table 1, the results of not instituting a Human Dimensions Program involve a wide variety of negative outcomes. There already exists a number of natural resource problems that have demonstrated a lack of attention paid to the human dimension. These issues include the Spotted Owl, anadromous fish, and public mistrust of government's willingness to safeguard the natural resource base.

Policy and Management Issues

Given these concerns what are some of the research issues that are related to human dimensions needs of specific policies and management decisions. A sample of these issues are listed in Table 2.

Table 2. Potential human dimensions research issues.

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- What is the nature of resource conflict?
 - How do people "perceive" and "value" natural resources?
 - What societal changes will impact resource management and how will these impacts be manifested?
 - What are the driving forces behind biodiversity loss and ecosystem destruction?
 - What are the costs and benefits of resource development from a multi-attribute standpoint?
 - How can human behavior be modified to mitigate impacts?
 - What are the effects of environmental degradation on human health and well-being?
 - How can distributive justice and procedural fairness be instituted?
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Bormann (1993) posits that concepts of the environment such as sustainability, forest health, biodiversity, and ecosystem management are essentially human constructs that serve as expressions of human values. Clark and Stankey (1994) suggest that agencies and institutions are poorly equipped to develop a thorough understanding of human dimensions issues. Machlis (1992) makes the observation that biologists, ecologists, and other natural science professionals are now faced with a hard reality: ultimate solutions to natural resource problems lie in social, cultural, economic and political systems; the very systems that are the focus of the social sciences. Holden (1988) has argued that:

The social sciences have lagged far behind in assessing the interactions between physical changes and human activities. Far more is known about the processes of global warming, deforestation, resource depletion, and pollution than about the processes of the human institutions that create these effects.

What is needed is a re-examination of the role the social sciences and Human Dimensions Research should assume in current and future natural resource management issues. How successful the natural resource community is at integrating the social sciences through a Human Dimensions Research program will determine, in large part, how effective any emerging long-term solutions to these various resource issues will be. Failing to include people into the natural resource equation spells problems for both society and the social science disciplines.

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