United States
Department of
Agriculture

Forest Service

Pacific Northwest
Research Station

General
Technical Report
PNW-GTR-369
August 1996

Defining Social Acceptability in Ecosystem Management: A Workshop Proceedings

Technical Editors

MARK W. BRUNSON is an assistant professor of forest resources, Utah State University, Logan, UT 84322. LINDA E. KRUGER is a research soil scientist, U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, 4043 Roosevelt Way NE, Seattle, WA 98105.: CATHERINE B. TYLER is a social science technician, U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, 4043 Roosevelt Way NE, Seattle, WA 98105. SUSAN A. SCHROEDER is a graduate student in forest resources, Utah State University, Logan, UT 84322. Published by the Pacific Northwest Research Station as part of the program of work by the People and Natural Resources Research, Development, and Application Program and the ConsoRtium for the Social Values of Natural Resources.

Disclaimers

Papers were provided in camera-ready form for printing by the authors, who are therefore responsible for the content and accuracy. Opinions expressed may not necessarily reflect the position of the U.S. Department of Agriculture.

The use of trade, firm or corporation names in this publication is for the information and convenience of the reader. Such use does not constitute an official endorsement or approval by the U.S. Department of Agriculture of any product or service to the exclusion of others that may be suitable.

Defining Social Acceptability in Ecosystem Management: A Workshop Proceedings

Kelso, Washington
June 23-25, 1992

Mark W. Brunson
Linda E. Kruger
Catherine B. Tyler
Susan A. Schroeder

Technical Editors

Published by:
U.S. Department of Agriculture, Forest Service
Pacific Northwest Research Station
Portland, Oregon
General Technical Report PNW-GTR-369
August 1996

Abstract

Brunson, Mark W.; Kruger, Linda E.; Tyler, Catherine B.; Schroeder, Susan A., tech. eds. 1996. Defining social acceptability in ecosystem management: a workshop proceedings; 1992 June 23-25; Kelso, WA. Gen. Tech. Rep. PNW-GTR-369. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 142 p.

This compendium of papers was developed in response to the assumption that implementing an ecological approach to forest management requires an understanding of socially acceptable forestry -- what it is and the implications of doing it. The papers in this collection bring to bear perspectives from a variety of social science disciplines and question whether the focus on social acceptability is an appropriate and useful one.

Keywords: Ecosystem management, social acceptability, environmental ethics, social values, landscape aesthetics, public participation.

Contents

1 **Introduction: Social Acceptability in Ecosystem Management**
Mark W. Brunson and Linda E. Kruger

7 **A Definition of "Social Acceptability" in Ecosystem Management**
Mark W. Brunson

17 **My Talk to the Forestry Class**
Chris Anderson

25 **Leopoldian Forestry and the Ethical Acceptability of Forest Practices**
Peter List

37 **Social Acceptability in Anthropology and Geography**
Richard Hansis

49 **Socially Acceptable Forestry: Mediating a Compromise or Orchestrating the Agenda?**
Walter F. Kuentzel

65 **The Public, the Forest, and the U.S. Forest Service: Understanding Attitudes Towards Ecosystem Management**
Katrina Rogers

77 **Forest Aesthetics, Biodiversity, and the Perceived Appropriateness of Ecosystem Management Practices**
Paul H. Gobster

99 **Defining the Social Acceptability of Forest Management Practices and Conditions: Integrating Science and Social Choice**
George H. Stankey

113 **The Social Context of Ecosystem Management: Unanswered Questions and Unresolved Issues**
Mark W. Brunson

127 **Bibliography**

This page is intentionally left blank.

Introduction:
Social Acceptability in Ecosystem Management

Mark W. Brunson
Linda E. Kruger

In June 1992, the USDA Forest Service adopted ecosystem management, defined by then-Chief F. Dale Robertson as "the use of an ecological approach to achieve multiple-use management of the national forests and grasslands by blending the needs of people and environmental values in such a way that the national forests and grasslands represent diverse, healthy, productive, and sustainable ecosystems.[1]" To meet that objective, forest managers need to know not only how natural systems function and are sustained, but also how social systems function and are sustained in their relationships with natural systems. In other words, they need to be able to do sustainable and socially acceptable forestry. This publication explores some of the implications of doing socially acceptable forestry.

The articles contained in this report arose from a workshop held just about the same time that Robertson was making his historic announcement. A small group of social scientists and humanists from around the U.S. had been invited to discuss the meaning of "social acceptability" in the context of the Forest Service's New Perspectives program, which was a precursor of ecosystem management. The workshop took place June 23-25, 1992 in Kelso, Washington, a timber town in the heart of the Pacific Northwest. It was organized not in anticipation of Robertson's announcement, but in response to previous work by Stankey and Clark (1991), who had conducted a problem analysis of social science aspects of implementing the New Perspectives program. One of their conclusions was that "there is inadequate understanding of what constitutes 'acceptability' with regard to the practice of New Perspectives and of the associated impacts of these differing conceptions" (p. 23). The Kelso workshop offered a way to broaden that understanding.

While the Kelso workshop happened over three years ago, the papers developed from the experience retain their value. The shift from New Perspectives to ecosystem management has not lessened the need to understand why the public finds some management practices acceptable and others not acceptable, why some practices are

---

MARK BRUNSON is an assistant professor of forest resources, Utah State University, Logan UT 84322.
LINDA E. KRUGER is a research social scientist, Pacific Northwest Research Station, USDA Forest Service, 4043 Roosevelt Wy NE, Seattle, WA 98105.

[1] Robertson, F. Dale. 1992. Memo to Regional, Forest, and Research Station Directors, June 1992. On file with the authors.

acceptable in some situations or locations but not in others, or why some practices may be acceptable but still are opposed.

One shift that has occurred since the workshop is the increasing recognition of the importance -- and value -- of public participation throughout the planning and decision-making process, from the initial thinking about an activity through its implementation. As mentioned in some of the papers that follow, providing a meaningful role for the public in decisionmaking seems to be a key factor in whether people can live with a project or not, and is part of the process of social learning (Friedmann 1987) that also encompasses adaptive management (Lee 1993).

In addition to an ecosystem approach, resource agencies are embracing an adaptive approach to management. An adaptive management approach views management as an experiment - a process of learning from experience whereby we increase our understanding of the reciprocal Relationship between natural systems and social systems across time and space. It speaks to the question of acceptability as it builds on relatedness across social and natural systems, and recognizes the complexity involved. It also recognizes the particularity of specific places (Agnew and Duncan 1989; Entrikin 1989; Sack 1992) and the fusion of experience and context (Sack 1980). These aspects are elaborated in the papers that follow.

Social learning, both in terms of process and outcome, provides opportunities for both public learning, whereby citizens learn about their own and others' interests, and organizational learning, whereby professionals learn about the conditions affecting and affected by alternate courses of action (Shannon 1991)[2]. This shared experience of knowledge-gathering may help expand the range of what is acceptable in any particular situation while helping professionals more finely tune their approaches to mesh with public desires. The Kelso workshop helped set the stage for social learning to occur.

The workshop began with a field tour which included timber harvest units, an abandoned sawmill site, and unmanaged forest stands. Following the tour, we sat down to discuss how different academic disciplines would approach the problem of determining if the forestry practices and conditions associated with ecosystem management are -- or could become - socially acceptable. The following articles were not presented at the workshop, but were generated and/or shaped by the discussions that took place there. Not all of the participants contributed papers,[3] and one essay was contributed by a writer who was unable to attend, but they reflect the spirit and the intellectual diversity of the workshop. Each one offers thoughtful insight into the theoretical and practical issues of social science underlying U.S. public land management in the 1990s.

---

[2] Shannon. Margaret A. 1991. Building public decisions: learning through planning, an evaluation of the NFMA forest planning process. A paper written for the Office of Technology Assessment. On file with the authors.

[3] Workshop attendees, and their organizational affiliations at that time, were: Mark Brunson. Oregon State University; Paul Gobster, USDA Forest Service, North Central Forest Experiment Station; Richard Hansis, Washington State University-Vancouver; Linda Kruger, USDA Forest Service, Pacific Northwest Research Station; Walter Kuentzel, University of Wisconsin; Bernard Lewis. University of Minnesota; Peter List, Oregon State University; Katrina Rogers, High West Center for Environmental Policy; George Stankey, Oregon State University; Kerry Vachta, Michigan State University.

In the first paper, “A Definition of Social Acceptability’ in Ecosystem Management,” Mark Brunson responds to Stankey and Clark’s (1991) challenge about inadequate understanding of the meaning of acceptability. He offers a working definition of social acceptability which is based partly on the literature in various social science disciplines, as well as qualitative survey research he undertook in response to Stankey and Clark’s problem analysis. His discussion focuses on four aspects of his definition which can have important implications for ecosystem managers: the social context in which individual judgments are made; factors which typically influence the comparative process; behavioral expressions of acceptability judgments; and the challenges of observing and measuring acceptability.

Natural resource professionals manage for an aggregate we call “the public.” Yet that public is comprised of individuals, each of whom makes his or her own acceptability judgments. In a personal essay, “My Talk to the Forestry Class,” Chris Anderson describes some of the complexity of factors that enter into those individual judgments. The author, an essayist and writing teacher, discusses how he reacted to changes in the forest adjacent to his home when it became the site of a study examining the silvicultural, ecological, and socioeconomic impacts of ecosystem management silviculture. He finds that despite his initial opposition to the kinds of timber management that might be indicated by an ecosystem management approach in the Pacific Northwest, he’s less displeased about the results than he had expected.

Many elements of ecosystem management are intended not to produce solutions that are right from a scientific standpoint but rather are right from an ethical standpoint. lncorporating public opinion, accounting for noninstrumental values, giving equal weight to species — all are ecosystem management objectives that are intended to make natural resource management more equitable. In “Leopoldian Forestry and the Ethical Acceptability of Forest Practices,” Peter List outlines trends in the literature of environmental ethics that are reflected in the new approaches to national forest management. Then, using data from two surveys that measured attitudes toward forest management and environmental ethical judgments, he describes how philosophical orientations to the natural world are reflected in public opinion about forests and their management.

Approaching the question of acceptability from a cultural perspective, anthropologist Richard Hansis addresses the importance of meanings and the relationships among meanings, values, beliefs, and knowledge. In “Social Acceptability in Cultural Anthropology and Human Geography,” Hansis explores the literature on innovation and the acceptance of new ideas, suggesting the concept of “cultural consistency” as a criterion of acceptability. He demonstrates the importance of context and the risk of underestimating the power of symbolic meanings embedded in place. Hansis develops a five-step approach to gaining a better understanding of the acceptability of management practices.

Walter Kuentzel brings the writings of mainstream sociology to bear on the issue of social acceptability. In “Socially Acceptable Forestry: Mediating a Compromise or Orchestrating the Agenda?” he considers whether the consensus-building orientation of ecosystem managers is legitimate. He argues that while the Forest Service and the forestry profession view themselves as neutral mediators of a sort — “stewards of the common

ground" — they are far from disinterested participants. Instead, Kuentzel says, they compete along with other interests for public support of a particular "acceptable" agenda, and so their ability to gain acceptance may require a better understanding of their own roles.

In "The Public, the Forest, and the U.S. Forest Service: Understanding Attitudes Toward Ecosystem Management," Katrina Rogers argues that understanding whether the public values ecosystem management requires a more direct assessment of the historical context upon which values are based, as well as of the current political climate which shapes people's attitudes. She traces the history of attitudes toward forests in European-American society, and discusses how social values concerning forests are reflected in the public policy arena. She also bridges the gap between the literature of social values and the practice of gauging those values, offering for foresters' consideration a potential instrument for measuring social acceptability.

Paul Gobster also offers a practical tool for ecosystem managers in "Forest Aesthetics, Biodiversity, and the Perceived Appropriateness of Ecosystem Management Practices." He describes how the biological objectives of ecosystem management may conflict with the aesthetic objectives of many who value natural landscapes as scenery, and suggests that society may not be able to quickly adopt the "ecological aesthetic" espoused by Aldo Leopold and others. Having identified this quite fundamental problem, he promptly offers a way to solve it by introducing the concept of "appropriateness" as a short-term alternative for resolving perceived conflicts between aesthetic and biodiversity values. He outlines how perceptions of appropriateness might be studied and used in the context of ecosystem management practices.

The first attempt to apply ecosystem management on a large scale was the Forest Ecosystem Management Assessment Team (FEMAT) process conducted in the spotted owl region of the Northwest in 1993. As a key FEMAT scientist, George Stankey learned first-hand how few people were satisfied by the process or its outcome. The experience brought home the difficulty of finding solutions that are both ecologically appropriate and socially acceptable. His article, "Defining the Social Acceptability of Forest Management Practices and Conditions: lntegrating Science and Social Choice," outlines four basic questions that require attention in order for such integration to take place. The answers to those questions will go a long way toward determining what is managed, who it's managed for, and the institutions developed to maintain a dialogue between managers and publics about social acceptability.

The last paper, "The Social Context of Ecosystem Management: Unanswered Questions and Unresolved Issues," considers emerging problems associated with ecosystem management as an idea, about its implementability, and about specific aspects of ecosystem management practices and conditions. Mark Brunson discusses issues raised by national forest stakeholders who were surveyed as part of his 1991-92 study of the social acceptability of non-traditional timber management - particularly those associated with risk and uncertainty — as well as ones arising from the Kelso workshop. Like Stankey, he is concerned about reconciling ecological and social objectives, and argues that the most basic question may be whether the ecosystem management concept itself is acceptable. He discusses why this question has not been asked, as well as potential answers.

Finally, a bibliography of sources is offered which incorporates readings from a variety of academic disciplines. Compiled by the workshop participants, it focuses most heavily on the contributions of writers working outside the realm of natural resource management. Its aim is to identify works that are less well-known to scientists, managers, and others working in ecosystem management, but which may be useful to those interested in learning more about society's relationship with natural resources and the environment.

This report, as well as the workshop which generated it, is a product of the Pacific Northwest Research Station's People and Natural Resources Research, Development and Application (RD&A) Program in Seattle, WA. Work on the issue of social acceptability continues through research sponsored by the Program. For example, a recent publication by Bruce Shindler and others (1995) documents findings from a study of acceptability conducted in Southeast Alaska in 1994.4

It is our hope that the articles and references provided here will help managers and others as they consider issues surrounding the acceptability of management practices.

Literature Cited

Agnew, John A.; Duncan, James S. 1989. Introduction. In: Agnew, John A.; Duncan, James S. The power of place: bringing together geographical and sociological imaginations. Winchester, MA: Unwin Hyman: 1-8.

Entrikin, J. Nicholas. 1989. The betweenness of place: towards a geography of modernity. Baltimore: The Johns Hopkins University Press. 196 p.

Friedmann, John. 1987. Planning in the public domain: from knowledge to action. Princeton, NJ: Princeton University Press. 501 p.

Lee, Kai, 1993. Compass and gyroscope: integrating science and politics for the environment. Washington, D.C.: lsland Press. 243 p.

Sack, Robert David, 1980. Conceptions of space in social thought: a geographic perspective. Minneapolis: University of Minnesota Press. 231 p.

Sack, Robert David. 1992. Place, modernity, and the consumer's world. Baltimore: The Johns Hopkins University Press. 256 p.

Shindler, Bruce; Peters, Jim; Kruger, Linda. 1995. Social values and acceptability of alternative harvest practices on the Tongass National Forest. Corvallis, OR: Oregon State University. 97 p.

Stankey, George H.; Clark, Roger N. 1991. Social aspects of new perspectives in forestry: a problem analysis. Milford, PA: Grey Towers Press. 33 p.

---

4 A synthesis of this report is available from the People and Natural Resources RD8A Program, Seattle Forestry Sciences Laboratory, 4043 Roosevelt Way NE, Seattle, WA 98105. Ask for Challenges #11 "Timber Harvesting on the Tongass: What's Important to Local Citizens."

This page is intentionally left blank.

A Definition of "Social Acceptability" in Ecosystem Management

Mark W. Brunson

Abstract

Brunson, Mark W. 1996. A definition of "social acceptability' in ecosystem management. In: Brunson, Mark W.; Kruger, Linda E.; Tyler, Catherine B.; Schroeder, Susan A., tech. eds. Defining social acceptability in ecosystem management: a workshop proceedings; 1992 June 23-25; Kelso, WA. Gen. Tech. Rep. PNW-GTR-369. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station: 7-16.

Social "acceptability" is one of three criteria that are supposed to guide ecosystem management decisions, yet a recent problem analysis found "there is an inadequate understanding of what constitutes 'acceptability' with regard to [ecosystem management]." Based on research undertaken in response to that analysis, this paper offers a working definition of social acceptability. Subsequent discussion focuses on the implications for ecosystem managers of four aspects of that definition: the social context of individual judgment, influences upon the comparative process, behavioral expressions of acceptability judgments, and observation/measurement issues.

Keywords: Mixed scanning approach, attitudes, behaviors, ecosystem management, social acceptability.

Introduction

This collection of papers culminates a research effort with a deceptively simple objective: to define "public acceptability" with regard to management practices and conditions in the national forests. When the USDA Forest Service's New Perspectives in Forestry research initiative was launched in 1990, its goals were to identify practices and policies that could (1) "maintain biodiversity" while (2) managing forests "to balance values and produce a sustained supply of goods and services" (Stankey and Clark 1991, p. 12). The word acceptability appears in neither of those goals. Yet clearly an underlying impetus for New Perspectives was widespread and growing skepticism about the Forest Service's ability to sustain both the flow of resources and the forests that provide those resources. Simply put, the public increasingly found practices and conditions on the national forests to be unacceptable, and the Forest Service needed to find ways to reverse that trend.

MARK BRUNSON is an assistant professor of forest resources at Utah State University, Logan, Utah, 84322.

If public acceptability is to be an explicit objective of national forest management, the Forest Service will require methods to measure acceptability of current practices, predict acceptability of proposed practices, and understand the reasons for failures to achieve acceptability. Yet when Stankey and Clark (1991) evaluated social science research problems associated with New Perspectives, they found that "there is inadequate understanding of what constitutes 'acceptability' with regard to the practice of New Perspectives and of the associated impacts of these differing conceptions" (p. 23).

Consequently the study was launched which ultimately produced this document as well as other papers exploring meanings of acceptability in a forestry context (Brunson 1992[1], 1993; Johnson and others 1994). In the intervening period, New Perspectives has evolved from a research initiative into agency policy, now called "ecosystem management." The latter is described by the Forest Service leadership as "a multiple-use philosophy built around ecological principles, sustainability, and a strong land stewardship ethic, with a better recognition of the spiritual values and natural beauty of the forests" (Robertson 1991, p. 19). Robertson's description implies certain requirements for future practices and conditions on federal forests:

- they must be ecologically sustainable, directing managed forests toward a "desired future condition" which embodies the complexity of ecosystem interrelationships at a variety of spatial and temporal scales;
- they must be economically feasible, meeting societal demands for the myriad products of forests at a cost that does not exceed the priced and unpriced benefits gained; and
- they must be socially acceptable, reflecting a sensitivity toward recreational, aesthetic, spiritual, and other noncommodity values of forests.

The adoption of ecosystem management therefore underscores the need to understand what socially acceptable forestry might be. The objective of this paper is to provide some foundation for that understanding. It offers a working definition of social acceptability, and discusses aspects of that definition that are likely to affect the implementation and evaluation of ecosystem management. The definition represents a synthesis of ideas about public judgment drawn from a number of disciplines including forestry, political science, sociology, psychology, landscape architecture, economics, and philosophy. Many of those ideas were found in an extensive literature review. Others were offered by my collaborators in this document, during a June 1992 workshop in Kelso, Wash., and in the papers subsequently submitted for this collection. Blame for the synthesis, however, is entirely mine.

A Definition of Social Acceptability

The first obvious step toward defining acceptability in a forestry context was to examine current conceptualizations in related applied fields as well as the basic social sciences. However, it quickly became apparent that acceptability itself rarely appears as a rigorously defined concept in basic social science. Authors write of norms, preferences, values, and so on, but it is not clear where acceptability fits in this conceptual framework. Is an

[1] Brunson, Mark W. 1992. Social acceptability of New Perspectives practices and conditions. Final project report prepared for the Cascade Center for Ecosystem Management, Consortium for the Social Values of Natural Resources, Olympic Natural Resources Center, and U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. On file with the author.

"acceptable" condition one which violates a widely shared social norm, for example, or is it simply one that fails to reflect the preferences of whichever constituency group holds the balance of power? How does an 'acceptable" condition differ from a "desired" condition?

If basic social science offered few answers, the forestry literature offered some answers but also created as many new questions. In the Forest Service, the term acceptable may be most familiar as part of the Limits of Acceptable Change system for wilderness planning (Stankey and others 1985). Although the authors did not define what they meant by "acceptable," they used the word in two ways: to describe what is legally permissible under the Wilderness Act of 1964, and to describe what wilderness users agree is desirable as determined during a consensus-driven planning process. What, then, does it mean for a wilderness condition to be "unacceptable"? Since legal mandates carry more weight in public policy than visitor preferences, the consequences of "unacceptability" may vary considerably.

Acceptability is also an objective of visual resource management, as noted in this rather ambiguous passage from a manual published by the British Columbia Ministry of Forests (1981). The agency defined its scenic management challenge as being "to maintain acceptable forest landscapes and, at the same time, ensure that optimum economic and social benefits accrue to the people of the province" (p. 7). This statement seems to imply that acceptability somehow exists apart from economic or social influences, and may even be antithetical to societal needs -- even though clearly it is society which must do the accepting.

Even though the term acceptability is not used, much has been written about the ways by which humans judge environments. Based on this a tentative definition could be crafted:

Social acceptability in forest management results from a judgmental process by which individuals (1) compare the perceived reality with its known alternatives; and (2) decide whether the "real" condition is superior, or sufficiently similar, to the most favorable alternative condition. If the existing condition is not judged to be sufficient, the individual will initiate behavior -- often, but not always, within a constituency group -- that is believed likely to shift conditions toward a more favorable alternative.

Implications of the Definition

Several aspects of this definition have implications for a policy objective of achieving public acceptability in ecosystem management. Acceptability is characterized as a product of individual judgments, but it is susceptible to group influences and provides an impetus for group behaviors. Judgments of acceptability are said to be a result of a comparison process, thereby suggesting that (1) there must be something with which to compare and (2) certain general rules will govern the comparative process. Acceptability is said to be reflected by behaviors rather than simply by attitudes toward a forest practice or condition, although it is understood that behaviors are usually stimulated by attitudes. And finally, acceptability is said to be generally not observable, but rather something that must be inferred from the absence of overt behavior indicating a failure to achieve it.

Individual Judgments in a Social Context

Management decisions regarding government-controlled resources must consider the impacts of those decisions on an aggregation of persons we call the public. Yet really there is no such thing. Public opinion exists only as a "constitutionally institutionalized norm" (Habermas t 989); we behave as though it were something more because democracy cannot function if we do not do so. But "the public" is in fact a constantly shifting set of interpersonal affiliations, each of which can be characterized in terms of positive or negative responses to governmental actions commonly expressed by its members.

Ultimately those responses are the result of individual humans making choices based on available information. Because much of that information is filtered through the network of interpersonal affiliations, individual judgments invariably are based in part on the perceived judgments of reference groups, i.e, groups to which a person belongs (or aspires to belong) which serve as standards for judging appropriate behaviors in situations when more direct cues such as previous personal experience are ambiguous or nonexistent (Shibutani 1955). Few direct cues are available for evaluating ecosystem management due to its newness; therefore, the influence of reference groups may be enhanced.

Carroll (1989) offered a relevant example of reference group influence on judgments about forest management. He found that "negative evaluation of the Forest Service serves as an important unifying theme for loggers in the study area. One logger candidly stated, 'I'm a logger, so I'm supposed to hate the Forest Service" $.101). Therefore it might be difficult for a logger to offer a positive evaluation of a Forest Service initiative such as ecosystem management, especially if it is to be made in a setting where a number of loggers are present and are monitoring each others' responses (e.g., a public involvement meeting).

Efforts to shift a practice or condition from unacceptable to acceptable status (or at least a to a position of neutrality) ultimately must be directed at individuals. Given the polarization that has characterized contemporary disputes between natural resource interest groups, it may be easier to achieve changes in acceptability judgments when individuals are most likely to respond as such, without the attitude-reinforcement dynamic found in group meetings. However, it is much more efficient to target new information at reference groups, which may be relied upon to subsequently influence the judgments of large numbers of their members. Probably the most effective information strategy will be one that targets both groups and individuals.

Dynamics of the Comparison Process

As noted previously, acceptability judgments are comparisons made based on available information. Clearly the first rule of comparison is that there must be a conceivable alternative to the condition or practice being evaluated. Conditions that are seen as unavoidable -- those that may be considered "acts of God" -- lie outside the realm of acceptability judgment no matter how disastrous their consequences might be for natural or human environments. Similarly, no comparison can be made if an alternative exists but the evaluator is not aware of it.

Yet humans also have a psychological need to make attributions -- to assign causes to the behaviors and circumstances we observe. As Heider (1958) pointed out, it is through attribution that we are able to organize the continuous stream of information we receive from the world into meaningful units. Therefore we can expect members of the public to judge forest conditions based on their beliefs about why the condition is present. If it is

perceived to be “natural,” it is likely to be acceptable. This may be true if the natural cause has no alternative or, if an alterative does exist, because ours is a culture which increasingly equates nature with rightness (List, this proceedings). Conversely, if environmental disasters are seen as resulting from human activities or decisions, as many people believed concerning the 1988 fires in Yellowstone National Park (e.g. Buck 1989), the resulting condition may be unacceptable despite its natural origin.

If a forest condition is perceived to have human origin or design, its acceptability is likely to depend upon a judgment about the practice that created it. The acceptability of the practice will depend, at least in part, upon its perceived objective. Surveys conducted during ecosystem management field tours found that the most positive responses commonly referred to the purpose of the new approaches to forestry being demonstrated (Brunson 1992’). Ecosystem management was presented during the tours as an honest attempt to maintain diversity of species and ecosystem components, and tour participants accepted that characterization. As long as that continues to be true, then people may find ecosystem management practices generally acceptable even if they dislike the “sloppy” forest conditions they temporarily create.

Just as a desirable objective can make a somewhat objectionable practice more acceptable, the reverse is also true: the acceptability of the ends may depend on the acceptability of the means employed to achieve it. To be acceptable, ecosystem management must be seen as the best (or a good enough) means to achieve biodiversity and ecological sustainability. To decide which of several alternatives is “best,” an evaluator must weigh the desirability, equitability, and feasibility of each alternative.

The easiest of these factors to evaluate is desirability. Anyone can decide which outcome they, want the most; more information is needed to judge feasibility and equitability. Some evaluators may not possess that information. Foresters sometimes complain that public demands (for example, a ban on clearcutting) are made with little understanding of the consequences. Certainly some people are unaware how much less efficient it is to grow many timber species in an uneven-age condition, and some of those people might find clearcutting more acceptable if they understood all of the economic and biological factors behind a decision to clearcut. It is also true, however, that others would decide that uneven-age silviculture is preferable as long as it is even marginally feasible. The difference is that the evaluation process used by those in the former group put more weight on feasibility; for them, a less feasible alternative may be judged less acceptable even though it promises more favorable results if successful. (Low feasibility here may imply higher economic costs, or a lower probability of success.)

Similarly, a desirable outcome may be rejected if the outcome appears unfair to a particular constituency group. lssues of fairness do enter into natural resource politics. Recent research on attitudes toward forest and rangeland management has suggested that while Americans do want to de-emphasize commodity production, they also worry about the effects of such a change on resource-dependent communities. Thus they repeatedly say that local community needs should receive the highest priority in making decisions about forests or rangelands (Brunson and Steel 1993, Shindler and others 1993), and they prefer that any increase in federal grazing fees be phased in rather than taking place immediately (Brunson and Steel 1993).

Related to both feasibility and equitability is the question of risk. Slovic (1987) characterized risk as two-dimensional: one dimension describing the fatality and global extent of risks, and one describing the extent to which risks are currently known. Forestry ranks low on the first dimension, but high on the second. Because mature forest ecosystems develop slowly, many years can pass between a decision and recognition of its consequences. We can predict the condition an ecosystem management practice will produce in 50 or 100 years, but we have no experimental evidence. Risks of an error in judgment (a decision's ultimate feasibility) are not entirely knowable, and any adverse results are likely to be borne (inequitably) by generations which had no opportunity to prevent its occurrence.

A final general rule governing the acceptability judgment process is that practices and conditions are judged in a geographic context. An obvious example of this is the so-called NIMBY (not in my backyard) syndrome. In a study of the scenic impact of partial-harvest practices associated with ecosystem management, Johnson and others (1994) found that 57 percent of urban/forest interface residents would rate a partial harvest acceptable at an unidentified location, but only 32 percent rated the same scene acceptable in a stand adjacent to their own backyards. The influence of geography is not simply a matter of self-interest, however. An example is offered by the environmental activist who was asked during one ecosystem management field tour how he felt about an experimental harvest unit. He replied that while it illustrated a real step toward sustainable forestry, he was dissatisfied because that watershed had already been extensively logged, and he felt no more harvest there was warranted even if it was designed to enhance biodiversity in the regenerated stand.

Attitude-Behavior Links and the Measurement Problem

Because acceptability is a product of cognitive judgments, it is a description of one's attitudinal orientation toward forest conditions or practices. Yet the definition here refers not to attitudes, but to behaviors. Once a judgment has been made, an evaluator decides what (if anything) to do in response to that judgment. If the judgment is favorable -- i.e, the condition or practice is acceptable -- quite likely no behavior will be initiated. No recreation visit will be cut short; no local TV station will be alerted to "environmental destruction" by the Forest Service; no angry letter will be written to a member of Congress. Because North Americans are much more likely to criticize a bad bureaucracy than to praise a good one, only rarely will a supportive behavior be initiated in response to an acceptability judgment.

If the judgment is not favorable, the evaluator faces a choice: is it so unfavorable that action needs to be taken to shift the condition or practice toward a more acceptable state? Only if the latter choice is made should we say that the situation is "unacceptable" for purposes of ecosystem management. What I am arguing here is that if the evaluation is not sufficiently unfavorable to elicit an ameliorative behavior, the condition really is neither acceptable nor unacceptable, and it is not necessary for a managing agency to respond. This distinction is made for two reasons. The first reason is that people's attitudes may not always reflect the actions they want taken. It makes little sense for managers to try to respond to every shift in attitude even before it is strong enough or stable enough to cause the public to want something done. The second reason is that behaviors can be monitored and measured more easily and more efficiently than attitudes. While periodic "attitude checks" are a critical part of a socially responsive democracy, behaviors provide a more cost-effective early warning system of the need for a change in policy or practice.

Social psychologists have long wrestled with the problem of consistency between attitudes and behaviors. The theory of reasoned action (Ajzen and Fishbein 1980) holds that behavior is linked most consistently with behavioral intention, and even then, circumstances may intervene. For example, I may intend to stop visiting a certain favorite campsite because logging-related sediment has reduced fish populations, but find myself camping there anyway because an alternative site is occupied or because my family prefers that site for other reasons.

Attitudes are less closely related to behaviors. They may change because of new information received before any behavior is instigated. They may never translate into action because the attitude is not held strongly enough to warrant expending the personal resources (time, money, energy) likely to change the situation. Or an individual may prefer not to behave consistently with an attitude because the behavior would not be sanctioned by an important reference group. In each case, action by an agency in response to the attitude is unwarranted, either because the action is unlikely to satisfy the evaluator in the long term, or because the evaluator does not really care whether the action is taken or not.

When behavioral scientists ask research subjects to identify ranges of acceptable and unacceptable conditions, these ranges are not always contiguous (Petty and Cacioppo 1981, Williams and others 1992). Often there is some mid-range situation about which respondents are noncommittal. The definition of acceptability offered here implies that such mid-range evaluations should be considered acceptable even though, in fact, they are not. Elsewhere (Brunson 1993) I have warned that such a consideration could create a situation whereby ecosystem management produces a barely adequate forest (capable of being endured) rather than one that is pleasing to its constituencies (capable of being praised). However, there really are two questions here - one of policy and one of measurement.

The policy question is this: If foresters strive for social acceptability, are they shooting for a suitable target or sinking to an endurable threshold? The answer will depend partly on whether forestry is perceived as a social good or a necessary evil. For example, if one assumes that “the public” views all timber harvest as degrading to the forest, then the task becomes one of defining how much degradation society is willing to withstand. But if one assumes that some timber harvest is desirable -- because it provides products beneficial to society -- while too much harvest is detrimental, the policy objective is more likely to be to strive for a “desired future condition’ rather than a “tolerable future condition.

Clearly the target approach is a more palatable guideline for policy than the threshold approach. We expect our ecosystem managers to seek a desired condition; in fact, the term desired future condition is now part of the Forest Service planning lexicon. But how will managers know whether they are on the proper trajectory toward the desired target? Here is where the measurement issue arises. An agency could continuously monitor public attitudes, repeatedly asking people how they are doing, and succeed primarily in annoying a public that has other things to do than respond to government surveys. Not only would such a program be impossibly cumbersome, but it would detract from the other role of public land managers, which is to make scientifically based professional judgments about ecosystems.

Alternatively, a well-designed and truly collaborative public participation process could be used to define the bounds of possible trajectories. Managers could then choose from among those trajectories based on their scientific knowledge and economic realities. If the participation process is handled properly and repeated often enough, and if the managers are monitoring social behavior sufficiently well to notice when the trajectory no longer falls within the socially defined boundaries, it should not be necessary to monitor attitudes on a continuous basis. Behaviors that indicate unacceptability -- expressions of dissatisfaction, whether through political action or simply "voting with one's feet" -- are more indicative of a real diversion from the optimal trajectory than attitudes which may never lead to behaviors.

This "mixed-scanning" approach (Etzioni 1973) acknowledges that the quest for optimal solutions is rarely attainable under conditions of even moderate uncertainty (Simon 1959), yet it avoids the "tyranny of small decisions" that can arise from an incrementalist, step-by-step approach to planning. Skeptics may notice that mixed-scanning resembles, at least philosophically, the Forest Service planning efforts of the 1980s -- the shortcomings of which contributed greatly to the need to adopt ecosystem management. Yet while those efforts came under heavy and well-deserved criticism, the mixed-scanning approach can be used effectively if the agencies truly watch for signs of unacceptability. Even more importantly, they must be truly willing to make the necessary adjustments if behavioral monitoring or periodic attitude checks make it clear that a practice or condition no longer meets the ecosystem management objective of social acceptability.

Conclusion

One of the continuing problems associated with ecosystem management is the lack of rigorous definitions for its associated concepts. This is not uncommon for an evolving body of theory and practice, and in fact may be symptomatic of the vibrancy of forest science and management. Even definitions of ecosystem management itself tend to lack rigor. Typically they are expressed in generalities, as in Robertson's (1991) definition reprinted in the introduction to this paper, or in terms of objectives as in my own description which immediately follows Robertson's. Nonetheless, these descriptions do have common elements. Ecosystem management is meant to be holistic, incorporating both sociopolitical and biophysical systems. It is meant to focus not on the outputs that flow from the forest, but on the condition of the forest that remains. It is meant to be sustainable, to preserve biodiversity, to reflect the natural processes so that ecosystem integrity is maintained at the landscape level. It is meant to be responsive to the broad range of social values in a way that is equitable to both urban and rural resource-dependent communities.

This list of agreed-upon elements contains a number of vague terms that are troubling to some foresters: holistic, sustainable, biodiversity, ecosystem integrity, social values. In a recent issue of Journal of Forestry, for example, Hill (1993) asks: "What are the key elements of 'forest condition' to be maintained in meeting ecosystem management goals? ... What is a landscape? How large is a landscape?" (p. 34). All are good, basic questions. Foresters' unease is great enough that a committee of the Society of American Foresters chose to omit the word "sustainability" from its land ethic canon because no one could agree on what it was that was to be sustained (Craig 1992).

The attempt in this paper was to provide some structure to at least one of these slippery concepts. A definition of social acceptability was offered that considered such questions as who does the accepting, who the decision is made, what the consequences of a

decision can be, and how to observe acceptability through its consequences. Much more can be said on this issue. Brunson (1993) offers an expanded discussion of the implications of the social acceptability judgment process for ecosystem managers. The papers that follow examine that same issue, and many others. A definition does not solve any of the problems associated with the social acceptability of natural resource management; however, one can hope that it provides a useful framework for beginning the problem-solving task.

Literature Cited

Ajzen, Icek; Flshbein, Martin. 1980. Understanding attitudes and predicting social behavior. Englewood Cliffs, NJ: Prentice-Hall. 278 p.

British Columbia Ministry of Forests. 1981. Forest landscape handbook. Victoria, BC, Canada: lnformation Services Branch, Ministry of Forests. 97 p.

Brunson, Mark W. 1993. "Socially acceptable" forestry: what does it imply for ecosystem management? Western Journal of Applied Forestry. 8(4): 1-4.

Brunson, Mark W.; Steel, Brent S. 1993. National public attitudes toward federal rangeland management. Rangelands 16(2): 77-81.

Buck, Bill. 1989. A Yellowstone critique: something did go wrong. Journal of Forestry. 87(12): 38-40.

Carroll, Matthew S. 1989. Taming the lumberjack revisited. Society and Natural Resources. 2(2): 91-106.

Craig, Ray. 1992. Land ethic canon proposal: a report from the task force. Journal of Forestry. 90(8): 40-41.

Etzioni, Amitai. 1973. Mixed-scanning: a "third" approach to decision-making, In: Faludi, Andreas, ed. A reader in planning theory. Oxford, United Kingdom: Pergamon Press: 217-229.

Habermas, Jürgen. 1989. The structural transformation of the public sphere. Burger, T.; Lawrence, F., translators. Cambridge, MA: The MIT Press. 301 p.

Heider, Fritz. 1958. The psychology of interpersonal relations. New York: John Wiley & Sons. 322 p.

Hill, Lawrence W. 1993. An open discussion is critical. Journal of Forestry. 91(7): 34.

Johnson, Rebecca L.; Brunson, Mark W.; Kimura, Takashi. 1994. Using image capture technology to assess scenic value at the urban/forest interface: a case study. Journal of Environmental Management 40: 183-195.

Petty, R.E.; Cacioppo, J.T. 1981. Attitudes and persuasion: classic and contemporary approaches. Dubuque, IA: William C. Brown. 314 p.

Robertson, F. Dale. 1991. The next 100 years of national forest management. Transactions, North American Wildlife and Natural Resources Conference. 56: 19-21.

Shibutani, T. 1955. Reference groups as perspectives. American Journal of Sociology. 60: 562-659.

Shindler, Bruce; List, Peter; Steel, Brent S. 1993. Managing federal forests: public attitudes in Oregon and nationwide. Journal of Forestry. 91(7): 36-42.

Simon, Herbert A. 1959. Theories of decision-making in economics and behavioral science. American Economic Review. 49(3): 253-283.

Slovik; Paul. 1987. Perception of risk. Science. 236: 280-285.

Stankey, George H.; Clark, Roger N. 1991. Social aspects of New Perspectives in Forestry: a problem analysis. Milford, PA: Grey Towers Press. 33 p.

Stankey, George H.; Cole, David N.; Lucas, Robert C. [and others]. 1985. The Limits of Acceptable Change (LAC) system for wilderness planning. Gen. Tech. Rep. INT-176. Ogden, UT: U.S. Department of Agriculture, Forest Service, lntermountain Forest and Range Experiment Station. 37 p.

Williams, Daniel R.; Roggenbuck, Joseph W.; Patterson, Michael E.; Watson, Alan E. 1992. The variability of user-based social impact standards for wilderness management. Forest Science. 38(4): 738-756.

My Talk to the Forestry Class

Chris Anderson

Abstract

Anderson, Chris. 1996. My talk to the forestry class. In: Brunson, Mark W.; Kruger, Linda E.; Tyler, Catherine B.; Schroeder, Susan A., tech. eds. Defining social acceptability in ecosystem management: a workshop proceedings; 1992 June 23-25 Kelso, WA. Gen. Tech. Rep. PNW-GTR-369. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station: 17-23.

A homeowner recounts his intimate knowledge of the forest land adjacent to his home and shares his thoughts on what makes a forest valuable and a landscape beautiful. He discusses different ways of knowing and seeing the forest, exploring the complexity of the issues and of his experience of the land.

Keywords: Understanding, awareness, values, temporal seeing, affordance, landscape aesthetics.

A Talk Given One October Morning at the Foot of the Clearcut at the End of the 510 Road

I appreciate Mark including me in the class today, asking me to come and say a few things on behalf of the homeowners who live on the edge of the forest -- that species affected by the changes in the habitat. I'm glad to talk about aesthetics and other intangible values implicit in the "New Forestry," since it was aesthetics that brought me to the woods.

I live not far from here, about 15 minutes by foot from that direction (pointing north). Max and I walk this road two or three times a week, in fact (he's whining, straining at the leash to sniff the students circled around us). There's a cut-off trail just about a hundred yards above the house, and we often walk up the 510 road to this clearcut and back. It's a good two miles, and flat.

Walking here today, thinking about what I wanted to say to you, I realized again how little the harvest bothers me anymore. It was over a year ago now that the loggers started in, and I grieved and panicked and wrote letters and attended meetings, and I still wish, very much, that the forest was the way it was before the harvest began. But I have to admit -- and this is a kind of confession, I guess, given some of the things I've written and said -- I

CHRIS ANDERSON is an associate professor of English at Oregon State University. Corvallis, OR, 97331.

have to admit that this morning, as Max and I walked our familiar route, and the clouds kept moving through the trees and changing shape, and the forest kept opening up before us, I was feeling much of my usual solace. I'm a little embarrassed to say this, but the woods are still peaceful and beautiful to me, they still satisfy me deeply, and I've been trying to figure out why. Why hasn't the cutting entirely ruined the forest for me? What makes a landscape aesthetically pleasing?

Right now I can think of 10 factors.

1. Familiarity and Routine

I've wan<ed this road so often I've become comfortable with it, at home, despite the new cutting. It's not just that I'm accustomed to the gaps. It's that walking in the forest through so many moods and seasons I've developed an intimacy with the landscape, both gaps and trees. I know it the way I know a page I've pored over, word for word. Layers keep revealing themselves: a flicker's nest, a deer trail, the broad sweep of the hill.

Other times I'm walking here and I know the forest well enough for it to be neutral, no impediment to my thoughts. I don't have to find my way or see things for the first time and so am free to let my thoughts go, to let a rhythm of thinking and remembering establish itself, and the landscape fades, then, can be taken for granted (though all the while there's this sense of it, still, of its hardness and presence, of the automatic earth my feet keep stepping on, the background of trees: both awareness and forgetfulness, in a balance).

2. The Absence of People

Sometimes I think my main requirement in a landscape is the absence of people and chattering and Pepsi cans and minivans. Until today, Max and I have walked here for months without seeing more than two or three other walkers. Evidence of the human is everywhere, I guess, in the stumps and the flags and the spray painted numbers, but even so the harvested, managed forest is on the other end of the scale from the shopping mall built up the street from our old house in town (over everybody's protest) -- far superior to the new housing development being carved out farther down the mountain. I much prefer stumps and new seedlings and the bare hills to asphalt and foundations and heavy equipment. I'II take any clearcut over any Dairy Queen. What the spirit craves, I think, is its own absence. It longs for the not-human, for the plain fact of things, for the slow growth of leaves, the obvious trunks and branches, the flashing of birds.

I grow so tired of my own voice, so often distort or contaminate what I make or propose, that what I most need is a landscape I didn't invent, some otherness I can't be blamed for and that won't immediately yield to me. We crave forgetfulness.

3. Spatial Definition (or the Aesthetic Success of the Patchcutting)

This strategy of checkerboarding little one acre clearcuts is meant in part to be an aesthetic compromise, a way of extracting some trees without devastating the forest as a whole, and I think it partly works. There are holes in the forest now, small vistas opening up within the larger structure of the trees, but the larger structure of trees still exists, the

patterning of trunks and branches extending off into the distance. It's still a forest. Walking through it you still generally think: trees.

Psychologists talk about *spatial definition" as a key element in the appreciation of a landscape. We like what we can distinguish from other things, see in relation -- foregrounds and background, perspectives. Photographs of open plains or dense forests always score lower in the tests of random participants than scenes of mixed elements, more open forests, fields with houses and barns or small hills. Apparently we have some ancestral memory of getting lost and so have an instinctive need for landmarks.

4. The Solace of Open Spaces

In fact: I kind of like some of the openings the patchcuts create. They let in more sun. There's more sky, more horizon: stars at night, clouds and distant mountains by day. Many of the patchcuts look ragged and junky glimpsed in a row, but sometimes, coming around a corner on this road, you have a view of several interrelated patchcuts that seems like an opening up, an unfolding. Sometimes you get the sense of perspective, interlocking rooms leading your eye off into the distance. There's a pleasing tension between openness and fullness, a suggestion of depth.

Frankly, I don't even mind this clearcut itself (gesturing toward the bare hill behind the class, 40 acres or so-the experimental control for the patchcutting). I wouldn't want the whole forest clearcut, but I have to admit that I find something actually pleasing about passing through trees into a broad clearing. It's the visual equivalent of breaking through. There's a cleanness and spareness about the view, a quality of sweeping up, of expansion, not to mention the panorama of the Cascades just visible over the tops of the lower firs. Clouds pass overhead, varieties of weather and light. You can see the rest of the forest, have a perspective on that fullness not possible from inside it.

I grew up in Eastern Washington, desert and wheat fields and the Palouse all around me, and I often long for that landscape. In the winter especially the valley can seem claustrophobic to me, and I want nothing more than to get in the car and drive up the gorge until I come to the wide open country again.

Who's to say that a plain is less beautiful than a forest?

5. Acquaintance with the People

I've spent some time now with the foresters who manage this place, shaken their hands, had coffee and eaten lunch with them, walked with them in the woods, and seeing their faces, hearing their voices, I've been sure of their commitment to the forest, their care and concern. They seem like good people to me, with ideas and paradigms and training and careers of hard, careful work, with expertises that make sense. I've glimpsed young wildlife biologists jogging on the Powder House trail, seen a forest ecologist at the store, picking out bananas. The cutting has been humanized. I can't walk up here or look at the gaps in the forest without thinking of the sincerity and craft of the people behind the cutting.

6. A Sense of How the Forest is Managed

I know now from having heard the talks and looked at the maps that the foresters who manage this place think of it, minimally, as a mosaic. When I was shown around I was always shown views that contained a number of different elements and ages of trees, a clearcut here, then a fifteen year old stand, then a thirty, a fifty, some hundred year old, and even some old growth. What I've been told, what makes sense to me, is that for economic reasons alone the managers can't afford to clearcut anymore than they have. There's not enough land to sustain that level of harvest.

Others in the College of Forestry see this mosaic management approach as too sloppy and uncoordinated, arguing for a more coherent plan. That seems right to me, too, just as an outsider.

But I'm reassured that even minimally the forest has to be kept varied and in pieces, that in any single far view there will always be a large number of trees. I keep thinking of something Jeff Garver, the forest manager, told me on the other side of the mountain here, as we were looking out over Lewisburg Saddle into Soap Creek Valley, the checkerboard of cuts and trees spreading out as far as we could see. In a 100 years, he said, all these same elements will be here, in this scene, just in a different combination, a different arrangement -- the clearcut a 100-year old stand, the 100-year old stand a clearcut.

7. A Layman's Understanding of Theory

I've heard the jargon and seen the graphs and understood the basic reasons for the research they're doing here, what they hope to study -- the costs of smaller scale harvesting, the effects on birds and wildlife, the success of reforestation -- and the conceptual coherence of all that has reassured me. In part, I've let myself be soothed by euphemistic jargon. Calling a cutting a "harvest" or a "treatment" softens the violence a little, abstracting from the harsh realities, and there's a way to let that softening work on you without being deceived by it. But part of the relief, too, is knowing that the cutting isn't irrational or impulsive or motivated by profits only. Behind the new gaps in the forest are clear, coherent, well-reasoned paragraphs in scientific proposals. Behind them are untested hypothesis and important research goals, goals I completely endorse. After all, the cutting done here has been done in the interest of exploring alternatives to clearcutting, exploring ways of harvesting that also take plants and animals and humans into account. And a community of scientists is thinking about all this, and there's a tradition of theory and publication to support their discussions, institutions and grants and professional organizations to certify any actual work that might get done, and the process is slow, considered, and recursive. On several levels of abstraction, in other words, the cuttings make sense, and that makes them aesthetically more acceptable. Theory orders them, and order is pleasing. There's a purpose to the cutting, and purpose is pleasing.

Knowledge of the theory informs the eye, helping me see things I wouldn't have seen before: the deliberately engineered snags or "wildlife trees," for example, or the seed traps, framed screens left on stumps to catch the naturally distributed fir seed. Theory opens up the landscape, reveals new details to take pleasure in.

8. A Greater Awareness of the Complexities and Contradictions -- a Greater Sense of Confusion

The cutting in this forest has led me to think more about the timber crisis in general. I take all the articles in the paper personally. Values compete -- the aesthetic and the economic, the preservation of wilderness and the necessary production of timber -- and now, after the cutting here, I'm just more aware of all the dilemmas, feel them more immediately, and that changes how I view the forest. I'm not able to see the trees innocently or naively anymore.

I know that a timber worker might think of the clearcut as beautiful, representing work and family. I know that a reforester might see the uniform canopy of a plantation forest as beautiful and an ecologist regard the same canopy as a sign of ecological barrenness, something a blue jay would have to pack a lunch to fly over. Two people, depending on their jobs and their education, might experience a stand of old growth as either awe-inspiring or an angering waste of wood fibre.

Today the paper reports that the Diamond B Lumber Company in Philomath is closing its mill, laying off 148 workers. The owners blame environmentalists for the absence of timber. "We're just guys trying to make a living," one of the laid off workers is quoted as saying. "It's the environmentalists' right to believe the whole world should be park, but I don't have to believe that." In their oversimplifying and stereotyping and superficial thinking, statements like this always make me angry. But they also make me stop and think. They express legitimate struggle and paradox, too. I keep thinking of them as I walk through these woods, on this road, watching the clouds move up the hill, and that complicates my aesthetic judgement, suspends it.

A colleague in Political Science has done a survey of Oregon attitudes about the environment, comparing them to attitudes nationally. Oregonians are less sure of things. In response to the question "Should clearcutting be banned" 44 percent of participants nationally "strongly agreed" but only 35 percent in Oregon. Should more wilderness areas be established? 48.3 percent of the people in the nation strongly agree, 25 percent in Oregon. People who live close to trees, are dependent upon them in whatever way, are less convinced about any generic policy or blanket statements.

9. Bird Song

One result of the reading and research I've done since the cutting started is an awareness of all the birds in the forest—juncos and chickadees and warblers and thrushes and hawks and owls. A pair of pileated woodpeckers, old-growth indicators, are regular visitors in my backyard. I'm starting to be able to identity bird songs. I keep track of what species come to the feeder on the deck. Walking this road now I have a new source of pleasure, partly compensating for the missing trees, or at least now I'm noticing dimensions of the forest that were always there, available to imagination and the senses, unrecognized. The forest exists in its fullness and depth at more than one level at once, in more than one dimension.

10. Temporal Seeing

Foresters are always thinking ahead, looking at any present scene partly with the eye of the future. When a forester looks at a clearcut he sees simultaneously a ten year old stand blocking the view of the valley. When he looks at a full stretch of trees he imagines the thinning and then the falling twenty and eighty years hence. The imagined future is a filter blurring the aesthetics of the present.

Even in my short time, I've seen the prospects change with the seasons and the light. I've seen the clearcut raw and scarred right after the loggers left, in February, no green leaves to hide the stumps and tire tracks. I look at it now in the fall, less than a year later, and the vine maple are turning red and the sun is just now coming out and the fullness of shadow is softening the hill (the sun flooding the hillside suddenly, casting low shadows, and the movement of clouds above that, and blue showing). I know that in the spring new trees will be planted, and that in ten years those trees will be ten feet tall, and in twenty years taller still. Sometimes for a moment I can imagine the ground as a forest, and that image changes my perception of the present bareness, suspends and complicates it.

To see the forest temporally is to see it with patience. To see the forest temporally is to see it with some measure of trust and acceptance. It's to make a commitment to seeing it again and again, a commitment to coming back day after day and studying it, reading it inch by inch, with discipline and respect, over years. To see the forest temporally is to see change and growth and the cycle of things as beautiful, not just the single, static scene.

I don't mean that I've attained that kind of patience or acceptance. I remain resistant to change and suspicious of the powers that be, though more complexly so.

But I have glimpsed the temporal, at least, know it as that crucial missing layer in my seeing, and my life, a new unimagined dimension, like bird song, only deeper, reaching farther. I know that there is a cycle and there is change and nature is never still.

We shouldn't be chauvinistic about the present, whatever its urgencies and attractions.

Wordsworth said we "half perceive and half create" the beauty we find in nature, and I guess that's what I'm saying, too. On the one hand, I see the forest differently now because of the ideas and knowledge I bring to it. I accept it because I know more and am more confused about notions I used to take for granted. On the other hand my sense of this landscape, my pleasure in it, seems to come from the outside, too, unbidden and uncontrolled, surprising. I didn't expect to feel the way I do and even resisted it. Satisfaction is the feeling actually produced in me when I walk here over time. Enjoyment is what I experience in the presence of these trees and these openings, just empirically, prior to thoughts and theories.

Don't misunderstand me. When I walk up in the old growth on the other side of this ridge (pointing southeast now) my visceral response, unbidden and controlled, is a feeling of deeper respect and reverence, deeper quiet, than any satisfaction I feel on the 510 road. The depths are greater, the shadows fuller, both the sweeping up and the sense of

enclosure more profound. The emotional and sensory reactions the old growth produces in me are stronger, in short, than the reactions produced on the 510 road, and they seem to have less to do with my own imagination -- seem the product of the big trees themselves, seem in fact a silencing of thought.

I don't think I've been taken in. Temporal seeing also means constantly being on the lookout for compromises and backsliding and discrepancies between what's said and what's done. The forest still lacks a long-range management plan, and it's not at all clear how committed the management really is to citizen involvement and the "sensitive forestry' showcased here. The current plan for this stretch of ground is to come back in ten and then twenty years to remove the remaining two thirds of the trees, and I'm naturally concerned about that, too, both the aesthetic and the ecological effects. Will the replanted trees grow and what will they look like? What will the rest of the forest look like, the rest of the 12,000 acres, beyond this particular hillside? What will the financial and political pressures be in the future? Are we being told the truth, or all that we need to know? If anything, I'd like to see myself as one of those pesky, persistent, letter-writing and meeting-attending laymen every institution needs to prod and check it. The price of landscape is eternal vigilance.

All I'm saying is that these things are complicated. All I'm saying is that this landscape, too, this patch-cut, worked-over, altered forest, has its own pleasures and compensations. Landscape aestheticians and psychologists talk about "affordance." We deem something beautiful because of some ancestral memory of what the landscape "affords" us, what it enables us to do, which is why forested scenes are always the most highly rated in the surveys. A forest (our instinct tells us) affords shelter and material and food and landmarks and so we are attracted to its depths and vistas. We say it's beautiful. What this particular stretch of forest affords me is an opportunity to walk with my dog and smell the wet ground and look off into distances, and for that I'm grateful. It affords me a chance for intimacy with trees and rocks and natural things, and in that sense, with the voles and the deer mice, apparently, the chickadees and the flickers, I can attest that the patchcutting has not completely destroyed the habitat I need. So far at least, there are still enough trees.

This page is intentionally left blank.

Leopoldian Forestry and the Ethical Acceptability of Forest Practices

Peter List

Abstract

List, Peter. 1996. Leopoldian forestry and the ethical acceptability of forest practices. In: Brunson, Mark W.; Kruger, Linda E.i Tyler, Catherine 8.; Schroeder, Susan A., tech. eds. Defining social acceptability In ecosystem management: a workshop proceedings; 1992 June 23-25; Kelso, WA. Gen. Tech. Rep. PNW-GTR-369. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station: 25-36.

A wide variety of environmental and ethical frameworks exists within which foresters operate. These frequently competing systems reveal the complexity of human-environment relations. Given the disparate nature of ethical considerations facing foresters, this paper seeks to develop coherent ways to view ethical acceptability and apply them to understanding forestry issues. Four concepts in contemporary environmental ethics are discussed, with special focus on the land ethic of Aldo Leopold and its role in substantiating ethical acceptability and shaping public opinion about environmental issues.

Keywords: Environmental ethics, multiple values, Leopoldian forestry, ecophilosophy, ethical acceptability.

Introduction

Philosophical systems of environmental ethics make ethical values and principles central in determining what is right and wrong, good and bad, virtuous or vicious with regard to our environmental behavior and practices. They provide intellectual foundations for evaluating what is ethically acceptable and unacceptable in our relationships to animals, trees, forests, ecosystems, and other parts of nature (DesJardins 1993, Regan 1984, Rolston 1988). Though forestry is a collection of technical sciences, foresters make normative judgements about their roles and responsibilities and the proper kinds of forest practices, so forestry also embodies ethical appraisals in its basic conceptions and management activities (Rolston and Coufal 1991, SAF 1989). These judgments are not always very visible and identifiable, but they are present nevertheless.

The discipline of environmental ethics has grown and developed in the past thirty years as an intellectual response to environmental crisis. Contemporary systems of environmental ethics would not exist if humans were comfortable with their relationships to the

---

PETER LIST is a professor, Department of Philosophy, Oregon State University, Corvallis, OR 97331.

environment and with the environmental attitudes and values that have existed in industrial societies. This means that insofar as forestry has assumed and utilized traditional ethical notions about humans and forests, its ethical content will not harmonize with those systems very well. The ethical dimensions of forestry will need to be reworked to incorporate new conceptions of ethically acceptable behavior (e.g. Devall and Sessions 1985).

In this report Mark Brunson tentatively defines “social acceptability” in forestry to involve individual, comparative judgments about the desirability or undesirability of forest conditions; these judgments are grounded in general rules and typically are influenced by group processes. This definition makes very clear the normative character of this specific concept, tying it directly to social and institutional standards. These standards have in turn•been influenced by the ideas and philosophies of various individuals and groups in our cultural history. Historians document the fact that while systems of environmental ethics were not originally part of the European intellectual heritage in the U.S., this picture began to change in the nineteenth century and continues to evolve to this day. Several such systems have slowly percolated into the mainstream of public consciousness, and ideas about the ethical desirability of our environmental practices now influence the way the public thinks about forestry and forests (Dunlap 1991, Nash 1989, Olsen and others 1992).

At the same time, philosophers, scientists, naturalists, and other thinkers who have formulated systems of environmental ethics define normative principles in different ways, and there are now several competing systems in place in our society, not all of which have equal sway over public consciousness. The most dominant system has been that commonly referred to as “resource conservation”, but this system has been challenged by more biocentric ecophilosophies such as deep ecology since the rise of environmentalism in the 1960s. Public forestry too has inherited these differences of philosophy. Since the early part of this century it has been influenced rather heavily by Gifford Pinchot’s brand of forest conservation (Clary 1986), and is only recently awakening to the more biocentric ideas of Aldo Leopold and other thinkers (Coufal 1989).

Given this variety in ethical frameworks, the problem arises of determining how to define the ethical acceptability of a forest practice and showing what this would mean for federal forestry. To tackle these issues, I will first identify four important concepts in contemporary philosophical discussions of environmental ethics, using them as a means of giving initial shape to the idea of ethical acceptability. I will then look at one major system of environmental ethics, the land ethic of Aldo Leopold, to consider specifically how it incorporates and explains these concepts, and thus gives substance to the notion of ethical acceptability. Finally, I will show how some important features of Leopoldian forestry are accepted by the American public.

Some Concepts from Contemporary Environmental Ethics

Biocentric and Anthropocentric Ethics

The first of these intellectual notions now permeating philosophical analysis is the central distinction between anthropocentric and biocentric ethical systems and principles. While this distinction has been characterized in several ways (Eckersley 1992, Norton 1987, Rolston 1988, Scherer and Attig 1983), and realistically represents a continuum of ideas (Steel and others 1994), it tells us that at one end of the scale fall ethical attitudes and principles that emphasize human concerns, desires, and interests in the environment and in nature, and are thus human-centered, while at the other end are those that focus on all relevant elements of nature and its biotic systems, not only the human ones, and are thus biocentered or "ecocentered." Of course this concept is itself an anthropocentric one in another sense, but the point is that the internal content of ethical systems can differ along this continuum.

Most systems of environmental ethics in contemporary philosophy imply that the norms and values used to evaluate environmental practices must be more biocentric than the anthropocentric principles that characterize traditional ethical systems in western culture (e.g. Callicott 1989, Devall and Sessions 1985, Gray 1981, Johnson 1991, Naess 1989, Rolston 1988, Taylor 1986). Historians of environmental ethics in fact use this conceptual distinction to differentiate many traditional Christian and classical ethical systems from the new systems that have emerged in the twentieth century, such as Leopold's land ethic, deep ecology, and ecofeminism. Donald Worster (1977) refers to this change in ethical tradition as the emergence of "the biocentric conscience" or "biocentric outlook," and traces it to such earlier writers and naturalists as Gilbert White, Henry David Thoreau, Goethe, and Charles Darwin. Moreover, many of the advocates of these new systems specifically emphasize the centrality of biocentrism in rethinking human relationships to nature. As Holmes Rolston (1988) puts it, we will have an "adequate ethics for this Earth and its communities of life" when we take the environment to be primary rather than secondary to human interests.

Inherent and Intrinsic Value

Related to this first distinction is that between the intrinsic or inherent value of natural objects and their instrumental value. The idea of inherent worth can be traced to the eighteenth century German philosopher lmmanuel Kant (1785), who attributed this value to humans but not to other natural creatures. Philosophers have transferred Kant's idea into environmental ethics, and applied it to animals and other natural objects and processes. In Kant's philosophy, inherent value is the value that something has because of what it is in itself; that is, an end in itself. More recently the idea has also come to mean the value a natural thing has, just because it exists or is alive. lnstrumental value, on the other hand, refers to the value something has as a means to some end or to its use value.

Most current systems of environmental ethics imply that in addition to the biocentric or ecocentric orientation of their principles, the idea of intrinsic or inherent worth is another important dividing line that separates them from traditional, anthropocentric ethical systems. In fact, these two distinctions are related. Anthropocentric systems treat nature and natural objects as having mostly utilitarian or instrumental value, while biocentric systems take a step beyond this to make the inherent or intrinsic value of natural objects also crucial. In the more radical of the new ethical systems, such as deep ecology, inherent value is attributable to all objects, species and processes in nature, whether animal, vegetable or mineral, biotic or abiotic. By implication, these biocentric systems would attribute inherent value to forests and their many natural components and processes as well. The deep ecologists Arne Naess, Bill Devall and George Sessions

claim that all nature has intrinsic worth, and they make the principle of biocentric equality one of the ultimate intuitive norms of ecophilosophy (Devall and Sessions 1985, Naess 1989). Philosophers who extend this concept in this way believe that it produces a more satisfactory intellectual basis for our relationships to natural objects than do systems that locate only human instrumental value in nature. If we value something for its inherent worth, they argue, and not solely for what we can use it for, we are more likely to treat it with deep respect and are not as prone to do anything we want with it (Ehrenfeld 1981).

Diverse and Multiple Values

A third conceptual component of these emerging ethical systems is that they typically take the values in nature or the values "carried" by nature to be diverse and multiple in character. Some systems, in fact, outline the details of specific kinds of values, giving us a kind of inventory for understanding what the different forms of inherent and instrumental values are in the natural environment.

In the literature of environmental ethics, two early examples of writers who emphasize multiple values are John Muir and Aldo Leopold, though clearly there are other thinkers and writers before them who did so as well. Muir (1901) especially stressed aesthetic, spiritual, and recreational values in the wild in his many writings about the American wilderness from the 1870s on. Leopold's land ethic, which was formulated in the 1930s and 1940s, stresses the cultural, historical, ecological, and "philosophical" values of wild animals and other elements of nature (Leopold 1949). Since Leopold's day, many other writers and thinkers have made efforts to codify and classify these values. For example, Holmes Rolston, an influential philosophical writer in environmental ethics, variously identifies ten to fourteen different kinds of specific values in nature, ranging from the economic to the aesthetic, the cultural to the religious (Rolston 1988, Rolston and Coufal 1991). Rolston believes that these values are a means whereby we actively participate in nature, for they are actualized in real natural things and experiences.

Resource Conservation and Ecological Sensibility

A fourth feature of these new systems of environmental ethics is that they move away from the resource conservation philosophy toward newer forms of "ecological sensibility," to use Jon Rodman's expression (1983). Rodman argues that there are four currents of thought to be found in environmental thinking since the late nineteenth century: resource conservation, wilderness preservation, moral extensionism, and ecological sensibility. Moreover it is possible to see these as part of an evolution of ethical systems in our culture whereby resource conservation and wilderness preservation are giving way to newer forms of ecological consciousness (Rodman 1983).

The creation of the resource conservation philosophy in the United States is associated with the ideas and efforts of many scientists and government servants in the nineteenth and early twentieth centuries, such as Eugene W. Hilgard, George Perkins Marsh, John Wesley Powell, Carl Schurz, Bernhard Fernow, W.J. McGee, Gifford Pinchot, and President Theodore Roosevelt. Pinchot went so far as to imply that he was the inventor of this philosophy as a driver for government resource policy, along with his colleague McGee (Pinchot 1947), but clearly it was a system of ideas borrowed from European models and imported to this country in the nineteenth century by practitioners of such disciplines as soil science, forestry, hydrology and geography (Hays 1959, Petulla 1977). The application of the philosophy to federal resource management by Pinchot and his followers is one of the most important chapters in the history of this form of environmental ethics in the United States.

The resource conservation philosophy, as Pinchot conceived it, was clear in outline and aims. Under McGee's influence, Pinchot (1910, 1947) defined conservation in utilitarian terms as "the use of natural resources for the greatest good of the greatest number for the longest time." In this guise, he stated that it was based on several important ethical principles concerning the land: first, the wise human use or development of land resources; second, the prevention of waste and the preservation of those resources for future generations; and third, the democratic allocation of the resources for the common good, as opposed to their monopolistic control by powerful corporate interests.

Philosophically this viewpoint assumes that nature is composed of raw material units for human extraction, conversion and consumption, and that those resources exist primarily for humans to benefit from and use, mostly for economic and commercial purposes. Pinchot carried this utilitarian philosophy into federal forestry where, as one of the first professional foresters in the federal government and first head of the U.S. Forest Service, he applied it to the management of the newly created national forests (Clary 1986, Steen 1976).

As a form of environmental ethics, resource conservation is anthropocentric in definition and goals, stresses primarily the instrumental values of forests and forest components, and in fact makes trees a domestic product of human enterprise by emphasizing their value as "crops" in a system of human agricultural production (Clary 1986). It also assumes that there are a limited number of uses and values that are important in nature and in forests. The primary values of forests are, of course, economic and commercial, and to a lesser degree recreational, rather than aesthetic, inherent, or ecological (Pinchot 1910). Moreover, humans are given a centrality and authority with regard to forests that permits their interests, desires, and needs to come before those of other forest organisms and systems, in determining how forests should be manipulated. Basically forests or trees are a resource for humans rather than for other natural organisms, and those organisms are either ignored or not given much significance beyond their contribution to human life. Of course, when this philosophy was put to use in the first decade of this century, ecology was yet to be clearly delineated as a science so it is not surprising that there is little recognition of the ecological significance of forest components and processes in it.

Rodman and others have argued that resource conservation thinking was important in its day for several reasons. For one thing, it helped to restrain the blatant and destructive raids on national resources, such as the western forests, that had been made by many individuals and corporations before the turn of the century (Rodman 1983). It thus deserves respect for its early accomplishments in preserving and maintaining the national forests for future human exploitation, some decades later. For another, it was an improvement philosophically over the resource mining approach in forestry that involved no principles of conservation at all. But there is an emerging viewpoint shared by many environmental philosophers that this form of thinking has outlived its usefulness as an exclusive orientation to nature. It is now argued that it has failed to stem the tide of natural destruction in a time of increasing human consumption of nature, and thus must be superseded by new ideas and ethical principles that exhibit a deeper view about our normative relationships with natural systems and objects. Some philosophers have even argued that the resource conservation philosophy should be jettisoned altogether, and that it is logically inconsistent with a deep ecological approach to nature (Devall and Sessions 1985), but others are more pluralistic and suggest that our society can simultaneously

adopt several systems of environmental ethics or several kinds of moral frameworks (Stone 1987). In either case, the point is that systems of environmental ethics are evolving away from this earlier form of anthropocentric, normative thinking, and are reaching out in new directions philosophically and practically. It is no longer as acceptable to advocate a purely human-oriented resource conception about such natural objects as forests, forest species, and forest organisms.

To sum up, in formulating the idea of the social acceptability of public forestry practices, it is important to understand the idea of the ethical acceptability of these practices. This idea in turn can be illuminated by understanding some basic concepts from contemporary environmental ethics, namely: the ideas of biocentrism, of inherent or intrinsic value, of multiple values in nature, and of an ecological sensibility that goes beyond resource conservation.

A Leopoldian Version of Ethical Acceptability

Aldo Leopold's land ethic has something to say about each of these concepts. Leopold's mature land ethic was shaped by many influences, including his training as a forestry graduate student at Yale University from 1906 to 1909, and his experiences as a member of the Forest Service in the Southwest during the second and third decades of this century (Flader 1974, Meine 1988). His early conception of forestry was more production-oriented and focused on timber and rangeland issues. Its aim was to enhance the interests of the existing and dominant land users in the national forests, rather than to promote ecological goals (Meine 1988). Later on he developed a more broadly conceived and humbling idea of forestry as an ecological science and art that downplays the utilitarian approach to forests in favor of a more biocentered philosophical perspective (Leopold 1949). Forestry, in his mind, could be freed from what he saw as its limited resource conservation roots to become a means to promote land health and to understand some of the many non-economic values in nature. It could become one example of an applied environmental discipline which leads to new forms of ethical awareness about natural communities and processes.

Leopold was especially attuned to the idea of a more biocentered environmental ethic, and he formulated his land ethic so that the "biocentric attitude" would be prominent. He suggested that forestry should be based on ecology and ecological principles rather than on strictly anthropocentric ones, and he argued that land managers should pay serious attention to forests as total natural systems and thus to the many natural components that are parts of those systems. Humans, he implied, are parts of forest communities but are only one of many forest users; there are other species and natural objects that exist in forests and many natural processes that are critically important. Nonhuman forest organisms use forests for their own purposes, just as humans do, and some of these uses have very little, if anything, to do with human life. A Leopoldian, biocentered forestry would not elevate human desires and goals to a position of first importance then, though there would be times when human desires would come first. Leopold was very clear, in any event, that humans have special ethical responsibilities, of an individual sort, to forests and their component organisms.

Leopold reformulated this idea that humans are parts of biota in a now famous dictum that they should stop thinking of themselves as the conquerors of nature and natural systems and instead become “plain members” of the biotic community along with its other organisms (Leopold 1949). Foresters too should conceive of themselves as “biotic citizens” in forest communities, rather than as only servants in the business of timber production. They should move beyond the narrower, agronomic model of forestry, and stop thinking of trees as only crops and forestry as a form of agriculture concerned with the propagation of trees for the production of wood and wood products. To Leopold, forests and trees are naturally evolving objects that are parts of various biota, integral components in a complicated energy system involving the earth and the sun. Of course foresters should be interested in managing forests for wood products, but more importantly to Leopold they should also think of themselves as applied ecologists and aestheticians who are concerned with a whole series of forest functions, including wildlife, recreation, watersheds, wilderness, scenery, and, most importantly, scientific knowledge. The general goal of this kind of forestry is the ecological health of forests rather than the production of “cellulose” to meet the demands of society. Leopoldian “biotic foresters” would do more than merely manipulate forests for narrow human ends; they would learn how forests throw light on the processes of nature, and would come to see themselves as parts of the collective system which he called the “land” (Leopold 1949). An important feature of Leopold’s emphasis on biocentrism is his revolutionary philosophical principle that ethical status and concern should be extended to all organisms, species, and natural components in the biotic community. In fact, this is now one of the most important principles in contemporary systems of environmental ethics, and distinguishes them from most traditional forms of ethical thinking. By implication this would mean that forestry practices are ethically acceptable if they recognize that all forest components and organisms are valuable and deserve ethical consideration -- not just those which are of economic importance to humans, such as certain species of trees or mammals.

Finally, Leopold (1949) clearly saw the importance of multiple values in nature. To take one illustration, his essay “Wildlife in American Culture” identifies several kinds of cultural value in the customs and experiences we have with wild things and wilderness. These include the “split-rail” value that, for example, comes from imitating earlier methods of hunting or woodscraft in our excursions into the wilds, and the “man-earth” value that results from having experiences that remind us of our dependency on other animals and organisms in the food chain. Leopold implied that these are instrumental values since they express the value of wildlife and wilderness in terms of human social and individual welfare; they are a kind of human “social asset.” More radically he also believed that wildlife and wild things have value in a deeper sense that cannot be articulated either in these “civilized” terms or in the more common, monetary exchange terms of our economic system. The question, “what is a wild goose worth?”, revealed to him this deeper value that is not quantifiable and not instrumental. He implied that raising this question was like asking about the value of a painting or poem, and could perhaps be answered only in aesthetic terms if it had a definitive answer at all.

Additionally, Leopold’s land ethic implies that all components of the biotic community, the community of nature, have value because they fit into the community, contribute to its functioning, and fill a niche in the natural whole. This kind of “holistic” ecological value does not exhaust their worth, of course, but it is of primary importance in his notion that the biotic community or the earth and its components have more than economic

significance. In a very fundamental way all components and processes in nature are valuable because of their ecological contribution to the system as a whole. Recently Holmes Rolston and James Coufal (1991) have applied these Leopoldian ideas to forestry. They have argued for the importance of multiple values and the biotic community concept in forestry, and suggested that the professional ethics of the Society of American Foresters should take a Leopoldian turn.

Leopold formulated several foundational principles that provide a basis for normative judgments about our environmental behavior, a framework for judgments about the ethical acceptability of forest practices. The most famous of these is his principle (1949) that a human action is right when it tends to preserve the integrity, stability, and beauty of the biotic community, and wrong when it tends otherwise. In this principle he encapsulated his ecological convictions about the importance of the diversity and fertility of the land's components and structures, claiming that these features of the biotic community are what give it its evolving stability.

Moreover, this principle invites us to pay attention to the biotic system as a whole, to maintain its wholeness and not destroy its component biota piecemeal on pain of ecological impoverishment, human insecurity, and loss of natural values. In contrast with the resource conservation philosophy of Pinchot, the first duty of conservation is the preservation of the biotic community and its various parts rather than the development of land "resources" for human uses. In this regard Leopold was an ethical conservative; he believed in the value of ecological caution in altering the land's components. The first rule of intelligent tinkering, he told us, is to save all of the cogs and wheels. All parts, no matter how small or seemingly insignificant, are important in making the whole system work and must be preserved. And this applies to forests as well as to other natural systems; we should respect their biological integrity, beauty, and evolutionary stability, and value their components for more than their contributions to our personal and economic welfare. It is important to preserve the "wild" parts of our forests so that we can learn how they function and discover what values they and their components have in themselves and for us. This is both prudent and ethically desirable.

In short, Leopold's land ethic includes a strong commitment to biocentrism, to something more than instrumental values in nature, to ethical principles that take us beyond resource conservation to a new form of ecological sensibility, and to the importance of multiple values in the biotic community. Leopoldian forestry implies that forest practices are ethically acceptable if, among other things, they are biocentric and holistic in orientation, if they are not dominated by agricultural and commercial purposes but by the goal of ecological forest health, and if they promote the many instrumental and intrinsic values that exist in forests. None of this should be taken to imply that Leopold was opposed to forest management -- for example, that he was in favor of a "hands-off" approach to forests -- for he clearly would have favored some form of ecosystem management in federal forestry. Ecology is the basic science that undergirds his ideas in the land ethic.

Ethical Acceptability and Social Acceptability

What connection does this Leopoldian philosophical viewpoint have with the social acceptability of forest practices? One way to answer this question is to ask, does the public accept some of these general features of Leopoldian forestry?

This is obviously an empirical question that can be answered by social research, and several of us in the Sustainable Forestry Program at Oregon State University have been studying it through the use of survey instruments, among other things. In Fall, 1991, we conducted a national and an Oregon survey of public attitudes about the environment in general, about human ethical relationships to forests, and about some issues in federal forest policy. We purposely included several Leopoldian land ethic statements in our surveys to get a sense of which of them were “acceptable” to the American public and which were not. For example, the statement “humans should have more love, respect and admiration for forests” is an adaption of a Leopoldian assertion about the biotic community (Leopold 1949), while the statement “plants and animals exist primarily for human use”. is an example of a traditional anthropocentric attitude (Dunlap and Van Liere 1978). Survey respondents were given the opportunity to indicate how strongly they agreed or disagreed with a variety of general attitude statements. Using the results from the surveys, we then designed a forest values scale which arrays some of these attitudes along a continuum, with the most anthropocentric orientation on one end and the most biocentric orientation on the other.

Overall we discovered that both national and Oregon publics tend to be more biocentric in their value orientations toward forests than anthropocentric (Steel and others 1994). Additionally, when comparing our national and Oregon samples, the national public was found to have even stronger biocentric values than the Oregon public, though the difference lies in the intensity of value orientations and not in their direction. These results are consistent with other sociological analyses that show greater public support for the environment in recent years (Dunlap 1991).

In a second analysis of our survey data we assessed broad forest policy preferences among the public, asking them to indicate their level of agreement or disagreement with 12 statements concerning management of federal forestlands. Preference statements were designed to cover dimensions of commodity-based (single-use) management and ecosystem (holistic) management. For example, the statement “federal forest management should emphasize timber and lumber products” was taken to be part of a commodity-based orientation, while the statement “federal forest management should emphasize a wide range of benefits and uses rather than timber and wood products alone” is closer to an ecosystem orientation. Results of this analysis show that none of the commodity-based policies was supported by a majority of either the Oregon or national samples, and both groups tended to be more ecosystem-oriented than commodity-based. The national public was significantly more likely than Oregonians to prefer ecosystem management policies, but, even in a state that has experienced the federal timber crisis first-hand, support for ecosystem-based policies was dramatic. Again, the difference between the two samples in this regard lies in the intensity of support rather than in its direction (Shindler and others 1993).

To further identify public policy orientations, survey respondents were asked to self-select their position on a seven-point scale regarding the importance of management for environmental and economic considerations in federal forests. At one end of the scale fell responses that gave highest priority to natural forest conditions (wildlife, old-growth forests) even if this had negative economic consequences. At the other end were those that gave priority to economic interests (employment, tax revenues) at the expense of

natural environmental conditions. Results showed that the largest single response for both samples was at the midpoint of the scale; near-majorities favored a balance between environmental and economic components. Moreover, the remaining responses were dispersed more toward the natural environment end of the scale than the economic (Shindler and others 1993). We concluded that both Oregon and national publics approve of managing federal forests with a holistic, ecosystem-based approach that emphasizes natural conditions in balance with economic ones, with more public support for natural forest conditions than for economic interests. There is wide public agreement, we believe, with a more environmentally oriented and multiple-valued approach to federal forest management.

At the same time, our survey data also indicate that the public expects to be more involved in federal forest planning. We asked our survey respondents to rate the value of public participation in federal forest planning on a scale that ranged from "no value" to "great value," and results show that 78 percent of both the Oregon and national samples support increased participation even if it adds to the cost of government (Shindler and others 1993). There is a very clear and strong public desire to be involved in federal forest resource allocation.

A natural conclusion from this survey data is that federal and other public foresters who appeal to Leopoldian ideas as a philosophical basis for reorganizing and implementing new forms of public forest management are likely to find more public support for their endeavors than those who do not, but only if the public is more seriously involved in forest planning. The public has taken an increasing interest in the disposition of federal forest lands in recent years, and federal foresters can no longer effectively think of themselves as having the exclusive or even dominant right to determine what should be done to the national forests. Forest managers in the Forest Service and BLM should turn then not only to forest experts and scientists, to economists, engineers, silviculturalists, and biologists, but to the publics they serve, to understand the acceptability of different forest practices in different forest landscapes. This will require considerably more social research in specific forest localities to determine specific public preferences. If, however, the forest resource agencies adjust their local management strategies to reflect these more biocentric public attitudes, their management actions will be more ethically and socially acceptable.

Literature Cited

Callicott, J. 1989. In defense of the land ethic, essays in environmental philosophy. Albany, NY: State University of New York Press. 325 p.

Clary, D. 1986. Timber and the Forest Service. Lawrence, KS: University Press of Kansas. 252 p.

Coufal, J. 1989. The land ethic question. Journal of Forestry. 87: 22-24.

DesJardins, J.R. 1993. Environmental ethics. Belmont, CA: Wadsworth. 272 p.

Devall, B.; Sessions, G. 1985. Deep ecology, living as if nature mattered. Salt Lake City: Peregrin Smith Books. 266 p.

Dunlap, R. 1991. Trends in public opinion toward environmental issues: 1965-1990. Society and Natural Resources. 4: 285-312.

Dunlap, R.; Van Liere, K. 1978. The new environmental paradigm. The Journal of Environmental Education. 9: 10-19.

Eckersley, R. 1992. Environmentalism and political theory, toward an ecocentric approach. Albany, NY: State University of New York Press. 274 p.

Ehrenfeld, D. 1981. The arrogance of humanism. New York: Oxford University Press. 286 p.

Flader, S. 1974. Thinking like a mountain, Aldo Leopold and the evolution of an ecological attitude toward deer, wolves, and forests. Columbia: University of Missouri Press. 284 p.

Gray, E. 1981. Green paradise lost. Wellsley, MA: Roundtable Press. 166 p.

Hays, S. 1959. Conservation and the gospel of efficiency, the progressive conservation movement, 1890-1920. Cambridge, MA: Harvard University Press. 297 p.

Johnson, L. 1991. A morally deep world, an essay on moral significance and environmental ethics. Cambridge: Cambridge University Press. 301 p.

Kant, I. 1724-1804. Groundwork of the metaphysics of morals. Translated and analyzed by H.J. Paton. New York: Harper & Row, 1964. 148 p.

Leopold, A. 1949. A sand county almanac. New York: Oxford University Press. 226 p.

Meine, C. 1988. Aldo Leopold, his life and work. Madison, WI: University of Wisconsin Press. 638 p.

Muir, J. 1901. Our national parks. New York: Houghton, Mifflin and Company. 382 p.

Naess, A. 1989. Ecology, community and life-style. Cambridge: Cambridge University Press. 223 p.

Nash, R. 1989. The rights of nature, A history of environmental ethics. Madison, WI: University of Wisconsin Press. 290 p.

Norton, B. 1987. Why preserve natural variety? Princeton, NJ: Princeton University Press. 281 p.

Olsen, M; Lodwick, D.; Dunlap, R. 1992. Viewing the world ecologically. Boulder, CO: Westview. 214 p.

Petulla, J. 1977. American environmental history. San Francisco: Boyd and Fraser. 399 p.

Pinchot, G. 1910. The fight for conservation. NY: Doubleday, Page, and Co. 5 p.

Plnchot, G. 1947. Breaking new ground. New York: Harcout, Brace, & World. 522 p.

Regan, T., ed. 1984. Earthbound, new introductory essays in environmental ethics. New York: Random House. 400 p.

Rodman, J. 1983. Four forms of ecological consciousness reconsidered. In: Scherer, D.; Attig, T., eds. Ethics and the environment. Englewood Cliffs, NJ: Prentice-Hall: 82-92.

Rolston III, H. 1988. Environmental ethics. Philadelphia: Temple University Press. 391 p.

Rolston III, H.; Coufal, J. 1991. A forest ethic and multivalue forest management. Journal of Forestry. 89: 35-40.

Scherer, D.; Attig, D., eds. 1983. Ethics and the environment. Englewood Cliffs, NJ: Prentice-Hall. 236 p.

Shindler, B.; List, P.; Steel, B. 1993. Managing federal forests, public attitudes in Oregon and nationwide. Journal of Forestry. 91: 36-42.

Society of American Foresters. 1989. Ethics guide. Bethesda, MD: Society of American Foresters. 29 p.

Steel, B.; List, P.; Shindler, 8. 1994. Conflicting values about federal forests: a comparison of national and Oregon publics. Society and Natural Resources. 7(2): 137-153.

Steen, H. 1976. The U.S. Forest Service: a history. Seattle: University of Washington Press. 356 p.

Stone, C. 1987. Earth and other ethics, the case for moral pluralism. New York: Harper and Row. 280 p.

Taylor, P. 1986. Respect for nature, a theory of environmental ethics. Princeton, NJ: Princeton University Press. 329 p.

Worster, D. 1977. Nature's economy, the roots of ecology. San Francisco: Sierra Club Books. 404 p.

Social Acceptability in Anthropology and Geography

Richard Hansis

Abstract

Hansis, Richard. 1996. Social acceptability in anthropology and geography. In: Brunson, Mark W.; Kruger, Linda E.; Tyler, Catherine B.; Schroeder, Susan A., tech. eds. Defining social acceptability in ecosystem management: a workshop proceedings; 1992 June 23-25; Kelso, WA. PNW-GTR-369. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station: 37-47.

Little explicit discussion of social acceptability has taken place in anthropology and geography. This paper synthesizes literature from these two disciplines in its examination of values and their relationship to acceptability. It provides both frameworks and examples of how anthropologists can contribute to the understanding of social acceptability. Context is shown to be an important factor in determining acceptability, particularly when considered in light of the meanings construed by the people involved.

Keywords: Values, acceptability, meanings, context, qualitative methods, emic approach.

Introduction

The question of acceptability, narrowly conceived, has received little attention in cultural anthropology and human geography. Both have described relationships among humans as social and cultural beings, and between them and the physical environment, especially in cultural ecology, and have examined changes in these relationships. Resistance to and acceptance of change have been the stuff of many investigations, above all in anthropology, but few explicitly focus on the individual and social conscious and subconscious processes which go into the determination of what is acceptable and what is unacceptable. Thus, the culture change literature has examined large scale changes, e.g. the transition from gathering and hunting to agriculture, and speculated on the reasons for this change, e.g., population growth (Murdock 1956), but has not looked in depth at the issue of acceptability, per se (Anyinam 1987). This literature lately, though, has brought in issues of internally induced changes caused by class, gender and factional interests and, hence, has included the role of human agency, as well as ecological, economic, technological, and demographically induced changes (Brumfiel 1992). In human geography, diffusion of innovation literature has emphasized exposure to new ideas or practices and economic motivations (Blaut 1987; Meir 1988). This paper will attempt to synthesize literature that deals with the broad question of what is acceptable and methods used to study this question.

RICHARD HANSIS is a professor of anthropology at Washington State University, Vancouver, WA, 98663.

People, as social beings, form groups, either formal or informal, that have culture. Some definitions of culture view it as consisting only of values, beliefs, norms, rationalizations, symbols and ideologies, while other definitions include behavior and material artifacts (Kroeber and Kluckhohn 1952). A number of anthropologists view culture as the creation of meaning; humans "... ascribe meanings of their own creation to objects, persons, behaviors, emotions, and events and proceed to act as though these meanings are real" (Robbins 1993, p. 6). A problem with the use of ideas and meanings as the definition of the culture concept is the distinction which can be made between what is supposed to be proper behavior or thought and what really happens (Burch 1971). Nevertheless, many anthropologists now view culture not as shared meaning systems, rules for action, or behavior, but as something contested by different interests (Foster 1991). Culture, in this view, is not uniform; it will vary across individuals and groups. Forests and forest practices, according to this latter perspective, take on different meanings for different individuals and groups, and, in the process of being contested, take on new meanings. At the same time, group identities are created, defined, and modified in the process of contesting meaning (Schmink and Wood 1992).

Kinds of human action on the environment and meanings attributed to these actions are filtered through values, social structure, technology, and the economy (and I would add, knowledge and beliefs) , all of which interact with each other. Knowledge and beliefs are filtered through values (Hansis[1]) as well as through the filters named in the previous sentence.

It follows that all knowledge -- mine, yours, a physicist's -- is constructed through the human mind and does not just reflect reality. Certain tools, e.g., scientific methods, help in constructing better knowledge, but science also tells us that we must be tentative in our knowledge. Any representation of our own, as well as others', values, knowledge, belief, and meaning must be open to revision. Thus, managers and social scientists must be aware of how their assumptions about the nature of the biophysical and social world influence their values, knowledge and beliefs and those of the people they hope to involve in participation.

If values consist of a relationship, that is, the worth of objects, concepts, or states of being, it is obviously a normative word and important to the understanding of what is acceptable. Clyde Kluckhohn understands values to be "conceptions of the desirable" (Vogt and Albert 1966, p. 6). Values define for us what is true, right and beautiful. Kluckhohn (1961) also suggests that a value orientation -- that is, all values that a person has -- combines normative and aesthetic propositions and existential statements about what the nature of human beings, society, and nature actually is (Kluckhohn and Strodtbeck 1961). A value orientation, then, includes beliefs about what exists and that which is desirable.

---

[1] Hansis, Richard [in press]. "Science, knowledge and the forest issue in the Pacific Northwest." In: Soden. Dennis, ed. Science and Public Policy. Commack, NY: Nova Science Publishers. On file with the author.

If each individual has a number of values, some of which may conflict with each other, and a rank ordering of values, then it is possible that an individual may be willing to accept tradeoffs. The nature of these tradeoffs is not readily apparent even knowing an individual's ranking of values. One cannot say that satisfying all values ranked lower than number one will outweigh the lack of satisfying the most important value, or vice versa, in any given context. Certain values may be absolute in that a person may not be willing to accept any tradeoff. The less specific the value, the motivationally stronger it is (Rappaport 1995[2]). In any society there will be a predominant value orientation held by the majority or the dominant population and a series of variations or differences (Kluckhohn and Strodtbeck 1961).

Mutual relationships exist between values and the institutional structures which groups develop for dealing with common human problems. Values may be caused by the process of solving these problems and passed on to other people and future generations. In turn, these solutions to common problems are then judged according to how well they fit with the values that people have and how effectively these means solve these problems. Acceptability rests on values. An analysis of acceptability would also have to include an examination of beliefs and practices and then an analysis of how they fit together (Barth 1987).

Thus, two questions need to be answered. First, how do values interact with each other in confronting a specific situation in order for individuals and groups to decide what is acceptable? Second, what do people know or believe about the object, concept, or situation?

Barnett (1953), who has written extensively on innovation and acceptance, points out that there are three main factors which determine acceptance of a new idea. One is the character, nature, or content of the idea. A second is situational features connected to the idea. The third is the range in qualities of possible acceptors. These three factors will interact in complex ways which determine rejection or acceptance. The following several paragraphs rely on Barnett's analysis.

Among the elements which make up the situational factor are the personal and social characteristics of the advocate. The first element or variable is prestige of the advocate, which is not only inherent in the advocate, but also depends on the potential acceptor. Prestige is related to competence, but no person or group is considered equally prestigious by everyone, and no one is considered competent in all areas. Different criteria for excellence as well as personality conflicts influence prestige ratings. In addition, the advocate of a new idea cannot depart too radically from the reputation which she has established.

Personality and personal relations of the advocate of the idea or practice to the potential acceptors affect the effectiveness of its transmission. One of the dimensions of personal relations is the degree of control of a situation or a relationship held by the advocate.

---

[2] Rappaport, Roy A. 1995. Comments. Society for Applied Anthropology Annual Meeting. Albuquerque, NM. 259 p. On file with the author.

Another is whether relatives, friends, or strangers are advocates; the former two are more likely to be convincing than the latter.

Majority opinion also may convince someone to accept a new idea. Advertising often plays on the likelihood of someone being swayed by learning that many other people have bought or used a product.

Characteristics of the new idea or practice include its intrinsic qualities and the feasibility of its acceptance. To be acceptable, a new idea must have meaning to the potential acceptor; the researcher cannot impose her conceptions of meaningfulness. It must have some relationship to a previous experience; there must be a connection which is real to the acceptor. Wholes, as defined by the observer/acceptor, are accepted or rejected; clusters of traits seen as units are judged, not the individual traits. These clusters of traits or the new idea do not necessarily have the same meaning for the acceptor and the advocate. One place where different meanings may occur is when an unacceptable analogy suggested by the new idea is introduced. For example, some people involved with the forest issue may object to the concept “ecosystem management” because it evokes the related term “ecology” that may be associated in their mind with positions opposed to logging. Conversely, if the introduced idea evokes a complementary idea, it may be accepted because it is not a contradiction nor is it identical with the known cluster of traits.

Conformance -- that is, agreement between the older ways and a new idea -- is not enough to guarantee acceptance. Desirability, which is judged by comparing the intrinsic merits of the new idea to the intrinsic merits of existing ideas, also enters in determining compatibility. Sometimes a new idea may be accepted just because it is new, if the acceptor values conventional ideas negatively.

An idea must have qualities that make it superior to an existing idea in order for its acceptance to be worth the effort to accommodate it. New ideas are judged against multiple values which determine whether or not the new idea will replace familiar ideas that are functional alternatives. One of these values is efficiency or effectiveness, a value which is especially salient when issues such as personal welfare are at stake. A second is cost, which is a function of an individual’s economy of preferences. Another is that some new ideas are accepted because they give the acceptor an advantage in prestige, power, or material advantage. If others have adopted a new belief or way of doing things, then an individual or group may also accept in order to gain or keep legitimacy. A fourth is pleasure. The effort required to accept the new idea, the excitement which it can invoke, the freedom of action which it allows, and the doubts and fears which it inspires are all parts of hedonistic considerations. A fifth, related to the previous value, is the difficulty, time, and level of concentration required to master the new idea. Therefore, simple ideas usually will gain wider acceptance than complex ones. A sixth one, penalties, would include punishment, ridicule, and blame. New ideas which allow more individual choice, as opposed to those which require agreement with others or which require being put into practice in a social context, will be accepted less easily, according to Barnett.

lndividual differences in the acceptance of new ideas fall under the purview of psychology. Barnett, however, cites characteristics of individuals who, by the nature of their relationship to the rest of society, are more prone to the acceptance of new ideas. These

include the dissident or nonconformist; the indifferent, who have not irretrievably committed themselves to certain ways of their society; and the disaffected, who become so because of some prior experiences in their life. Whole communities can become disaffected and feel anxiety and hopelessness as a result of large misfortunes. Past positive or negative experience with new ideas or ways of doing things will also influence acceptability.

The above brief summary of Barnett's analysis of acceptance, if it remains true to his analysis, leaves him open to the charge of utililitarianism. His factors of acceptance rely heavily on a model of human beings as rational actors calculating the personal benefits and costs of new ideas or new ways of doing things. The multiple values which Barnett claims that people use to determine the acceptance or rejection of an idea are easily collapsed into one or possibly two values which can be summed up into material benefits and internal needs for power, prestige, and pleasure. Little is said of spiritual, ecological, amenity, participatory, autonomy, legacy, fairness, justice, or egalitarian values, all of which may coexist within individuals and groups. What is economically efficient for society or materially beneficial to an individual does not necessarily define what is politically and socially acceptable.

Even when there is general agreement on values and the goals connected to these values, there may be disagreement on specific measures to achieve them. As well, communication gaps may exist among different and opposing groups. For example, the goal of having healthy forests can be universally agreed upon, but what a healthy forest is, and how to reach that state, is a contentious issue that may not get resolved because people will not speak with each other.

Another earlier writer, Walter Firey (1960), addresses the types of processes which people will accept in solving the problem of utilizing energy and materials from the environment. He postulates cultural consistency as a criterion. "A resource process which is consistent, by a people's own modes of reasoning, with important themes or patterns in that people's culture, is more likely to be valued, and hence adopted, than a process which is inconsistent with those themes" (p. 30). Nevertheless, Firey also recognizes inconsistencies in any culture and that an activity or idea may be adopted even though it is not consistent with patterns in that culture.

Frameworks and Methods

One of the arguments in anthropology is the debate over materialist versus idealist (phenomenological) approaches to explanation. The idealist argument (Kershaw 1978) suggests that

> individuals in a given cultural setting will make their decision to accept, reject, or ignore an innovation on the basis of their image and impression of the new artifact, a decision which will be guided by the beliefs held by themselves and those around them. Thus it is probable that there are cross-cultural differences in environmental cognition which influence innovation, acceptance behavior, and migration (p. 10).

Ideas assume primacy in causing behaviors for this position.

Some anthroplogists view the task of anthropology as trying to understand the world as seen by the experiencing subjects. One of the key conceptual frameworks used to do this is the distinction made between etics and emics. Etics refers to the attempt to establish frameworks that can be applied to all cultures in order to insure comparability among cultures. The etic view accepts the categories defined by the investigator as the basis for explanation of the behavior of individuals and groups. Theories used by Western science to explain the behavior of objects, individuals or groups would be etic. Emics refers to the attempt to document behavior and ideas which are meaningful to the group being studied. This approach uses terminology, classifications, and belief statements of the people being studied. It attempts to document an insider's understanding of culture. These two approaches are not mutually exclusive ways of knowing. Rather, they complement each other, especially when it is kept in mind that behavior and intention do not always coincide. For example, ideas may change to justify behavior and then become guides for behavior. People who believe that trees in the Pacific Northwest are a crop -- an emic perspective -- will find forest practices acceptable that are different from those who believe that trees are one part of a forest ecosystem -- another emic perspective.

Another approach is cultural materialism, a framework that would refer to the environmental, economic, demographic, and technological constraints on individual acceptance and use of new ideas, what Harris (1991) calls infrastructure. Ideas or innovations in the infrastructural sector will be propagated if they increase the efficiency of productive and reproductive processes, even if they clash with existing social structure or with symbolic-ideational features of human social life. Innovations in the social structure or symbolic sphere will not be accepted if they are incompatible with the infrastucture. Harris does not suggest, however, that any change in the infrastructure will cause changes in the structural or symbolic spheres, nor does he deny the possibility that changes in the symbolic-ideational sphere can be studied without reference to the infrastructure. Changes may be externally caused or they "may also involve interacting social, economic, demographic, and ideological shifts that are unrelated to external influences but represent the adaptive choices between alternative strategies in a preexisting repertoire of information" (Butzer 1988, p. 92). New ideas which are adopted may be imposed or coerced or subsidized, but are not necessarily acceptable as Belsky (1994) points out in her essay on the use of terracing as a measure against soil erosion in Indonesia.

This essay takes an emic approach, but the reader needs to keep in mind that the acceptance of new ideas takes place in a world where productive processes which sustain health and well being are important. A materialist like Harris recognizes that human beings see nature through filters of values, beliefs, knowledge, and purposes. He would ask that the causal relationship running from infrastructural factors and values be included in any study.

Anthropology is distinctive in its comparative approach, which is often implicit, and with its emphasis on in-depth participant observation and interviewing in addition to methods more widely used by other social sciences, e.g. questionnaires and experiments. Questions of validity arise when the process of investigation depends so much on the nature of the interactions of the anthropologist and the people being studied, a theme that has received substantial attention in the post-modernist "writing ethnography" literature. Nevertheless, many anthropologists suggest some ways to allow for replicability (Werner and Schoepfle

1987). Anthropologists and others argue that questionnaires sometimes may force choices which do not necessarily match the value categories of the respondent (Naroll and Cohen 1973). By using qualitative techniques, the researcher is able to pursue trains of thought and elicit information which may not be discovered by other techniques. People edit their beliefs and may tell the questioners what people feel the questioners want to hear. The anthropologist hopes to catch them in unguarded moments which may be at times of conflict when true values and beliefs may appear (Turner and Bruner 1986).

Conversely, the mere act of questioning or reporting on the values toward or acceptability of something may cause a conscious reflection by the people being questioned. Indeed, it is easy to imagine a scenario where one person comments to another that they have been asked about the acceptability of forest practices and find that they will talk to other people who have had the same experience or to people who are curious about what the purpose of such questions is. It is not much of a leap to imagine that these people will begin to organize a common front toward such a volatile issue as forest practices. The interactions of the researcher, the people being studied, and the larger society in which they live can result in such a thing as an invented tradition, a tradition which tells the group of people what they should value and find acceptable (Hobsbawm and Ranger 1983). People do not necessarily consciously manipulate the past, but may select elements from the past that bolster their present beliefs. Culture is continually formed and reformed as people gain new understandings of their group (Jackson 1995). The “customs and culture” arguments being made in counties such as Okanagon County, Washington, can be seen in this light.

Different groups are not isolated from each other. Ideally, in cases where conflict exists, the different positions held by different groups would be listened to and evaluated in a respectful and considered manner. Human beings, however, may be less open when confronted with difference. The group may consciously try to maintain its own identity when it is constantly confronted by others; each group has its conception of the other group, however faulty. In defining itself in opposition to another group, the first may rigidity and try to eliminate internal differences in order to present a united front.

The Study of a Case

Acceptance or rejection occurs in real situations. Because different contexts may invoke differential ordering of values, specifying contexts becomes the initial and important step for understanding the acceptability of management practices. Consider the following two scenarios. In the first, a region has been settled for a good number of years. Because of remoteness from national markets, its timber has not been able to compete with timber nearer the national market. Little has been cut except right next to or within the population centers. Many wooded valleys with streams full of trout exist in close proximity to the population which depends on high-value manufacturing for its livelihood. A proposal is made to log one of the nearby valleys by using new forestry methods. In the second scenario, a region, environmentally similar to the region in the first scenario, has been heavily logged. Few wooded valleys remain near the centers of population. A proposal to log one of these few valleys by using new forestry methods is made. An individual with the same value structure in each of these situations is asked whether or not she would find logging by this method acceptable. Assume that her highest value is amenity values which serve her recreational needs. Her second ranking value is the preservation or creation of meaningful and well remunerated employment for all people needing jobs and

that timber harvesting can supply those jobs, either directly or indirectly. In the first scenario it would not be a stretch of the imagination to predict that this individual would support logging of one or even several of these valleys if she knew that doing so would ensure a livelihood for everyone into the indefinite future. It also would be possible to predict that she might oppose logging in the second scenario because of the scarcity of places which have the amenity values she desires. The importance of context is clear.

Specifying context can be done in two ways. Scientists from a variety of disciplines can research the region or smaller landscapes and the drainage being proposed for logging and report a large quantity of physical, biological, archeological, historical, economic and social information. Whether this information is similar to the information which the people of the region have remains problematic. The meaning of the valley to people will change depending on the scarcity of the type of environment as well as the amount of information which they have available and have absorbed. Since acceptability depends upon the meanings construed by people, an emic analysis of context becomes necessary.

The symbolic meanings of a place loom large for a researcher interested in acceptability, and play a role in what context means. Visiting a place with family as a youth, catching one's first fish, or having some other memorable experience make places special. Familiar drives to these places become disorienting if the landscape is drastically changed. Conversely, places can take on meanings because of political conflicts. Circling the wagons, discussed earlier, is one possible reaction to conflicts over cutting of trees. Both sides may decide that it is here that they are going to make their stand, creating a conflict which may take on a life of its own and cause further hardening of positions in the face of threats.

A second step in understanding the acceptability of management practices is to investigate people's values. Since values may at least be ranked as to relative importance, the researcher needs to be able to uncover this ranking. Even better would be to be able to use an interval scale to rank values. By having interval data on values, it would be possible to see how much more or less important each of the values is in comparison with all other values. It is questionable whether this precision of data is possible to extract easily, because values and their relative rankings may not be that precisely mapped in people's minds. Indeed, it is an open question whether people can rationally assess their hierarchy of values (Schwartz 1994). But, by having information on values, it may be possible to find out what tradeoffs people are willing to make or whether they are willing to make them at all.

A third step should be an investigation of the level of knowledge that people have about the practices and their understanding of the impacts of the project being proposed. The researcher should be able to gather information about descriptions, classifications, and theories which people have about the practices. Local inhabitants' experience of forest ecological history will shape their values and what they feel to be valid claims to forested land. Policies shaped outside this perspective will not be considered valid as Fairhead and Leach (1994) demonstrate for West Africa. Their knowledge of consequences, including probabilities of different outcomes, will play a large role in determining the acceptability of the proposed practices. Knowing the sources of people's information about practices is part of this factor.

A fourth and related step to study is the attribution of purpose for the proposed practices. Is it seen as a means to get more timber? As a Trojan Horse for the timber industry? Or is it seen as a form of limiting production of timber and of wasting perfectly good wood? Some may view “new forestry” as a way of imitating natural disturbances in the forest or as a way to protect wildlife. Important in deciding which of these positions people will take is the nature of the advocate. Distrust of the proponents because of previous experience or a generalized antipathy toward outside authority become salient issues for acceptance or rejection of new practices.

The last important step needed is to research the character of the potential acceptor. Especially important is the reference group(s) to which people belong or the people with whom they identify. Understanding individual life experiences can help in discovering how people have arrived at their positions of acceptance or rejection.

To investigate context, values, knowledge, and individual characteristics requires both participant observation and in-depth interviewing and survey research. Qualitatively gathered information allows for the exploration of nuances in meanings which people construe. Information gathered in this phase can be used in the construction of questionnaires meaningful to respondents. By randomly sampling the relevant population, distribution of values and meanings can be ascertained. For an application see Hansis (1995).

Having carried out all these steps does not guarantee that the manager will be able to predict the acceptability of a new idea or practice to various individuals and groups. As meaningful participation becomes a stronger value, managers need to realize that devising practices that please the largest number of people may still not be acceptable if these people have not had a voice in devising and analyzing them.

Literature Cited

Anyinam, Charles. 1987. Availability, accessibility, acceptability, and adaptability: four attributes of African ethno-medicine. Social Science and Medicine. 25(7): 803-811.

Barnett, Homer G. 1953. Innovation: the basis of culture change. New York: McGraw Hill. 462 p.

Barth, Frederick 1987. Cosmologies in the making. Cambridge: Cambridge University Press. 99 p.

Belsky, Jill. 1994. Soil conservation and poverty: lessons from Indonesia. Society and Natural Resources. 7(5): 429-443.

Blaut, James M. 1987. Diffusionism: a uniformitarian critique. Annals of the Association of American Geographers. 77(2): 30-47.

Brumfiel, Elizabeth M. 1992. Distinguished lecture in archeology: breaking and entering the ecosystem -- gender, class, and faction steal the show. American Anthropologist. 94(3): 551-562.

Burch, E. S. 1971. The nonempirical environment of the Arctic Alaskan Eskimos. Southwestern Journal of Anthropology. 27(2): 148-65.

Butzer, Karl. 1988. Diffusion, adaptation, and evolution of the Spanish agrosystem. In: Hugill, Peter J. and Dickson, D. Bruce, eds. The transfer and transformation of ideas and material culture. College Station, TX: Texas A & M Press: 91-109.

Fairhead, James; Leach, Melissa. 1994. Contested forests: modem conservation and historical land use in Guinea's Ziama Reserve. African Affairs. 93(3): 513-534.

Firey, Walter. 1960. Man, mind and land. Glencoe, IL: Free Press. 256 p.

Foster, Robert J. 1991. Making national cultures in the global ecumene. The Annual Review of Anthropology. 20: 225-260.

Hansis, Richard. 1995. The social acceptability of clearcutting in the Pacific Northwest. Human Organization. 54(1): 95-101.

Harris, Marvin. 1991. Anthropology: ships that crash in the night. In: Jessor, Richard, ed. Perspectives in behavioral science. Boulder, CO: Westview Press: 70-114.

Hobsbawm, Eric; Ranger, Terence. 1983. The invention of tradition. New York: Cambridge University Press. 320 p.

Jackson, Jean E. 1995. Culture, genuine and spurious: the politics of Indianness in the Vaupes, Colombia. American Ethnologist. 22(1): 3-27

Kershaw, A. C. 1978. Diffusion and migration studies in geography. In: Duke, P.G., and others, eds. Diffusion and migration: their roles in cultural development. Calgary: University of Calgary Press: 6-13.

Kluckhohn, Florence R.; Strodtbeck, Fred L. 1961. Variations in value orientations. Westbrook, CO: Greenwood Press. 437 p.

Kroeber, Alfred L.; Kluckhohn, Clyde. 1952. Culture, a critical review of concepts and definitions. Cambridge, MA: The Peabody Museum. 223 p.

Meir, Avinoam. l988. Adoption environment and environmental diffusion processes: merging positivistic and humanistic perspectives. In: Hugill, Peter. J.; Dickson, D. Bruce, eds: The transfer and transformation of ideas and material culture. College Station, TX: Texas A & M Press: 233-247.

Murdock, George Peter. 1956. How culture changes. In: Shapiro, Harry L., ed. Man, culture, and society. New York: Oxford University Press: 247-260.

Naroll, Raoul; Cohen, Ronald. 1973. A handbook of method in cultural anthropology. New York: Columbia University Press. 1017 p.

Robbins, Richard H. 1993. Cultural anthropology: a problem-based approach. Itasca, IL: F. E. Peacock Publishers. 240 p.

Schmink, Marianne; Wood, Charles E. 1992. Contested frontiers in Amazonia. New York: Columbia University Press. 387 p.

Schwartz, Shalom H. 1994. Are there universal aspects in the structure and contents of human values? Journal of Social Issues. 50(4): 19-45.

Turner, Victor; Bruner, Edward, eds. 1986. The anthropology of experience. Urbana: University of lllinois Press. 391 p.

Vogt, Evon Z.; Albert, Ethel M. 1966. People of Rimrock: a study of values in five cultures. Cambridge, MA: Harvard University Press. 342 p.

Werner, Oswald; Schoepfle, G. Mark 1987. Systematic fieldwork. Newbury Park, CA: Sage Publications. 2 vol.

This page is intentionally left blank.

Socially Acceptable Forestry: Mediating a Compromise or Orchestrating the Agenda?

Walter F. Kuentzel

Abstract

Kuentzel, Walter F. 1996. Socially acceptable forestry: mediating a compromise or orchestrating the agenda? In: Brunson, Mark W.; Kruger, Linda E.; Tyler, Catherine B.; Schroeder, Susan A., tech. eds. Defining social acceptability in ecosystem management: a workshop proceedings; 1992 June 23-2S Kelso, WA. Gen. Tech. Rep. PNW-GTR-369. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station: 49-63.

Rather than being a process based on consensus, natural resource policy is shaped by continuous conflict, with players characterized by different levels of power and influence. Instead of being a neutral mediator in the midst of this arena of conflict, the U.S. Forest Service tends to influence popular definitions about forest management, thereby maintaining its own power. Sociological theories, such as consensus-conflict and theories of state and power, are examined as a way to understand such imbalances of power and their resultant influence on forest policy.

Keywords: Ecosystem management, resource policy, social values, stakeholders, consensus-conflict framework, social structure, public discourse.

Introduction

The U.S. Forest Service's ecosystem management initiative is often framed as the "middle ground" between the two extremes of "the wider industry-environmentalist conflict" (Drushka 1990). Writers often use a battleground metaphor to characterize this conflict (Harbison 1992[1]). Salwasser (1990) says forest managers are "caught in the crossfire between competing interests." Ecosystem management researchers point to fundamental shifts in the values of society as the cause of this emergent conflict over the future of the nation's forests (Brooks and Grant 1992, Salwasser 1990, Williams 1991[2]). The task of

---

WALTER F. KUENTZEL is a sociologist and assistant professor in the Recreation Management Program at the University of Vermont, Burlington, VT, 05405.

[1] Harbison, J.S. 1992. New Perspectives in the Ouachita National Forest. Paper presented at the Fourth North American Symposium on Society and Resource Management. Madison, WI. May 1992. On file with the author.

[2] Williams, G.W. 1991. New Perspective, new forestry, or biological diversity: how did we get here? Paper presented to the Bureau of Land Management's Biological Diversity/Silviculture Workshop. Gleneden Beach, OR. May 1991. On file with the author.

forest managers in this escalating conflict is to act "as a mediator between society and the physical environment" (Bonnicksen 1991, p. 10), or to be stewards of the common ground" (Salwasser 1990, p. 34). The problem for managers is to "help society select an optimum mix of values' (Norris 1990, p. 1) that balances the competing interests of society. This institutional self-perception assumes that public policy is the product of pluralistic compromise where every individual has equal opportunity for input into public discourse. In this social arena, orderly policymaking requires a public agent (i.e. the Forest Service) to mediate divergent claims, and to fashion a compromise. Thus, the Forest Service seeks to forge a socially acceptable forestry in the middle ground between competing interests who bring different social values into the conflict.

I argue, however, that this middle ground metaphor is an inadequate way to think about the social controversy that surrounds contemporary use of the nation's forest lands. The prevailing view (Drushka 1990, Salwasser 1990) thinks of policy as a consensus-making process. I argue, however, that policy is forged in ongoing conflict. Forest policy reflects how people mobilize their natural resource ideologies, which are constantly challenged, into institutional routines and practices that reflect a particular view of how forests *ought to be managed* (Gramsci t 1971, Thompson 1990). Power in this arena of conflict is never even. Different interests in a debate have differential access to the policymaking process (Block 1987, Culhane 1981, Galanter 1974). Further, the Forest Service is not a neutral mediator of compromise, but is one proactive player in this arena of conflict. It exerts an agenda onto public discourse that reflects its institutional impetus to maintain public legitimacy and organizational power. Therefore, the alternate perspective presented here focuses on how ideological claims successfully frame societal definitions and norms about forest management, and therefore systematically exclude the consideration of competing policy options.

The prevailing view in the Forest Service and forestry profession sees policy as the outcome of a compromised consensus. The alternate view I present here sees policy as the outcome of conflict. The consensus-conflict issue was a central issue of debate in sociological theory during the 1960s. Bernard's (1983) analysis of this debate can provide an orienting framework for thinking about the Forest Service's role in current social controversies, and for thinking about socially acceptable forest management practices. It also draw parallels between Bernard's framework and theories of the state (Block 1987) and theories of power (Stone 1980) to make arguments against pluralist assumptions about agency neutrality and equal access to the policymaking process.

The Consensus-Conflict Debate

The consensus-conflict debate asked if social order is the product of an inherent drive toward association and cooperation, or the outcome of competitive power relationships achieved through ongoing episodes of social crisis and conflict. Bernard's (1983) analysis of the consensus-conflict debate cross-tabulates this debate into four categories with one axis representing assumptions about contemporary societies and the other representing assumptions about human nature (figure 1). The resultant four types of theories include conservative consensus theories, sociological consensus theories, radical conflict theories, and sociological conflict theories.

Conservative Consensus Theories

Conservative consensus theories describe human nature as inherently cooperative, and societies as inherently associational. The problem of social order for these theories is a logistical one of how to rationally manage human association such that the individual's

interests correspond to the public interest. These theories assume that social order must be centrally managed by the upper class (Aristotle), by the “intellectual priesthood” (Comte), or by the laws of government (Locke). The result is a rationally managed social order that seeks to maximize the benefits that accrue to a society. Conflict, from this perspective, is viewed as deviant. Thus, the problem of social order asks how to minimize conflict by bringing the deviant back into the associational fold through institutional law or appeals to reason and knowledge made by the intellectual elite.

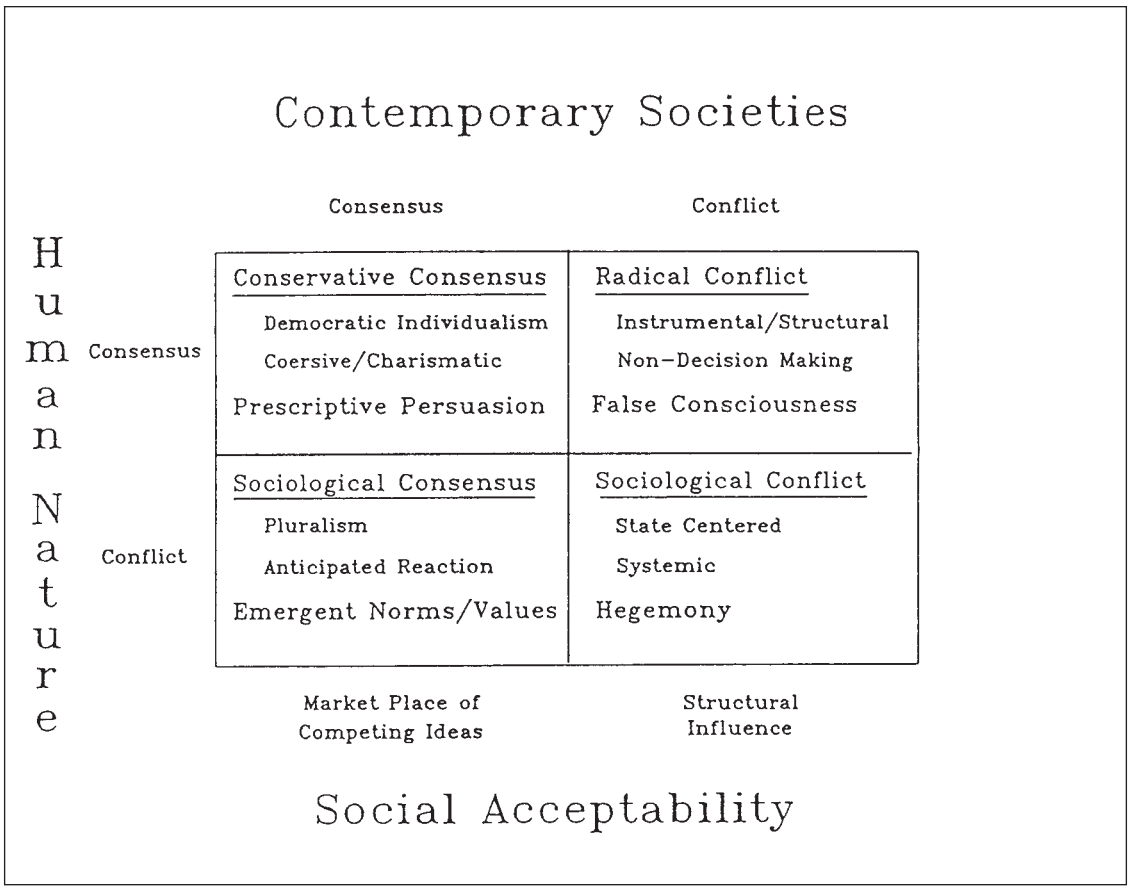

Figure 1 - Bernard’s (1983) analysis of the consensus-conflict debate.

Sociological Consensus Theories

Sociological consensus theories maintain that individuals are inherently driven by self-interest, but have enough rationality to recognize the need for cooperative association that makes individual action accountable to the good of a wider society. Therefore, out of a common interest in self-protection, people come together to form governments that will protect society from unrestrained individual self-indulgence. More recent sociological elaborations of this “social contract” describe the concept of social norms and values as shared standards of conduct that hold societies together. Durkheim (1982) used the

concept of a social norm as the standard of behavior for people occupying positions in a progressively elaborate and complex division of labor. Parsons (1971) described the concept of social values as mechanisms that are functional for maintaining social order and social consensus. From the sociological consensus perspective, conflict is incipient in human nature, and the problem of social order is how to minimize conflict through shared evaluative standards.

Radical Conflict Theories

The radical conflict theories are most closely aligned with neo-Marxist theories of society. This perspective asserts that people naturally seek to live in harmonious relationships with one another. Yet the structure of societies, and in the modern/contemporary case, the structure of capitalism, situates people in unequal relationships with one another. This approach focuses on the economic or material base of society and asserts that the drive toward capitalistic accumulation stratifies society and places owners and wage laborers in an adversarial position. From this perspective, class conflict characterizes society, and the problem of social order is how to establish a more equitable economic system that facilitates personal expression and minimizes adversarial human relationships.

Sociological Conflict Theories

Finally, the sociological conflict theories maintain that conflict among people is the inevitable motor of history. Societies remain stable when people successfully frame the public agenda and fashion institutions that "normalize" their accounts in public discourse. The legitimacy of these institutions is challenged by specific historical events that can lead to charismatically led revolutions, social movements, or institutional overhauls. This perspective maintains the struggle for dominance found in the radical conflict theories, but rejects the value-judgment that a given social order (e.g. capitalism) is bad and must give way to a new and better system. instead the sociological conflict perspective asserts that social order results from the effective mobilization of power through the control of ideological meaning. A society reproduces itself when those in power successfully manage public discourse. Thus, from this perspective, social conflict is a given, and social order is founded on power mobilized in ideological meaning, and naturalized as the "way things ought to be."

Consensus vs. Conflict in Ecosystem Management Forestry

I argue that the Forest Service's thinking about its own position in the policy arena and about ecosystem management in particular falls almost exclusively in the two consensus traditions. The *conservative consensus* tradition in the Forest Service and forestry profession represents a top-down response to present-day controversies. This perspective observes that the public lacks consensus about forest management, and about what benefits forests should provide. This lack of consensus is due to public misperception, misunderstanding, and confused thinking about forestry and timber management (Madden 1990). Thus, the public needs education from the forestry profession because there is a gulf between public perception and empirical reality (Magill 1991). Social acceptability follows from the profession's persuasive appeals (McQuire 1968, Petty and Cacioppo 1986) to the public about best-management-practices that are grounded in empirical research.

This does not mean that the conservative consensus position in the forestry profession is an elitist argument for forest management. The centerpiece of ecosystem management forestry is its effort to incorporate divergent social values into management practices. The conservative consensus tradition, however, tends to objectify the notion of social values within the framework of rational scientific management. Social values from this perspective refer to valued objects such as commodity values, amenity values, ecological

values, and public use values (Stankey and Clark 1991)[3]. These objectified values are the end state toward the realization of desired outcomes and social benefits (Driver and others 1991). Thus, the forestry profession seeks to quantify these values and thereby maximize the provision of benefits to society.

The *sociological consensus* position in the forestry profession corresponds to the crossfire or battleground metaphor (Salwasser 1990). This perspective emphasizes that social values, in the sociological sense, have moved off center of forestry practices. Social values that favored economic growth, rural community development, hard work, and work in the out-of-doors helped perpetuate a long history of "Old Forestry" practices. These kinds of values were functional for social order in that they provided a legitimating mechanism that maintained the prevailing harvest procedures and institutions that supported them (Parsons 1971). The shifting social values of society, that come from a progressively more urban and post-industrial population and labor force, do not support the old way of doing forestry. Thus, the forestry profession in the 1980s and 1990s is scrambling to square itself with a new mix of social values. Ecosystem management in the Forest Service, from the sociological consensus perspective, is seeking the middle ground between shifting social values. Social acceptability is achieved by accommodating the optimum mix of social values. This consensus provides the agency and the profession a gauge for the most desirable forestry practices and orientations, and in turn, re-legitimates the profession's function in society.

These two consensus positions dominate the ecosystem management literature, and may frame the way the Forest Service thinks about its own role in society. From the conservative consensus perspective, foresters wonder why they are no longer agents of public trust, carrying out their jobs in a scientifically grounded way, but are instead besieged by litigation, public relations battles, and growing local controversies. From the sociological consensus perspective, foresters attempt to extract themselves from the center of controversy, casting themselves as mediators of conflict waged in the public arena, but then wonder why their policies of compromise often feed the flames of controversy rather than extinguish them. Consequently, the question of social acceptability is asked from a sociological consensus perspective. What forest management strategies will accommodate the growing diversity of natural resource values evident in contemporary society?

The conflict perspective, on the other hand, suggests that public controversy of various magnitudes has always characterized the Forest Service's policymaking process. Controversy and social tension are necessary and sufficient conditions for policy generation. A *radical conflict* analysis would depict Forest Service policymaking as the outcome of class conflict. Kolko (1963) argues that Forest Service policy during the Pinchot years favored large, wealthy timber interests over small local timber interests. The I.W.W. movement in the 1910s and 1920s was a labor movement that used socialist rhetoric to challenge the foundations of the timber production process (Todes 1931). Finally, the equity movement in the U.S. Forest Service during the 1930s (West 1982) was a struggle between large cattle interests supplying beef to midwestern markets, and

---

[3] This differs from sociological definitions of social values, which refer to values as stable beliefs used as standards of evaluation (Rokeach 1970) or as "criteria of desirability" (Williams 1979).

small scale grazers seeking subsistence from western National Forests. The radical conflict perspective asserts that the economic structure of society maintains inherent inequalities between different social groups. This inequity means those who contribute more to society's economic input will have more influence on the disposition of its surplus. Consequently, forest policy exhibits an institutional inertia that favors wealth. Yet forest policy is the outcome of conflict when outside wealth and power are imposed on local (or rural) social structures.

More importantly, the conflict perspective would maintain that policies like ecosystem management are not compromised solutions that attempt to integrate multiple social values and interests. Rather, policies result from the ongoing tension between the inertia of institutional power and routine, and counter-efforts to mobilize power in alternate meanings and ideologies. From the *sociological conflict* perspective, policy statements are statements of imperative reflecting a "normalized" view of the world that is logically consistent and nonproblematic in everyday life. So when a person says that "we've got to quantify society's values," they implicitly assume an empirical view of the world that relies on mathematical modeling of subjective phenomena, which should then influence decisionmaking. This normalized view guides the institutional practices and social traditions that reflect the "way things ought to be." Policy shifts constantly because people challenge established statements of imperative, and successfully redefine or reframe an issue of public contention. From this perspective, policy is not a compromise of multiple viewpoints, but is a function of who can formulate the most compelling story about some phenomenon, and then mobilize people and institutions behind that account.

A sociological conflict analysis of the Forest Service would say that the agency is struggling to define how forestry in the 1990s ought to be, in order to reassert its institutional purpose and legitimacy. "Traditional" foresters cling to the even-aged, single species approach to silviculture as the most efficient way to provide forest products, while a new generation of foresters press for ecosystem management to ensure a sustainable resource. Meanwhile, others (Atkinson 1990) level charges of "silvicultural correctness" at the ecosystem management policy, saying the policy has diluted the agency's purpose and effectiveness. Consequently, the Forest Service is not building policy by mediating divergent claims, but is instead influencing policy in its efforts to "normalize" its definition of forestry for the 1990s.

As such the Forest Service is not a neutral mediator of divergent social values. Rather, it is one stakeholder that actively tries to influence public discourse in a way that favors its institutional perpetuation. Further, the "playing field" of controversy is never level. Those who most successfully frame the agenda determine what questions are relevant and therefore who can best address them. Thus, access to the policymaking process is never equal because the way questions become relevant determines who becomes interested and how they bring resources to bear on the issue. From this conflict perspective, the Forest Service is not engineering a socially acceptable forestry. Instead, it is a participant in contemporary conflict that forges new ways of thinking about humans and forests, and creates new ways that people organize themselves around the use of natural resources.

Therefore, from a conflict perspective, a socially acceptable forest management policy implies an uncontested policy. This does not mean that the policy is a good policy. It simply means that either structural forces preclude access by certain people to the policy-

making process, or oppositional groups have been unable to articulate a coherent alternative to the dominant ideology embodied in the extant institutions and social practices. Thus, the consensus analysis asks how to achieve a socially acceptable forest management policy, while the conflict analysis asks who is able to dictate forest policy, and how? To understand this question of access to, and influence of policy, two issues must be analyzed more closely. First, what is the role of the Forest Service as an agent of the state, and second, why do people have unequal access to the policymaking process? This paper therefore extends Bernard's (1983) consensus-conflict framework, drawing parallels between theories of the state and theories of power to address these issues more carefully.

The U.S. Forest Service as a State Agent

The middle-ground perspective of the Forest Service, and the forestry profession by definition, assumes that it acts as an impartial mediator of social disputes. It achieves compromise by facilitating policy that relies on basic science and broad social input. Conflict approaches to state theory, however, maintain that resource management agencies are not impartial providers of public goods, and neutral mediators of resource allocation debates. State theory in the radical consensus perspective says that the state is structurally predisposed to favor the interests of the wealthy or upper classes. State theory in the sociological consensus perspective says that the state is but one player in an environment of conflict. The state's actions are proactive attempts to influence the public agenda so as to maintain institutional authority and legitimacy. Consequently, the state acts within its own ideological framework and mobilizes its resources to "normalize" its accounts in public discourse. The following sections situate the Forest Service's self-perception about its role as a state agent in the context of state theory (Block 1987), and consensus vs. conflict perspectives of the state (figure 1).

Democratic Individualism

The state in the conservative consensus position functions as a trust to insure the collective public good. This approach asserts that each person has an equal claim to the society's benefits, and an equal voice in their allocation. The state functions as the coordinating unit to rationally maximize benefits, and to ensure their equitable distribution. Where consensus is in question, the state acts as the final arbiter making allocation decisions based on reasoned and impartial judgments. Thus, decisionmaking is autocratically centralized as the state serves as the proxy for individual interests. The ideology and rhetoric of the Progressive Conservation Movement was closely aligned with this democratic individualist theory of the state. Writers such as Hays (1959), Pinchot (1947), and Van Hise (1910) firmly believed that the role of the state was to provide rational scientific management of natural resources that provided the greatest good for the greatest number and for the longest time. For these writers, science and centralized state power offered the best prescriptions for resource management.

Pluralism

The state in sociological consensus theories serves a regulatory function that mediates between conflicting factions in a society. Here, state theory embraces the pluralist tradition that asserts different interest groups in society mobilize their collective resources to achieve outcomes that favor their aims. The crossfire metaphor falls squarely in this tradition. The Forest Service, as an agent of the state, seeks to provide an orderly allocation of resources to the public as a whole. They are constrained by groups with widely varying aims. One group wants to maximize wood fiber production, another wants to enhance wildlife, and still another wants off-road vehicle (ORV) access. The state must

facilitate a policy compromise that more or less satisfies the demands of these multiple constituencies. From this perspective, the state agency does not create public policy. Rather, the state facilitates a compromised solution to divergent public demand. This pluralist perspective, by virtue of the ecosystem management rhetoric, appears to be the predominant position in the Forest Service today. In addition, the tension between "Old Forestry" and "New Forestry" practices may reflect the inability of the old guard to shed its self-prescribed role as the scientific benefactor of public benefits from the conservative consensus position, and to take on the role of mediator of pluralistic public demand.

Instrumentalist/ Structuralist/ State-Centered

The state in radical consensus theories is rooted in class relations. The instrumentalist theory of state proposed by Miliband (1969) takes a neo-marxist approach by asserting that the state serves to manage the economic affairs of the upper class. Policymaking resides in the hands of the capitalist class, who then use the state as the mechanism to reproduce conditions that maintain their wealth. The "capture" thesis (Culhane 1981, Foss 1960, West 1982) is illustrative of instrumental state theory. This perspective argues that state agencies can become controlled by public interests with a critical stake in how a resource is allocated. Policy decisions are only made with direct influence and approval of that influence. These policies become solidified in the institutional structure of the agency and access to the benefits offered by the agency becomes limited.

Structuralist theories of the state (Gold and others 1975, Poulantzas 1969) reject the conspiracy assumptions of instrumentalist theories that assume the upper classes play an active hand in government policy. Instead, state officials endorse policy actions that favor wealthy interests that are revenue generating, and neglect lower class interests that are service demanding and drain state revenues (Poulantzas 1969). The "cooptation" thesis (Selznick 1949) illustrates structuralist state theory. State agencies seek to solidify their position by soliciting the input of influential individuals and groups within local jurisdictions. In the interest of survival, the agency willingly consents to interest group dictates, and orients its policy toward the needs of the powerful.

State-centered theories (Block 1987) argue that wealthy interests are not passive benefactors of state efforts at self-perpetuation. Instead, wealthy interests and labor interests actively bolster the power of the state. This perspective maintains that capitalism, if left to free market forces, is inadequate for organizing a stable society, because the profit motive yields chronic cycles of overproduction, followed by product devaluation, unemployment, and decreased product demand. Thus, capitalism seeks to rationalize the market by promoting a protective regulatory state that restrains market freedom. Progressive era historians have shown how early 20th century Forest Service policies favored wealthy timber interests by moderating market fluctuations in the industry, thereby reducing the risk of large scale capital investment (Robbins 1982). Labor also contributes to expanding state power by relying on an agency to guarantee human working conditions, minimum wages, and job retraining. Thus, labor relies on the state to participate in the flow of capital investments that will sustain the conditions of labor, for example, through the subsidization of timber sales.

Legitimacy and the State

The sociological conflict perspective sheds the mediator and class-based assumptions about the state. Instead, the state actively participates in the arena of conflict, pressing its agenda into public discourse and positioning itself to sustain its legitimacy and authority. Thus, the state is only one actor in a broader constellation of players that might include various status groups, labor organizations, business sector interests, civic organizations, or other state agencies. The dominant positions articulated in a conflict are the ones that "ring a responsive chord," or successfully frame public "common sense" about an issue. Thus, policy is influenced by those who most effectively frame a view of the world that translates societal perceptions in the most compelling way. The Forest Service, from this perspective, has proactively moved to reframe its natural resource ideologies and, at the same time, reframe the account of its institutional mission. In a time when the Forest Service felt it was losing control of the forests in the NEPA and NFMA planning (and litigation) process, forces within the Forest Service, such as the Association of Forest Service Employees for Environmental Ethics (AFSEE) were able to mobilize an approach to ecosystem management (Williams 19912, Salwasser 1992[4])within the New Perspectives initiative. Ecosystem management can be seen as an effort by the Forest Service to expand, or at least maintain, its authority in an environment of increasing outside public pressure and conflict. The Forest Service's desire to understand the mechanisms of "social acceptability" is also a proactive state effort to expand, or at least maintain, its authority in an environment of increasing outside public pressure and conflict. The Forest Service's desire to understand the mechanisms of "social acceptability" is also a proactive state effort to expand, or maintain, its legitimacy by incorporating a wider array of social values in its management planning. In either case, these actions by the Forest Service embody ideological claims about how natural resources "ought to be" managed. These claims are embedded in conflict, and designed to perpetuate state institutions that operate in an environment that constantly changes.

Power and the U.S. Forest Service

The Forest Service's consensus perspective assumes that the public can have equal access to the policymaking and decisionmaking processes of a society. This assumption understands the concept of power in a rather benign way. A "rational" society delegates authority to a centralized body that arbitrates disputes and makes the final decision. Power is vested in social institutions that must balance divergent public needs and demands. To maintain their legitimacy, these institutions must wield power in good faith, seeking to maximize social benefits at minimal cost. Thus, power from the consensus perspective enables a more equitable distribution of societal benefits, and ensures a more orderly functioning of a society. The conflict perspective, on the other hand, conceptualizes power as a constantly contested dynamic. Power is not endowed by a

---

[4] Salwasser, H. 1992. Ecosystem management: a new perspective for National Forests and Grasslands. Paper presented at the University of Wisconsin. Madison, May 14, 1992. On file with the author.

social contract, but instead is the outcome of a competitive process where different stakeholders vie for social influence. People contest power through argumentation and public discourse. People achieve power by framing their discourse in the most socially compelling way. They then reproduce power through institutions that reflect a certain societal perspective. Consequently, people sympathetic to the prevailing view have greater access to the policymaking process, and those who challenge the prevailing view must fashion accounts that effectively reframe the world ways that can mobilize action. To illustrate these divergent approaches to power and access to policy, the following sections parallel Stone's (1980) analysis of power and Bernard's (1983) consensus/conflict framework (figure 1).

Information Broker

The approach to power within the *conservative consensus* tradition is what Stone (1980) calls decisional power. This form of power derives from the classic Weberian description, of power where A has power over B when A gets B to do something that he or she otherwise would not do. Thus, an individual or group exerts power with the tools of persuasion, either verbal, physical, legal, or emotional. This consensus perspective casts the Forest Service in the role of information broker. It assumes the public has incomplete information about resource management issues and therefore needs education to make rational policy judgments. From this perspective, the Forest Service attempts to solve public disputes over forest management by better educating the public about forestry practices. The agency exerts power using technical knowledge, and what Weiss (1983) calls the shared myth of science.

Anticipated Reaction

In the *sociological consensus* tradition, power emanates from a normative structure within a society. In what Stone (1980) calls anticipated reaction, A holds power over B when B's actions are influenced by how he or she thinks A will react. The force of power lies in the expectations of others, and not in some purposive calculated action by those with power. An individual or group exerts power unintentionally (Bachrach and Baratz 1970) over others through sanctions embedded in the structure of society. From this consensus perspective, the Forest Service's power is an institutional power bestowed on it by the public. Thus, groups in society who make claims on the benefits offered by the National Forests must act in reference to the institutional procedures and policies of the agency.

New Forestry, from this perspective, can be viewed as a good-faith effort by the Forest Service to solidify its power in an environment of shifting social values. The agency's unintentional form of power is weakened when norms and values diverge, and certain groups no longer rely on established institutions to define and manage public policy. The Forest Service, perceiving this shift in public values, seeks resource policies that can accommodate the developing interests of multiple groups. This perpetuates its position as final arbiter in allocation debates, and ensures that interest groups will continue to act with reference to agency policy in the claims they make on forest lands.

Nondecision Making

Theories of power in the conflict tradition argue that power is achieved through struggle that thereby engenders inequity. Power from the *radical conflict* perspective relates to what Stone (1980) calls nondecisionmaking power. Nondecisional power means that A has power over B when A can manage the public agenda such that B does not think of

alternate agendas or courses of action (Crenson 1971). The class-based assumption of the radical conflict perspective asserts that wealth controls the social agenda by solidifying the economic structure of a society. Consequently, the laboring class participates in the image of economic progress and is ostensibly content with its social position and life chances. Shifts in power occur when the working class becomes dissatisfied with its social position and perceived potential.

In the early years of the Forest Service, the large timber and railroad companies actively supported Pinchot's conservation agenda as a means to stabilize fluctuations in the timber market and solidify market conditions. This coalition between the federal government and wealthy timber companies effectively established the rules of the game in the timber industry, limiting the ability of smaller timber operators to compete. The I. W. W. movement in the 1910s and 1920s was a counter-struggle by labor in the timber industry for improved hours, job security, and disability compensation (Todes 1931). The I. W. W. used a socialist rhetoric to challenge the structure of labor compensation, and thereby challenge the corporate/government power coalition.

Systemic

Power struggles from a *sociological conflict* perspective are not restricted to class-based interests. Instead, power resides with the individual or group best able to capture the imagination of a broad social constituency, and who can then implement an institutional organization that embodies the ideals, values, and beliefs of that constituency. Change occurs when groups unsatisfied with the status quo effectively "mobilize meaning in the service of power" (Thompson 1990). That is, power is derived from the ideologies that commit people to certain beliefs, attitudes, and courses of action. These ideologies then have material consequences (Althusser 1971) in the way they are made concrete in the institutions and laws (i.e, the social systems) that support that ideological meaning.

The equity movement within the Forest Service's grazing policy of the 1930s (West 1982) illustrates this form of systemic power. The equity movement represented a policy designed to limit the control that large Western stockmen had on Forest Service grazing permits during the early 1900s (West 1982). The policy sought to limit the size and duration of grazing leases to accommodate homesteaders with small livestock holdings hit hardest by the depression. Thus, the equity movement embraced the ideology of homesteading and depicted the Western Stockman's Association as the enemy; and institutionalized a policy in the Forest Service that limited the Association's power. In the late 1930s, however, the Forest Service backed off its equity policy because it wanted the stockmen's support in a threat to transfer the agency from the Department of Agriculture to the Department of Interior (West 1982). In this latter case, the Forest Service re-embraced its multiple-use conservation ideology to stem the threat of transfer.

Conclusion

The purpose of this analysis has been to critique the way the U.S. Forest Service and the forestry profession think about their role in the policymaking process. By elaborating the consensus-conflict framework to draw parallels with state theory and theories of power, this paper suggests that the Forest Service's self-described "stewards of the common ground" label is inadequate. This elaboration shows that the Forest Service is not a neutral mediator seeking compromise between competing factions in the public sector.

Rather, the Forest Service in general, and ecosystem management in particular, is embroiled in the middle of a controversy that is seeking to crystallize some revised version of how forestry for the 1990s ought to be, in the historical context of an emerging post-industrial society. In other words, the Forest Service and the forestry profession take an active role in pressing forth their own agenda into the public debate, and are far from disinterested players. From this perspective, the Forest Service cannot be neutral because its own agenda and its own sense of self-justification is at stake. Thus, the Forest Service will mobilize its own power and resources in a highly fractionalized environment of conflict to refine and nourish its vision of forestry for the 1990s. Ecosysfem management helps legitimate the Forest Service by engaging in an emerging ideology. At the same time, its shifting emphasis feeds the flames of controversy.

Social Acceptability

The question of social acceptability is asked from a "middle ground" perspective, and may not be exactly the best question for the forestry profession. From the consensus perspective, social acceptability is forged in a "marketplace of competing ideas" (figure 1). This perspective uses prescriptive persuasion to bring the public back in line with the forestry profession's scientific rationales. This social engineering strategy seeks to develop methods of persuasive appeal (Manfredo and Bright 1991) that have the desired effect. The sociological consensus position uses effective leadership to facilitate social compromise in the form of emergent norms or value clarification. It then seeks to bring the forestry profession in line with this social compromise. Social acceptability comes from concession, followed by policymaking that maximizes benefits to the greatest number of people. This strategy seeks to first quantify divergent social values, and then actively involve the public in Delphi processes, focus group sessions, workshops, and other less formal input mechanisms.

Social acceptability within a conflict approach lacks the intentionality of the consensus approach, and is instead the product of broader structural forces. The radical conflict position asserts that the agency sustains a class-based interest that seeks to extend its own authority by favoring the interests of the wealthy. Social acceptability is defined in a negative sense as the acquiescence to an economic structure that sustains inequitable relations as the "way things ought to be." The sociological conflict position asserts that social acceptability is the product of ideological mobilization, and that the Forest Service and forestry profession are just one interest among many seeking to promote their agendas within public discourse. Thus, social acceptability is achieved in a historically meaningful context (e.g., Pinchot's achievements during the Progressive era) when someone can mobilize mass support behind an account of what forest management should be, at the expense of alternate accounts. In this context, however, power is necessarily unequal and always contested, and the socially acceptable way of doing is constantly changing.

Ecosystem Management in the 1990s?

The public has mobilized an effective challenge to the efficiency-driven methods of the even-aged, single-species timber production process. This analysis suggests that instead of formulating an ecosystem management compromise and then engineering social acceptability among competing forces, the forestry profession may first need to analyze more carefully its own role in the policymaking process. The Forest Service must

address such questions as the balance of power in local conflict situations, its own access to decisionmaking power, its relationship to economic equity, its power of exclusion from the allocation process, its institutional inertia that constrains responsive action to local problems, the forces that influence its agenda, its own agency values, its structural ties to public interests, how these ties legitimate its own existence, and the ideologies that frame the agency and professional agenda. Forestry of the 1990s may turn not so much on the Forest Service's ability to facilitate social acceptability of its practices a.e. self-justification), but more on a formal understanding of the public challenge to timber production, and consequently of the agency's predicament and chances within the broader context of social structure and public discourse.

Literature Cited

Althusser, L. 1971. Lenin and philosophy and other essays. New York: Monthly Review Press. 253 p.

Atkinson, W.A. 1990. Silvicultural correctness: the politicization of forest science. Western Wildlands. 17(40): 8-12.

Bachrach, P.; Baratz, M.S. 1970. Power and poverty. New York: Oxford University Press. 220 p.

Bernard, T.J. 1983. The consensus-conflict debate: form and content in social theories. New York: Columbia University Press. 264 p.

Block, F. 1987. Revising state theory: essays in politics and postindustrialism. Philadelphia: Temple University Press. 220 p.

Bonnicksen, T.M. 1991. Managing biosocial systems: a framework to organize society-environment relationships. Journal of Forestry. 89(1): 10-15.

Brooks, D.J.; Grant, G.E. 1992. New approaches to forest management: background, science issues, and research agenda. Journal of Forestry. 90(1): 25-28 and 90(2): 21-24.

Crenson, M.A. 1971. The un-politics of air pollution. Baltimore: Johns Hopkins Press. 227 p.

Culhane, P.J. 1981. Public lands politics: interest group influence on the Forest Service and the Bureau of Land Management. Baltimore: Johns Hopkins University Press for Resources for the Future. 398 p.

Driver, B.L.; Brown, P.J.; Petterson, G.L. 1991. Research on leisure benefits: an introduction to this volume. In: Driver, B.L.; Brown, P.J.; Petterson, G.L. eds. Benefits of Leisure. State College, PA: Venture Publishing, Inc. 483 p.

Drushka, K. 1990. The new forestry: a middle ground? The New Pacific: A Journal of the Pacific Northwest and Western Canada. 4(Fall): 7-23.

Durkheim, E. 1982. The rules of sociological method. New York: Free Press. 264 p.

Foss, P. 1960. Politics and grass. Seattle: University of Washington Press. 236 p.

Galanter, M. 1974. Why the “haves” come out ahead: speculations on the limits of legal change. Law and Society Review. 9(1): 95-160.

Gold, D.; Lo, C.; Wright, E.O. 1975. Some recent developments in Marxist theories of the state. Monthly Review. 27(5): 29-43 and 27(6): 36-51.

Gramsci, A. 1971. Selections from the prison notebooks. New York: lnternational Publishers. 483 p.

Hays, S.P. 1959. The gospel of efficiency: the progressive conservation movement, 1890 - 1920. New York: Atheneum. 297 p.

Kolko, Gabriel. 1963. The triumph of conservatism. New York: The Free Press of Glencoe. 344 p.

Madden, R.B. 1990. The forestry challenge of the Nineties: it is time foresters redefined their professional mission. Journal of Forestry. 88(1): 36-39.

Magill, A.W. 1991. Barriers to effective public interaction: helping natural resource professionals adjust their attitudes. Journal of Forestry. 89(10): 16-18.

Manfredo, M.J.; Bright, A.D. 1991. A model for assessing the effects of communication on recreationists. Journal of Leisure Research. 23(1): 1-20.

Mcquire, W.J. 1968. The nature of attitudes and attitude change. In Lindzey, G.; Aronson, E., eds. Handbook of social psychology. Vol. 3., Second Edition. New York: Random House: 136-314.

Miliband, R. 1969. The state in capitalist society. London: Weidenfeld and Nicholson. 292 p.

Norris, L. 1990. New forestry and the debate. Western Banner. 3(3): 1-3.

Parsons, T. 1971. The system of modern societies. Englewood Cliffs, NJ: Prentice-Hall, Inc. 152 p.

Petty, Richard E.; Cacioppo, John T. 1986. The elaboration likelihood model of persuasion. In: Berkowitz, Leonard, ed. Advances in experimental social psychology. Vol. 19. Orlando, FL: Academic Press: 123-205.

Pinchot, G. 1947. Breaking new ground. New York: Harcourt, Brace, and Company. 522 p.

Poulantzas, N. 1969. The problem of the capitalist state. New Left Review. 58(Nov-Dec): 67-78.

Robbins, W.G. 1982. Lumberjacks and legislators: political economy of the U.S. lumber industry, 1880-1941. College Station, TX: Texas A&M University Press. 268 p.

Rokeach, M. 1970. Beliefs, attitudes, and values. San Francisco: Jossey-Bass, Inc. Publishers. 214 p.

Salwasser, H. 1990. Gaining perspective: forestry for the future. Journal of Forestry. 88(11): 32-38.

Selznick, P. 1949. TVA and the grass roots: a study in the sociology of formal organizations. New York: Harper Torchbooks. 274 p.

Stankey, G.H.; Clark, R.N. 1991. Social aspects of new perspectives in forestry: a problem analysis. Milford, PA: Grey Towers Press. 33 p.

Stone, C.N. 1980. Systemic power in community decision making: a restatement of stratification theory. American Political Science Review. 74(4): 978-990.

Thompson, J.B. 1990. Ideology and modern culture. Stanford, CA: Stanford University Press. 362 p.

Todes, C. 1931. Labor and lumber. New York: Arno Press. 208 p.

Van Hise, C.R. 1910. The conservation of natural resources in the United States. New York: Macmillian Company. 413 p.

Weiss, C. 1983. Ideology, interest and information: the basis of policy positions. In: Callahan, D.; Jennings, B., Eds. Ethics, the social sciences, and policy analysis. New York: Plenum Press: 213-245.

West, P.C. 1982. Natural resource bureaucracy and rural poverty: a study in political sociology of natural resources. Ann Arbor, MI: University of Michigan School of Natural Resources. 131 p.

Williams, R.M. 1979. Change and stability in values and value systems: a sociological perspective. In: Rokeach, M. Understanding human values: individual and societal. New York: The Free Press: 15-46.

This page is intentionally left blank.

The Public, the Forest, and the U.S. Forest Service: Understanding Attitudes Towards Ecosystem Management

Katrina Rogers

Abstract

Rogers, Katrina. 1996. The public, the forest, and the U.S. Forest Service: understanding attitudes towards ecosystem management. In: Brunson, Mark W.; Kruger, Linda E.; Tyler, Catherine B.; Schroeder, Susan A., tech. eds. Defining social acceptability in ecosystem management: a workshop proceedings; 1992 June 23-25; Kelso, WA. Gen. Tech. Rep. PNW-GTR-369. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station: 65-76.

An examination of past attitudes towards forests and forestry reveals the complexity and depth of emotive valuation that is a part of American political culture. This evaluation of forests can be seen in today's highly emotional public debate. With the historical perspective established, a discussion of some methods that have been used to determine how the public values the nonuse or intrinsic qualities of various elements in nature is useful and appropriate. Finally, a discussion is undertaken of methodologies and instruments that might be used to conduct a formal assessment of public attitudes toward ecosystem management practices. With this information, public resource managers will be better prepared to 1) determine the acceptability of ecosystem management practices to American society, 2) develop appropriate public education and awareness programs, 3) improve overall communications among interested and involved parties, 4) gather more input into their own decisionmaking process, and 5) anticipate whatever public response may greet their management decisions.

Keywords: Ecosystem management, public attitudes, values, contingent valuation, historical attitudes, acceptability.

Introduction

Since the National Environmental Policy Act (1970) was passed in 1969, the relationship between public land managers and their constituents has been altered. Title I of NEPA required all federal agencies to analyze the environmental impacts of their actions and to submit those analyses for public review, thereby creating new means of access and new political strategies for interest groups (Lester 1989). The requirements for public review have been used successfully by environmental and citizens' groups to influence the decisionmaking process. NEPA's principles were reaffirmed specifically in regards to the Forest Service with the passage of the National Forest Management Act of

---

KATRINA ROGERS is director of the High West Center for Environmental Policy Studies at Flagstaff, Ariz., and currently teaches at the American Graduate School of International Management at Geneva, Switzerland.

1976 (1982), which also requires public involvement in agency planning and decisionmaking. These procedures represented an important change for the Forest Service which, since its founding at the end of the nineteenth century, had seldom considered citizen input and, as a matter of procedural policy, never sought it. New public awareness and concern about natural resources and their utilization placed resource managers under the constant scrutiny of a skeptical and often confrontational public. the spectrum of interested participants has expanded significantly, and managers today find that the views and opinions of an increasing number of groups and individuals have become important components of the decisionmaking process.

The adoption by the Forest Service and other agencies of ecosystem management reflects this change in the agency. Forests are now to be evaluated not only as sources of timber but also as wildlife habitats, areas of biological diversity, areas with aesthetically-pleasing qualities, and areas where a number of use and non-use values may be realized. This is not to say that forestry previously ignored such ideas; rather, there appears to be a shift towards management strategies which attempt to incorporate a number of ideas and values into its outcome.

The Forest Service is committed in theory, practice, and law to multiple-use management. Programs are diverse, ranging from managing wilderness areas, timber, wildlife, recreation, minerals, range, fisheries, soil, and air and water quality, and for cooperation with state and private forestry Wenner 1987). But the Forest Service also has a mandate to manage these lands for the American people. This means that the public not only must be consulted, but in many ways must be an active participant in the decisionmaking process.

Effective resource management requires an understanding of public expectations and needs. An incomplete understanding of “what the public wants” undermines the goals of the agency and fosters tension between the public and the agency. As a result, social science research has become invaluable to the Forest Service in order to assess these questions. In the case of ecosystem management, questions include, “Who exactly is ‘the public?’” and “what does this public want?” Furthermore, is ecosystem management compatible with what the public wants?

“The public” can actually be seen as several different constituencies. Lands held in trust by the Forest Service are considered to be for all of the American people. In addition, smaller groups of recreation users, consumers of forest products, commercial users, and local populations who live near the forest are also considered part of “the public.” Other interested parties, such as environmental groups and labor unions, are also considered to be Forest Service constituencies. As such, public values or attitudes are not monolithic. lnstead values can be influenced by the occupation of the individual (e.g. logger or biologist) or the proximity of the individual to the forest in question.

The attitudes of American society towards the environment have varied greatly, both within the context of the past and the present. Like a nation’s political culture, its “forest culture” is based on such diverse influences as philosophies and religions, shared experiences, economics and ethics, values and mythologies. And though the forest culture has changed considerably over time, each change has come about slowly and no change has been comprehensive or absolute.

Historical Attitudes about Forests

Since the dawn of history, human survival has depended on the ability to control nature, to make it produce, to conquer its wildness, and to use it to make human life more comfortable. Yet civilizations such as the Mesopotamians, Egyptians, and early Greeks also valued nature for its aesthetic and intrinsic qualities (Worster 1989). In the complex tracing of intellectual history, overlapping and often contrasting attitudes towards forests have coexisted in any given society.

The Judeo-Christian tradition implied that the natural world belonged to humans for exploitation as the result of a gift from God. Genesis 1:28 decreed, “be fruitful, and multiply, and replenish the earth and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.” While the Old Testament did address stewardship responsibilities and possibilities (Veeraraj 1989), the mechanistic view of sixteenth and seventeenth century Europe reduced nature to a tool of human use (Merchant 1989). Ecological critiques of Christianity argue that its anthropocentrism made it possible for mankind to exploit nature (White 1966), and therefore, Christianity bears a huge portion of responsibility for the current state of the environment, particularly in the Western world. Other scholars argue that a simplistic charge against Christianity denies the complexity of intellectual history which forged the beliefs of the early Europeans in America (Veeraraj 1989). For the early settlers in the New World, attitudes towards forests were shaped by more than their Christianity. Their understanding of wilderness was driven by the philosophy of science and the more materialistic issue of simple survival.

The first European settlers in North America understood the environment within the context of use. Like the wilderness of the Old World, the forests of the New World posed danger to the settlers in a variety of ways (Nash 1973). The wilderness harbored threats, both real and imagined, of wild animals and indigenous peoples intent on doing harm to the new settlers. Additionally, to the Puritans the forest was an allegory to the human condition. The forest was a place where evil resided and could destroy a naive soul, as depicted in the writings of early American authors such as Hawthorne.

The physical character of the primeval forest was also an antithesis to the Puritan settlers who were accustomed to the domesticated countryside of Europe. Since medieval times, Europeans had engaged in intensive clearing of the land for farming. Early landscape design reflected a belief that nature should appear harmonious and symmetrical, giving nature a “civilized” and neat look. In a narrative discussing the settlement of Concord, Massachusetts, the forest was portrayed in graphic detail as a small group of Puritans struggled through unknown woods, swamps, and flesh-tearing thickets. Initially, the town founders wandered lost for days in the bewildering gloom of the dense forest. Then came the back-breaking labor of carving fields from the wilderness (Johnson 1910, Lillard 1947, Nash 1973).

The attitude toward forests until the mid-nineteenth century was, therefore, primarily one of conquest. This idea was a culmination of philosophical ideas (nature to be categorized and subdued by science), religion (nature given for man’s use by God), and economics (material needs for survival). The individual who valued it otherwise was considered naive or foolish. Frontier literature is replete with references to wilderness as an enemy to be conquered. Historians of westward expansion often chose military metaphors to describe the coming of civilization: they conquered the wilderness, they subdued the forests, they

"struggled" and "fought" in campaigns to "tame" the continent (Eggleston 1905, Nash 1973).

With the beginning of the transcendental movement in the middle of the nineteenth century, other long-suppressed attitudes re-emerged as powerful ideas on the American intellectual front. The philosophy of the German romantics and American transcendentalists was typified for Americans in the writings of Henry David Thoreau. "In Wildness," said Thoreau, "is the preservation of the world" (Thoreau 1893). To the transcendental philosophers, forests became valued for their beauty alone. Biblical references also were used to support this focus on a stewardship ethic. Genesis 2:15 read: "The Lord God took the man and put him in the Garden of Eden to work it and take care of it." Stewardship, according to John Muir, meant leaving the wilderness alone, and preserving it for future generations.

As romantic justifications for wilderness developed, a few Americans conceived of a possibility for its deliberate preservation. Some believed that society should legally protect selected areas, exempting them from the destructive energies of civilization. But preservationist policies ran counter to the dominant political attitude of westward expansion, and examples of preservation were rare through most of the 19th century.

By the late 1800s, however, issues that had previously been chiefly philosophical began to manifest themselves in the very practical difficulty of land allocation. Some middle ground was needed that could respond to both resource use (exploitation) and preservation. Those having a romantic appreciation for the land became allied somewhat with the growing conservation movement, which argued for a measured use of resources that would conserve some for future generations. Both groups were saddened and alarmed at the disappearance of wilderness from the American scene. The most noted leader in the conservation movement was Gifford Pinchot. Pinchot was a professional forester, educated in Europe, who believed that conservationist practices should seek to establish some agreeable balance between society and nature. He originally developed the idea of multiple-use management as it came to be applied to American forests (Wenner 1987).

For the American pioneers, resource conservation and wilderness preservation were ideas which had little value in their frame of reference. But as successive waves of populations moved into wilderness territories, blatant exploitation was replaced by the controversy of preservation versus conservation that has typified national discussions of the environment ever since. Where the traditional conservationist valued forests primarily for economic reasons, the preservationist saw in forests a spiritual value for society that is greater than economic considerations. In many ways, these attitudes have blended until their differences are more a matter of degree than mutually exclusive points of view (see List, this proceedings).

The Political Environment and Values

The struggle over natural resource management continues into the 1990s and is manifested in the political debate, where values are expressed along clearly drawn lines on opposite sides of controversial issues. The debate regarding forests is particularly emotional and conflictive, and attempts at compromise only seem to intensify the debates. For example, in 1993 when the Clinton administration called for a substantial reduction of logging on Federal land in the Northwest and a $1.2 billion economic aid package to depressed timber communities (Egan 1993), timber interests felt that the plan effectively destroyed their industry as well as local economies in Washington and Oregon,

while environmentalists felt that too many areas were sacrificed to establish a compromise.

It is clear that Americans in general hold values towards forests that are mixed and often in conflict. Although not exhaustive, a categorization of these values must include:

1. Spiritual-Symbolic: A tree specifically or forests generally can be worshiped as a religious symbol or can be said to contain spiritual qualities. They can also be understood in the context of a symbol for an idea or concept.

2. Beauty: Forests have aesthetic qualities, including scenic and/or decorative. Beauty can also be interpreted as an end in itself.

3. Material Use: Forests provide lumber, crucial for sustenance in modern living. They also provide jobs, and sustain local economies.

4. Recreation: Forests provide recreational opportunities such as hiking, fishing, camping, and hunting. Recreation also provides jobs and aids in sustaining local communities.

5. Knowledge: Studying a forest contributes to our understanding of biological diversity. It can be studied as a biological organism with a role in the ecosystem, or individually as an historical object. For instance, a landmark tree on a trail tells us about the past of the forest, such as assisting in determining past patterns of human use (Conservation Foundation 1976).

Based on an understanding of history and current political behavior, it is clear that Americans often hold several value systems at the same time. For instance, a member of the public may hold values that tend toward both anthropocentrism and biocentrism. One may value forests for their beauty and right to exist, which is a biocentric idea, but acknowledge the human necessity of use, an anthropocentric concept. This same ambivalence is seen throughout American discourse about forests. A tension exists between values over jobs (e.g. timber cutting) and environmental concerns (e.g. biodiversity issues such as the spotted owl controversy or physical concerns such as streambed degradation and soil erosion). Hardly anyone, despite the dichotomy presented in the popular press, would approve of human suffering (loss of job and home) over preservation of the environment.

Discussing Social Values

"Reality" is an interpretation of human sensory experiences. Concepts of reality are social constructs, forged by our own understanding of what we see, by our shared values and beliefs (Berger and Luckmann 1967). Interpretations are based on many aspects of human interaction, including education, acculturation, direct experience, and indirect experience (conversations).

How does an individual come to "value" something? One can argue that "value" means the extent to which a person holds something to be of worth. As far as can be determined, other forms of life do not "value" things in the way that humans do. To value or not value something is based on perception and on constructed realities. For example, there is an informal hierarchy of what humans value in nature. The American public tends to value trees over worms, dolphins over snappers, flowers over grass.

Valuation is sometimes based on utility. If it is useful, either as a means for shelter (timber) or for aesthetic qualities (redwoods), then it is of higher value. If it is not useful, either for spiritual or sustenance needs, then it is considered to be of lower value. Since the 1960s, the dawning realization of ecosystem complexity has changed the way that utility is evaluated and valuation is ascribed. More and more research focuses on the importance of biodiversity and the lack of knowledge that we have an the inter-workings of nature. Changes in value often coincide with attitudinal changes. Forty years ago, the term ecology was not a household word nor was biological diversity a topic on the public agenda.

What the public values may shift and change according to context, experience, and knowledge, thereby shifting definitions of social acceptability. The media affect what people think, and offer opportunity for reflection on currently held values. For instance, media attention to the Montreal Protocol in 1987 brought the question and problems of the ozone layer to the public (Benedick 1991). Another example of media impact was the first publication of the photo “Earth Rising” which showed the earth rising over the lunar horizon. This photograph, taken by one of the Apollo missions, influenced the way people began to see the Earth as an island, and as finite. Experiences can also change the way a person values something. Someone opposed to any cutting of forests might answer differently to a questionnaire after having visited a site where ecosystem management silviculture is being practiced.

Also, events can change public values. In this context, changes usually occur as a result of one or a combination of the following events: 1) a disaster or crisis event, 2) a series of events, 3) centralized public relations campaign/behavior modification, 4) massive education, and/or 5) community-based programs.

A disaster or crisis event can unify individuals to deal collectively with environmental problems or to pressure the government for official action. For instance, the offshore oil spill along the coast of Santa Barbara, California in 1969 was a crisis event. The result was an oil slick which covered an area of 800 square miles, washed up on California beaches, and killed plants, birds, and fish. Public response emerged as an outraged environmental response which demonstrated the conflict between oil exploration and environmental interests. NEPA (1970), passed later in the year, was a direct response to this event (Schmidt and others 1993). Similarly the grounding of the Exxon Valdez in Alaska once again focused public attention, changed public attitudes, and rallied support for legislation regarding public accountability. During the Gulf War in 1991, the oil well fires in Kuwait were used by two major U.S. environmental organizations (Greenpeace and Friends of the Earth) to broadcast the importance of national involvement in global environmental issues (Porter and Brown 1991).

Major catastrophes are not always required before people reconsider or change their values; often such changes come about through a series of events. While events individually may cause no attitudinal shift, each has an incremental effect that eventually results in new values after a series of personal reevaluations. In the 1980s, a series of industrial accidents began a public discussion of growth and economic development. Toxic leakage at Love Canal in New York, dioxin-tainted soil at Times Beach, Missouri, and hazardous waste at the Rocky Flats nuclear plant in Denver all contributed to discussions of industrial environmental hazards (Bums and Peltason 1952). Controls on

urban growth were not on the public agenda 50 years ago. A combination of factors including population growth, urbanization, and increasing air, water, and noise pollution have all contributed to a greater sense of public awareness about the environment.

Values are frequently affected by agents (private or public) who systematically increase public awareness of an issue and encourage behavior modification. These campaigns are sometimes seen in sinister terms. When such campaigns come from the public sector, they are often accused of being propagandistic; when from the private sector they are more often benignly labeled as advertising. There are many examples of governmental campaigns to change public attitudes. A public relations campaign to stop littering eventually led to legislation making littering a crime punishable by a fine. When Lady Bird Johnson began her beautification program in the early 1960s, she encouraged people to plant flowers and trees along the national highways. In the 1980s and 90s, federal mandates to use recycled paper in government offices has coincided with voluntary recycling community programs. Values are changed by encouraging (or legislating) a change in behavior.

Public relations campaigns can be either centralized or decentralized. The decentralized educational system in the United States has generally been effective at political socialization, for forming attitudes and changing values. Anti-smoking, safe sex, and racial tolerance are all subjects that have been added to curricula in the school systems, aided by public relations programs on television and newspapers. The so-called “War on Drugs” in the American school system is such an attempt to change social values. Drugs, once perceived as “cool,” are now advertised by the current TV idols as “un-cool.” The uneven successes with indoctrination through the educational system are closely related to the social and political environment within which the changes are being attempted. In the case of ecosystem management, the question of whether a public relations campaign combined with education can be successful remains, as individuals have tended to become more suspicious of both advertising and government institutions. Also, “educating” from the top-down has autocratic overtones. “We, the experts, will tell you what is best for the forests.” On the other hand, there is the very real problem that people who see snags as ugly dead wood do not know about their importance for facilitating habitat for life in the forest. It is analogous to the tension reflected in democracy: Can democracy exist without an educated citizenry? What is meant by education? Who defines education?

There are many programs conceived of as community-based which facilitate value change (Scott 1992). For example, a local recycling program heightens public awareness and encourages participation and action. Some communities offer contests to suggest more efficient and environmentally sound ways of administering the local government (Ross 1992). These are attempts at social pressure to encourage people to adopt changes beneficial to the environment.

Defining Social Acceptability in Ecosystem Management

Acceptability studies focus on questions of what the public values; that is, what the public finds “acceptable” is derived from the values the public holds. While the above statement is fairly obvious, what is less obvious and more difficult is how to uncover public values.

The first task at hand is to attempt to assess exactly what Americans value about their forests. General conclusions can be drawn from the historical and political summaries

offered above, but the literature cannot accurately show regional differences, or the distinctions among individuals or within segments of society.

Values consist of both use and nonuse values. Use values are those which stem from direct use of an area. In the case of forests, recreation and products derived from the forests are considered use values. One example of a nonuse value is preserving the forest for future generations. In order to incorporate both use and nonuse values, a theory of total value has been developed by environmental economists.

In a study of water quality in which both use and nonuse values were estimated, Fisher and Raucher (1984) examined the magnitude of the relation between use and nonuse values. They concluded, “The intrinsic, or nonuse-related, benefits of water quality improvements are difficult to define precisely...empirical efforts to measure intrinsic benefits consistently show these nonuse values to be positive and non-trivial...existing evidence indicates that nonuse benefits generally are at least half as great as recreational use benefits” (p. 160). A number of researchers have tried to quantify use and nonuse values in monetary terms. In these studies, actual dollar relationships are established between components in nature and how much individuals value these components in use and in nonuse terms. Because these studies offer insight into how surveys may be developed to evaluate the acceptability of ecosystem management, a brief discussion of their methodologies is appropriate.

Boyce and others (1989) examined use and nonuse values by dividing 115 subjects into four groups. Members of the first two groups participated in a contingent valuation exercise in which they were given a Norfolk lsland pine plant and then asked the amount of compensation they would require to give it up. Members of the other two groups were asked what they would be willing to pay to acquire one of the trees.

Existence values were measured via a threat to destroy the trees not taken by the respondents. Participants in one of the willingness-to-pay groups were told that any trees not purchased by the study participants would be destroyed. Additionally, participants in one of the willingness-to-accept compensation groups were told that all trees they sold back to the researchers would be destroyed. The difference between values obtained when nothing was said about the trees and values obtained when the trees where threatened with destruction can be taken as a measure of the nonuse values of the trees. BOyce and others found that the threat to kill the trees increased the average willingness to pay from $6.06 to $16.80, and increased the average compensation demanded from $14.12 to $26.07.

Attaching a monetary value to nature is highly controversial. Some people feel that deciding how much a tree is worth denies valuation on aethestic and spiritual grounds. At the same time, these contingent valuation exercises provide insight into the attitudes of the public regarding their forests.

In a survey of Wisconsin residents, Boyle and Bishop (1987) estimated both the total value of preserving bald eagles as well as a conditional value of preserving bald eagles in areas where humans would not be able to view them. Values were estimated using the dichotomous choice format of the contingent valuation method. The total value figures for those who had taken trips to view eagles were interpreted as a combination of use values, option values, and existence values. The conditional values for both groups were

interpreted as pure existence values. The total value was $75 if eagles were viewable, and $28 if the bald eagles were preserved in Wisconsin but could not be viewed. The $47 difference between these two values should be interpreted as use value plus possible option value for future viewing opportunities.

A common noneconomic methodology used in assessing public values regarding the environment has been to rely on Inglehardt's (1977) original survey technique. Inglehardt devised a methodology for testing the hypothesis that public values are changing from material well-being to a post-materialist quality of life. His hypothesis was that, as a person ascends the socioeconomic scale, he/she is more likely to possess environmental values of conservation and preservation. The survey developed was both quantitative and qualitative in nature and relied on personal interviews. Development of Inglehardt's methodology further refined the concepts of use and nonuse values (Steger and others 1989).

Applications for Surveys on Ecosystem Management

Once a survey methodology has been determined, the instrument must identify the essential principles of ecosystem management and must be worded to be fully comprehensible to the general public. Suitable and relevant questions must then be structured and presented and results analyzed to determine whether the data translates into support of ecosystem management or whether they suggest a lack of acceptability for those new practices. Furthermore, the data must be interpreted within the appropriate historical/political context. Based on the Inglehardt model, the following are examples of how this might be accomplished:

Example 1

Introduction - One objective of ecosystem management is the creation of managed stands of trees that have higher levels of structural diversity than under current practices. Retaining more downed wood, snags, and wildlife trees at the time a forest is cut is a demonstrated way of achieving this objective. There is a lot of talk these days about new techniques for managing the forest. On this card are listed some of the goals which different people would give top priority. Would you please say which one of these you, yourself, consider most important (choice #1) and which is next most important (choice #2)?

Card A-
A. Maintaining a high rate of growth in the logging industry.
B. Making sure that forests are biologically diverse.
C. Allowing people to have more say in how things get decided regarding forests.
D. Trying to make our forests profitable.

Enter the letter of choice # 1 here_____
Enter the letter of choice # 2 here_____

Example 2

Increasingly, foresters are leaving some large green trees in areas that are being cut for timber. This may be a valuable approach to creating structurally diverse forests on many cutover areas. The result of these management practices is that new forests are created that have a mixture of tree stands, including some larger, older trees. If you had to choose, which one of the things on this card would you say is most desirable (choice #1) and which is the next most desirable (choice #2)?

Card B-
A. Foresters leave some large green trees in cutover areas.
B. Small areas are cleared.
C. Retain large green tree stands.
D. Unlimited clear cutting.

Enter the letter of choice # 1 here _____
Enter the letter of choice # 2 here _____

Quantitative surveys have methodological problems all their own, including but not limited to the difficulties in establishing the respondent's context in any fully-developed way and the biases inherent in framing questions and choices of answers. Surveys have and should continue to be undertaken within the additional context of qualitative work, such as in-depth observation, interviews, and interaction (see Hansis, this proceedings).

Conclusion

Public attitudes towards forests have complicated roots in the Judeo-Christian tradition, the philosophy of sixteenth and seventeenth century Europe, and the transcendental movement of the nineteenth century. These very different understandings of the world have resulted in diverse and often conflicting attitudes about the environment and about forestry. In particular, there are conservationist and preservationist tendencies which often manifest themselves in contradictory ways. For example, people may desire access to a forest as opposed to a wilderness which is left untouched, even if access means domesticating nature to some extent.

In addition, people may value nature and yet hold that some aspects of nature are of more worth than others. Contingent valuation exercises show to some degree the extent to which people will "sell" nature. There is a sense that value is based on a kind of utility, whether that utility is aesthetic or survival-based. Trees are more important than snails, whole forests are more important than patchwork forests, patchwork forests are better than clearcuts, clearcuts are better than jobs lost and human suffering. To understand public attitudes, these complexities must be further explored.

Understanding whether the public values ecosystem management requires that we assess more directly the historical context upon which values are based as well as the current political climate which shapes people's attitudes. One way to assess attitudes would be by using a number of total value survey techniques adapted specifically to address questions of social acceptability. Surveys which evaluate both use and nonuse values should be considered, as well as techniques which would include an assessment of contingent values. But surveys alone will not define the historical or other contexts which shape an individual's values. Using research techniques from anthropology and sociology, in-depth interviews and interaction (conversations) assist the social scientist at this level. As ecosystem management practices enter into the public debate about forestry techniques in general, it will be useful for natural resource managers to assess the acceptability of such practices as manifested in American values and attitudes.

Literature Cited

Benedick, Richard. 1991. Ozone diplomacy: new directions in safeguarding the planet. Cambridge: Harvard University Press. 300 p.

Berger, Peter L.; Luckmann, Thomas. 1967. The social construction of reality. New York: Anchor Books. 219 p.

Boyce, R.R.; Brown T.C., McClelland, G.D., Peterson, G.L., Schulze, W.D. 1989. Experimental evidence of existence value in payment and compensation contexts. Benefits and costs in natural resources planning. Interim Report No. 2, Western Regional Research Project W-133: 305-336.

Boyle, K.; Bishop R.C. 1987. Valuing wildlife in benefit cost analyses: a case study involving endangered species. Water Resources Research. Volume 23, Number 5, May.

Burns, James M.; Peltason, J.W. 1952. Government by the people. Englewood Cliffs, NJ: Prentice Hall. 158 p.

Conservation Foundation. 1976. Loving wilderness to death. In: Nash, Roderick ed. The American environment: readings in the history of conservation, 2nd ed. Reading, MA: Addison-Wesley Publishing Co: 265-276.

Egan, Timothy. 1993. The (bruised) emperor of the outdoors. New York Times Magazine. (1 August): 21-52.

Eggleston, George Cary. 1905. Our first century. New York: A.S. Barnes and Co. 268 p.

Fisher, A.; Raucher, R. 1984. intrinsic benefits of improved water quality: conceptual and empirical perspectives. Advance in Applied Micro-Economics. 3: 37-66.

Inglehardt, Ronald. 1977. The silent revolution: changing values and political styles among western publics. Princeton, New Jersey: Princeton University Press. 482 p.

Johnson, Edward. 1910. Johnson's wonder-working providence, 1629-1651. New York: Charles Scribner's Sons. 285 p.

Lester, James P., ed. 1989. Environmental politics and policy: theories and evidence. Durham: Duke University Press. 405 p.

Lillard, Richard G. 1947. The great forest. New York: A.A. Knopf. 399 p.

Merchant, Carolyn. 1989. The death of nature: women, ecology, and the scientific revolution. New York: Harper and Row. 348 p.

Nash, Roderick. 1973. Wilderness and the American mind. New Haven: Yale University Press. 300 p.

National Environmental Policy Act. Pub. L. No. 91-190, 83 Stat. 852 (1970) (codified as amended at 42 U.S.C. 4321-4370 (1982)).

National Forest Management Act. Pub. L. No. 94-588, 90 Stat. 2949 (codified at 16 U.S.C. 1600-1614 (1982) and other scattered sections of 16 U.S.C.).

Porter, Gareth; Brown, Janet Welsh. 1991. Global environmental politics. Boulder, Colorado: Westview Press. 208 p.

Ross, Elizabeth. 1992. 'Man on the street' competes to solve environmental woes. Christian Science Monitor. 5 May: 7.

Schmidt, Steffen W.; Shelley, Mack C.; Bardes, Barbara A. 1993. American government and politics today. New York: West Publishing Co.

Scott, David Clark. 1992. Saving the forest by changing attitudes. Christian Science Monitor. 29 April: 10-11.

Steger, Mary Ann E.; Pierce, John C.; Steel, Brent S.; Lovrich, Nicholas P. 1989. Political culture, postmaterial values, and the new environmental paradigm: a comparative analysis of Canada and the United States. Political Behavior. 11: 233-254.

Thoreau, Henry David. 1893. Excursions. Boston: Houghton Mifflin. 472 p.

Veeraraj, Anand. 1989. Christianity and the environment. In: Dwivedi, O.P., ed. World religions and the environment. New Delhi: Gitanjali Publishing House: 36-118.

Wenner, L.N. 1987. The practice and promise of social science in the U.S. Forest Service. In: Miller, Marc L; Gale, Richard P.; Brown Perry J., ed. Social science in natural resource management systems. Boulder, Colorado: Westview Press: 63-81.

White, Lynn, Jr. 1966. The historical roots of our ecologic crisis. Science. 55(10 March): 1203-07.

Worster, Donald, ed. 1989. The ends of the earth: perspectives in modern environmental history. New York: Cambridge University Press. 341 p.

Forest Aesthetics, Biodiversity, and the Perceived Appropriateness of Ecosystem Management Practices

Paul H. Gobster

Abstract

Gobster, Paul H. 1996. Forest aesthetics, biodiversity, and the perceived appropriateness of ecosystem management practices. In: Brunson, Mark W.; Kruger, Linda E.; Tyler, Catherine B.; Schroeder, Susan A., tech. eds. Defining social acceptability in ecosystem management: a workshop proceedings; 1992 June 23-25, Kelso, WA. Gen. Tech. Rep. PNW-GTR-369. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station: 77-97.

The social acceptability of "ecosystem management" and related new forestry programs hinges on how people view the forest environment and what it means to them. For many, these conceptions are based on a "scenic aesthetic" that is dramatic and visual, where both human and natural changes are perceived negatively. In contrast, appreciation of biologically diverse forests created through ecosystem management practices depends on experience of the subtle, multimodal characteristics of a dynamic environment, an aesthetic attitude that is acquired and cognitive rather than immediate and affective. Society is unlikely to quickly adopt this "ecological aesthetic" as espoused by Aldo Leopold and others. However, the concept of appropriateness could serve as a short-term alternative for resolving perceived conflicts between aesthetic and biodiversity values. Unlike scenic assessments, assessments of appropriateness address the question "what belongs where?" and work to integrate aesthetic and biodiversity goals rather than to seek absolutes. This concept also ties aesthetics together with land ethics by seeking a harmonious "fit" between human activity and the natural world. Approaches are outlined that suggest how perceptions of appropriateness might be studied and used in the context of ecosystem management practices. Additional thought is given to how researchers and managers can begin to broaden ideas of forest aesthetics over the long term.

Keywords: Scenic beauty, biodiversity, ecological aesthetic, visual management practices, ecosystem management, landscape aesthetic, appropriateness, human-landscape interactions.

PAUL H. GOBSTER is a research social scientist, USDA Forest Service, North Central Forest Experiment Station, Chicago, IL, 60648.

Introduction

As a landscape architect and social scientist, one of my major concerns is how people perceive and relate to landscapes. Researchers and practitioners who share this concern maintain that aesthetics is a primary dimension of people-landscape interactions (e.g., Kaplan and Kaplan 1989). In forests, as in many other environments, people form perceptions of a place based on what they see and experience from an aesthetic point of view. This might especially be the case for those who are there to recreate. Because of its primary nature, aesthetics also can color how other aspects of a forest will be evaluated. For this reason, "visual resource management" has become a critical consideration in managing forests for recreation, timber, and other resource values.

In the eyes of many forest landscape architects, aesthetics has long been thought of as one of the few undebatably "good" purposes for managing forests. Traditional timber, range, game, and water resource management is seen as having utilitarian, commodity-oriented purposes that, if not held in check, can compromise the existence of this higher, better purpose. This elite position, however, is now being challenged by another non-consumptive, nonutilitarian "good," namely biodiversity. Like aesthetics, biodiversity values of forests are getting increased attention from citizen groups, and ecosystem management and new forestry programs are redefining how landscape architects and other professionals think about forest resource management.

But while managing for "white hat" resources is increasingly being looked on as the right thing to do, what happens when forest prescriptions developed to achieve such "goods" conflict with each other? In the case of aesthetics and biodiversity, forest landscape architects and landscape researchers alike are coming to recognize that principles long advocated for enhancing the visual quality of landscapes may conflict with ecosystem management principles for maximizing biodiversity. Are these conflicts resolvable? In this paper I argue they are, but maintain that the way people perceive forest aesthetics -- and the ways in which we as researchers and managers conceptualize, measure, and manage aesthetics -- prevent an easy resolution. After discussing why this is so, I suggest a framework and methods in which aesthetic and biodiversity values might be addressed by researchers and practitioners. These ideas, which center on the contextually-based concept of appropriateness, could offer short-term ways to deal with the fundamental perceptions of resource values. I conclude by suggesting ways to move beyond this approach and towards an ecologically-based aesthetic in our management and research.

"Nature" and Development of the "Scenic Aesthetic"

Our landscape preferences are thought to be influenced by many factors: age (Zube and others 1983), gender (Lyons 1983), ethnicity (Kaplan and Talbot 1988), regionality (Schroeder 1987), recreational activity (Brunson and Shelby 1992a, Ribe 1991a); some researchers even maintain there is an evolutionary basis behind certain landscape preferences (Appleton 1975, Kaplan and Kaplan 1989). But of these factors, our dominant culture and history have played major roles in shaping our preferences for landscapes that are *natural* in character (Cox 1985, Huth 1972, Nash 1982). Our natural landscape preferences grew from a tradition of landscape painting and aesthetic theory that began in 17th and 18th century Europe. As our frontier was tamed and remaining wildlands shrunk in size, Americans began to appreciate nature rather than fear it. Borrowing from the European tradition, our attraction to natural landscapes in the U.S. grew during the romantic and transcendentalist movements of the mid-1800s through landscape paintings of artists such as Frederick Church and Thomas Cole of the Hudson River School; through the writings of novelists, poets, and philosophers such as James

Fenimore Cooper, William Cullen Bryant, and Henry David Thoreau; and through the park and estate designs of Andrew Jackson Downing and Frederick Law Olmsted.

But the landscape portrayed through these media, and preferred by those who increasingly viewed and visited the landscape for recreation, was not so much a natural environment as it was a naturalistic interpretation of one. Landscape painters often stylized the nature they saw, carefully composing a scene by adapting formal design principles such as balance, proportion, symmetry, order, vividness, unity, variety in line, form, color, and texture, and others. Subjects were often the dramatic, monumental landscapes of the eastern and western U.S., where mountains and other natural curiosities helped to define the notion of the picturesque. Other subjects emphasized the "softened" wilderness, where human activity harmonized with nature to express a tidy, pastoral quality. These compositional techniques were emulated by landscape designers, who created parks and garden estates that were stylistic renditions of nature as portrayed in paintings. As if looking at a landscape painting, people regarded these environments for their visual scenic and picturesque qualities, and the "scenic aesthetic" became the dominant mode of landscape appreciation (Rees 1975).

The Scenic Aesthetic in Forest Management and Research

The popularization of a landscape aesthetic based on a preference for idealized, naturalistic scenery went far to help define how city parks were designed and which western parcels of land were preserved for national parks and monuments. The scenic aesthetic also became the basis for addressing aesthetics in forest management, although aesthetics did not become an explicit concern in forest landscape planning and management efforts until a century later. Management of large scale forest landscapes for aesthetic values began in earnest in the early 1970s in response to public concern over clearcutting in eastern and western national forests. The USDA Forest Service's "Visual Management System" (1974) and programs of other public agencies were developed to identify aesthetic values in the landscape, define people's sensitivity to landscape change, and set standards for preserving, enhancing, or retaining aesthetic quality and mitigating the effects of landscape development (Smardon 1986).

Like the landscape painters and designers of earlier times, landscape architects who practice visual management use formal design concepts such as variety in line, form, color, and texture to describe and deal with change in the forest landscape. Examples in Forest Service handbooks illustrate how introducing greater variation in corridor edges and in the shape, size, and distribution of clearcuts can help to emulate patterns found in the natural landscape. Following the popular scenic aesthetic, current landscape management emphasizes the visual, stylized design of an ideal nature, rather than one where the dynamics of change are apparent. With considerable landscape management responsibility focused on mitigating the effects of undesirable landscape change, forest landscape architects often use vegetative or topographic screens and other techniques to hide or reduce visual impacts. The "illusions" created by these techniques further the idea that a natural forest is one that is mature, tidy, and unchanging Wood 1988).

Many research efforts have explored the nature of landscape aesthetics, from both theoretical (e.g., Kaplan and Kaplan 1989) and applied perspectives (e.g., Ribe 1989). Like the visual management practices just described, researchers have tended to focus their attention on the scenic aesthetic, asking people what they perceive to be the "scenic beauty" or "visual quality" of the landscape under study. The scenic aesthetic is conceptualized as a perceptual, affective reaction to the landscape in that viewers are

asked to make a quick evaluation whether they like or dislike a landscape (e.g., Daniel and Boster 1976). These judgments are facilitated through the use of simple rating scales and the representation of landscapes by photographs or slides that allow for the efficient evaluation of many views in a short time (Nassauer 1983). The ratings are often correlated in models with physical, formal design, and psychological landscape attributes to address theoretical and applied problems in landscape aesthetics (Gobster and Chenoweth 1989).

Potential Conflicts between Scenic and Biodiversity Values

Visual resource management practice and research have been enormously successful in addressing landscape aesthetics, highlighting an issue few recognized or had the means to deal with just two decades before. But the scenic aesthetic we have focused on in our research and practice has helped perpetuate a preference for forest landscapes that some have called superficial (Nassauer 1992). By emphasizing the visual, dramatic, and picturesque attributes of nature, by treating the landscape as a static, formal composition, and by conceptualizing and measuring only the visual, perceptual, and affective aspects of human aesthetic response, we may be limiting the range and depth of aesthetic opportunities we afford our public. This is unfortunate in and of itself, but the problem takes on even greater importance when we attempt to provide for biodiversity ***and*** aesthetic values.

Some practices advocated to enhance biodiversity may go against tenets established through practice and research to promote forest visual quality or mitigate visual impacts of forest harvesting. While there are also many instances where practices to meet these goals are compatible with each other or conflicting practices are resolved through interdisciplinary planning team efforts, the four examples below illustrate how potential conflicts between biodiversity and aesthetic goals can occur in important aspects of forest management:

Downed wood -- Slash left from timber harvesting often has one of the biggest impacts on the perceived visual quality of near-view forest scenes (e.g., Brown and Daniel 1986, Ribe 1991b, Vodak and others 1985). Naturally occurring downed wood is often indistinguishable from downed.wood caused by logging practices, and thus natural decline visible in mature and old growth stands can have similar scenic impacts (e.g., Benson and Ullrich 1981, Schroeder and Daniel 1981). To reduce these impacts, harvest prescriptions for visually sensitive areas often call for removing, lopping, chipping, burning, or pulling slash back from human use areas. From a forest biodiversity perspective, however, downed wood can be important in maintaining site quality and sustaining soil productivity, the diversity of insects, microfauna and microflora, wildlife food and cover, and tree and groundcover regeneration (Maser and others 1979, Stark 1988). Practices that affect the abundance and distribution of slash and natural downed wood can thus hinder biodiversity goals (Hunter 1990).

Tree size and old growth character -- Large diameter trees and various measures associated with them (e.g., tree age, height, stand basal area) have been strongly linked to visual preferences for near-view and vista-view forest stands (Arthur 1977, Brown and Daniel 1984, Buhyoff and others 1986, Ribe 1991b). Some temporal models of perceived scenic beauty have shown a monotonically increasing relationship between scenic beauty and time since harvest (e.g. Hull and Buhyoff 1986, Ribe 1991b); others suggest that as dominant species in a stand pass maturity, scenic value may begin to decrease due to the presence of naturally occurring standing dead and downed wood (Benson and Ullrich

1981). Although scenic values are often cited along with biodiversity values as important reasons for preserving old growth forests, these mixed results hint that the relationship between scenic value and old-growth character is not as straighfforward as the predominance of large trees. According to Hunter (1990): “many old forests are not what the average person would consider beautiful; there may be no huge, magnificent trees; there will certainly be numerous dead and dying ones” (p. 67). In fact, the biodiversity of old-growth forests may have more to do with the dead and dying material they produce than with the large, living trees that remain (Hunter 1990). Some benefits of fallen trees and downed wood have already been mentioned; additional wildlife uses of standing dead trees or snags’ include cavity nesting and den sites, nesting platforms, feeding substrate, plucking posts, food caches, overwintering sites, and roosts, lookouts, and hunting perches (Maser and others 1988).

Silvicultural systems -- Several studies have described the visual effects produced by conventional silvicultural systems such as clearcutting, shelterwood, and uneven-age management (Benson and Ullrich 1981, Ribe 1991b), as well as some “alternative” treatments such as deferment cutting (Smith and others 1989) and techniques advocated by new forestry (Brunson and Shelby 1992b). Visual preferences usually coincide with the perceived degree of disruption; “unmanaged” forests are most preferred, and clearcut areas are least preferred. Several studies, however, have shown that lightly managed stands in which dead material and low tree and shrub cover are reduced, and visual penetration is increased, are often preferred to unmanaged stands (Brush 1978, McCool and Benson 1988, Patey and Evans 1979, Ruddell and others 1989). From a biodiversity standpoint, even- and uneven-age management techniques that promote a tall and varied vertical structure may encourage higher biodiversity (Hunter 1990). In this light, techniques that reduce structural heterogeneity -- e.g., the prototypical park-like stand of mature trees with an herbaceous groundcover but little mid-level vegetation -- may be scenically popular but could compromise biodiversity goals.

Clearcut size, shape, and distribution -- Despite the wide use of even-age management techniques and their disruptive effects on scenic quality, few researchers have looked at people’s perceptions of various methods for reducing visual impacts. Common sense would assume that smaller clearcuts would be preferred to larger ones, and some research indicates that this is the case (Schroeder and others 1993). Ruddell and Hammitt (1987) also found visual preferences for well-defined edges in forest recreation settings. Certainly forest policy and established visual management practices have tended towards smaller clearcuts and varied shapes to decrease their noticeability in the landscape (USDA Forest Service 1974). Likewise, corridor planning techniques often focus on increasing the vertical and horizontal edge variety between forest and opening, to reduce contrasting lines and emulate natural openings (USDA Forest Service 1980). Treatments like this can enhance habitat for many edge species such as deer and ruffed grouse (Brenneman and Eubanks 1989), but can endanger forest flora and fauna that rely on interior forest conditions (Robbins 1979). When the amount of edge is increased, forest interiors can be more easily invaded by weedy plant species and predators, which can displace or outcompete native species. Likewise, increasing forest fragmentation can reduce overall species diversity and diversity of old growth species, and it can make interior stands susceptible to pathogens, wildfire, and windthrow (Franklin and Forman 1987).

An "Ecological Aesthetic" as a Solution to the Conflict?

These four examples illustrate how visual management practices may work at cross-purposes with biodiversity goals. Can conflicts between aesthetics and biodiversity be resolved? Some believe they can, but maintain that to do so we as forest users, managers, and researchers need to adopt a different way of thinking about the aesthetics of forest landscapes. As a mode of landscape appreciation, the scenic aesthetic might function well for some types of open spaces -- parks in particular -- but for landscapes where ecological values are a primary consideration, we must go beyond the superficial to a deeper understanding and appreciation of nature. Ideas about this aesthetic- an "ecological aesthetic" as some have called it -- stem largely from a series of essays by Aldo Leopold, culminating in his Sand County Almanac (1949). Although Leopold never explicitly outlined his ecological aesthetic, its elements are synthesized by Susan Flader and Baird Callicott in their compilation of Leopold's writings, *The River of the Mother Of God* (1991):

> By contrast [to the scenic aesthetic], in Leopold's revolutionary land esthetic all the senses, not just vision, are exercised by a refined taste in natural objects, and esthetic experience is as cerebral as it is perceptual. Most important, form follows function for Leopold as for his architectural contemporaries. For him, the esthetic appeal of the country, in other words, has little to do with its adventitious colors and shapes -- and nothing at all to do with its scenic and picturesque qualities -- but everything to do with the integrity of its evolutionary heritage and ecological processes (p. 9-10).

Using Leopold's writings as a starting point, I have summarized the elements of an ecological aesthetic in table 1, and contrasted them with the elements of a scenic aesthetic. I have added points from others in the fields of design, ecology, psychology, and philosophy, and have presented them within a framework adapted from Zube and others (1982) to describe the "landscape perception process." This framework, useful for helping to organize and identify elements of an ecological aesthetic, is divided into sections pertaining to the individual, the landscape, the human-landscape interactions that take place, and the outcomes or benefits that result.

A cursory comparison of elements in the table shows the fundamental differences between the two aesthetics. For one, an ecological aesthetic requires us to redefine how we "see" the landscape and our place in it. In the scenic aesthetic, the pursuit of pleasure (affect) is primary, and pleasure can be derived from viewing the landscape irrespective of the ecological integrity of that landscape. In contrast, in an ecological aesthetic, pleasure is a secondary outcome that derives from knowing about the landscape and knowing it is ecologically "fit." This difference changes the focus of our relationship with the landscape from a homocentric one towards one that is more biocentric. In the context of aesthetics, Rosenberg's (1986) idea of "ecological humanism' may be a more appropriate conceptualization of this relationship, where 'the needs of humans and the needs of the environment converge" (p. 79). This ties aesthetics together with ecology and with ethics, as expressed in Leopold's (1949) land ethic: "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise" (p. 224-5). This change in focus also changes our idea of perception from a process that is visual, immediate, and largely affective to one that demands engagement of all of our

Table 1--Some elements of scenic versus ecological aesthetics

Scenic	Ecological	Selected references
	Person-related elements	
Perceptual, immediate, affective/emotional	Cognitive, knowledge based, "a refined taste," in addition to affective	Zajonc 1980, Zajonc & Markus 1982, Leopold 1949, Carlson 1979, Thayer 1989
Limited to visual sense	All senses engaged -- sight, hearing, smell, touch, taste as well as movement/ exploration	Zube et al. 1982, Leopold, 1949, Thorne & Huang 1991, Gibson 1979, Hevner 1937
Popular taste, "lowest common denominator"	Elitist?	Carlson 1977, Ribe 1982
View of world is homocentric	View is biocentric, ethical "ecological humanism"	Rosenberg 1986, Leopold 1949
	Landscape-related elements	
Visual, focused	Multimodal, ambient	Spirn 1988, Zube et al. 1982
Static, inanimate, fixed	Dynamic, living, changing	Spirn 1988
Formal elements, pastoral, picturesque	Form follows function, vernacular	Nassauer 1992, Hunter 1990, Carlson 1979
Dramatic	Subtle	Leopold 1949, Callicott 1983
Naturalistic	Natural	Nassauer 1992
Taken at face value	Symbolic, deeper meaning	Laurie 1983, Howett 1987
Bounded, framed, specific places	Unbounded, entire forest	Hepburne 1968
Composed view	Aesthetic "indicator species" in intact ecosystem	Callicott 1983
Tidy, pristine	Messy	Hunter 1990, Nassauer 1988
	Interaction-related elements	
Passive, object-oriented, stimulus-response	Active, participatory, experiential	Chenoweth and Gobster 1990, Koh 1988, Thayer 1989
Accepted as a given	Invokes a dialogue	Spirn 1988
	Outcome-related elements	
Pleasure	Understanding and pleasure	Thayer 1989
Observation	Action and involvement	Zube et al. 1982
Short-term, mood changes	Long-lasting, restorative, deep values, unity, identity, sense of place	Dwyer et al. 1991, Spirn 1988, S. Kaplan 1993
Maintains status quo	Catalyst for internal and external change	Spirn 1988

senses as well as our intellect to “see,” as Leopold (1949) writes, “[beyond the pretty]... through successive stages of the beautiful to values yet uncaptured by language” (p. 96). With respect to public land management, some might think such an approach to be elitist, while others have argued that to manage only for popular taste reduces what is deemed of value to the “lowest common denominator” (Carlson 1977).

The things we “see” in the landscape also change as we shift focus from a scenic to an ecological aesthetic. The dramatic, visual elements of the picturesque continue to give aesthetic pleasure, but so do the more subtle and ordinary landscapes of forest ecosystems. The beauty of these places, however, often requires deeper exploration of their qualities; appreciating the landscape’s extra-visual properties as well as the dynamics pf change often takes precedence over viewing the landscape as if it were a static composition. In ecological aesthetics, pleasure is derived from knowing how the parts of the landscape relate to the whole -- for example, how the presence of aesthetic “indicator species” (Callicott 1983) like the Kirtland’s warbler, eastern timber wolf, and northern spotted owl is sustained in an intact ecosystem. These features imbue the forest landscape with deep, symbolic meaning, whereas the composed view is often appreciated at face value.

The last two parts of the table distinguish the interactions between humans and the landscape, and the outcomes that result. Having an ecological aesthetic requires that we experience the landscape as active participants -- not watch it passively as if it were a picture or other art object, but relate to it as a living landscape. It is through these interactions that we develop “dialogues” with ourselves and with the landscape that help us, as Spirn (1988) suggests, know ourselves and our place in the world. Although “snapshot” experiences of pretty landscapes may be sufficient to temporarily alter moods in a positive way, extended dialogues with nature facilitate psychological restoration and allow opportunities for inner change (S. Kaplan 1993). Spirn (1988) describes some of these benefits in the context of design; the same can be said in appreciation of biologically diverse natural and managed forests:

Design which highlights nature’s processes for our contemplation permits the experience of a sense of unity with a larger whole which is the universe in which we live... Design that fosters and intensifies the experience of temporal and spatial scales facilitates both this reflection upon personal change and the search for identity and sense of unity with a larger whole. Design that resonates with the natural and cultural rhythms of a place, that echoes, amplifies, clarifies, or extends them, contributes to a sense of rootedness in space and time” (p. 109-110).

If we look at these differences from a management perspective, an ecological approach to aesthetics could help resolve many of the conflicts that now occur when managing for scenic aesthetic and biodiversity values. From the public’s perspective as well, substantial individual and societal benefits could be gained if people adopted an ecological aesthetic to landscape appreciation. But is the public ready to appreciate new forestry sites that feature exploded tree tops, tall piles of slash, or 900-acre clearings? With a 200+ year history of evolution, adherence to the scenic aesthetic is ingrained, and the changes required for adopting an ecological aesthetic are fundamental. What, then, should be the strategy for resolving or at least minimizing conflicts between aesthetic and biodiversity values?

Appropriateness Analysis

The concept of appropriateness could offer a viable short-term strategy for considering publicly held aesthetic and biodiversity values. Appropriateness refers to the judged suitability or compatibility of an introduced change, relative to one or more management goals. In the context of this discussion, management goals include the protection of aesthetic and biodiversity values. Expanded applications might incorporate additional goals, including utilitarian ones. The purpose behind such an analysis would be to obtain a more holistic, publicly based resource evaluation than is available through traditional, single-issue assessments. The term “appropriate” is thus used in a perceptual sense (i.e., perceived appropriateness), and does not imply that current practices are inappropriate.

As a psychometric approach to assessing public perceptions, evaluations of appropriateness differ from evaluations of scenic preference in several important respects. First, evaluations of appropriateness are *integrative* in that they merge ideas about aesthetics and biodiversity within a single problem focus, namely that of management change. This changes the nature of the question from one of if change should or should not occur to *how* change can best be managed to provide for multiple values.

Integrating concepts within an appropriateness framework helps to avoid the incompatibilities that might occur when dealing with them singularly. The conflict between these concepts is illustrated in figure 1, where six hypothetical forest stands are rated for scenic and biological quality. The “old growth” and “new forestry” stands receive high marks for their biological quality, but look messy because of dead and downed wood and thus are rated low in scenic quality. In contrast, the “pastoral park” and “naturalistic pine grove” look scenic, but lack structural and plant species diversity and thus receive low marks for biological quality. The two stands on which there is agreement are the “uneven-aged” stand with big-tree character that has both beauty and diversity, and the “recent clearcut” that lacks both scenic and biological quality.

Figure 1 – Biological and scenic quality ratings for six hypothetical forest stands.

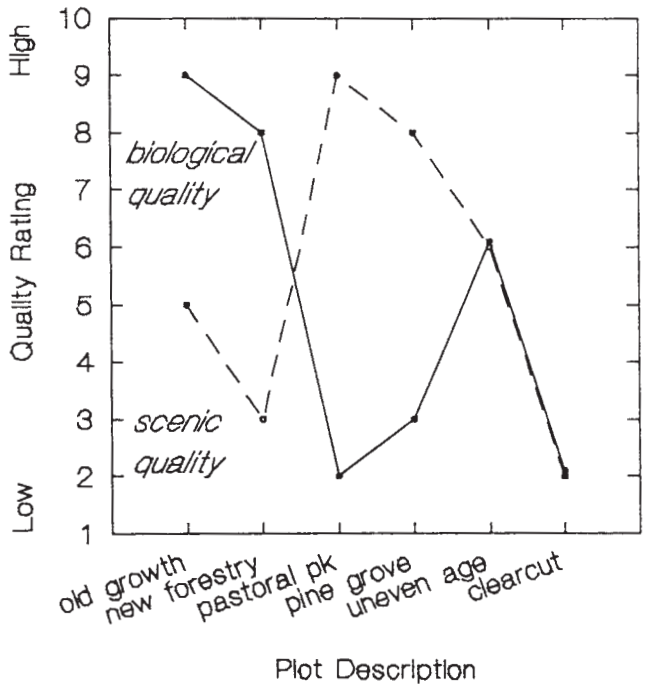

Figure 2 shows how these two disparate values are brought together in an evaluation. But it also illustrates a second major way in which evaluations of appropriateness differ from traditional assessments of scenic preference: evaluations of appropriateness are ***contextual*** in nature. Perceptions about the appropriateness of change depend upon knowledge about the nature of the setting and/or situation in which that change is to occur. The contextual nature of land use has long been recognized in city planning and zoning, where ordinances are enacted to ensure that the function, use, and design of adjacent developments are compatible with each other. Contextual compatibility has been a topic of research in urban architectural psychology (e.g., Groat 1984), and has received some attention with respect to the development of natural landscapes (e.g. Gobster 1983, Wohlwill 1979). Context is also an integral component in some recreation planning systems such as the USDA Forest Service's Recreation Opportunity Spectrum, or ROS (USDA Forest Service 1986), where criteria for size, remoteness, degree of development, and other factors are used to identify the ROS settings appropriate to providing desired recreation experiences.

Figure 2 – Appropriateness ratings for six hypothetical forest stands in "Urban," "Roaded Natural," and "Semiprimitive" ROS settings.

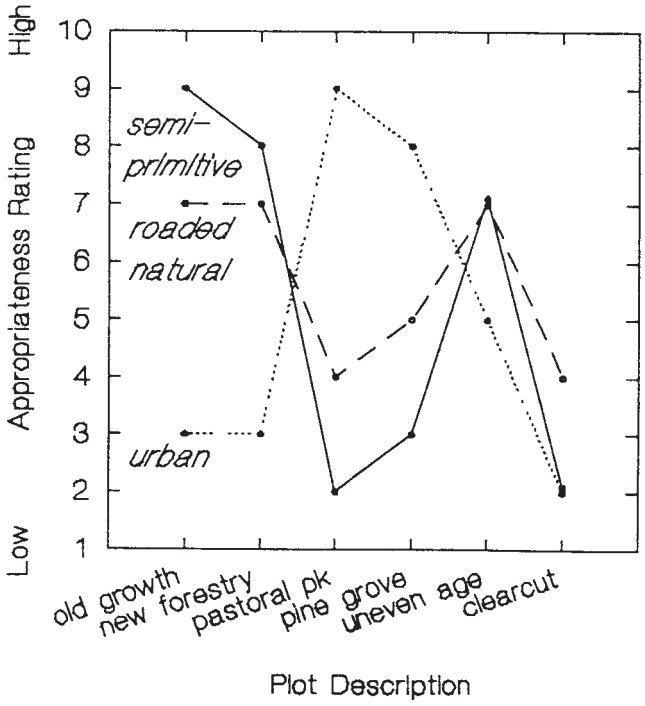

Figure 2 shows the same six hypothetical forest stands, rated this time for the appropriateness of the management practice in each of three ROS settings: "urban," "roaded natural," and "semiprimitive." Clearly specifying the management objectives of each of these areas, one might hypothesize the appropriateness values to vary by setting in the ways illustrated. In.the urban setting, human concerns for scenery might take precedence over biodiversity values, favoring the park and pine grove stands as most appropriate, with other plots perceived as less appropriate. In the roaded natural setting, the uneven-aged stand might be rated as most appropriate; in the semiprimitive setting,

the old growth and new forestry plots might be most appropriate. Appropriateness of the clearcut would depend on its design and the specific management objectives, and might be appropriate in the semiprimitive or roaded natural setting. The examples illustrated by the figures are overly simplistic, but nonetheless show how biodiversity and aesthetic values differ and how conflicts might be resolved by looking at people's ideas of "what belongs where."

Finally, assessments of appropriateness are external in nature in that a person makes an evaluation on the basis of what he or she feels is appropriate to reach the stated management goal, rather than on what he or she prefers. This brings the assessment out of a context that is affective, perceptual, and subjective (i.e., "I like") and into one that is more cognitive, information-based, and objective (i.e., "what is right"). In this way, the concept.of appropriateness also ties aesthetics together with land ethics and stewardship by seeking a harmonious "fit" or congruity between human activity and the natural world. This contrasts with the concept of acceptability, which seems more human-centered, and implies the setting of standards of minimum adequacy, or limits to admissible, tolerable, or permissible change. This semantic difference may seem slight, but it does cast the nature of the decision/ evaluation in a philosophically different light.

Operationalizing the concept of appropriateness for research and management applications would be a major task. However, good models exist in the fields of visual assessment and recreation research and management that could be adapted to the idea of appropriateness. Specifying the nature of the judgment to be made and the context in which it would be made is critical, and in both cases the success of the assessment relies on the presence of objective, unbiased information. In a research application, public participants would first need to become familiar with the concepts and goals of biodiversity and visual resource management, and with the techniques or practices used to achieve management goals. This might require presentation of information before any site or stand evaluations. Additionally, participants must be aware of the context in which the practices are to be applied, including the ecological capability and uniqueness of the site and its importance to users for visual and recreational purposes. This information could be made available through an Ecological Classification System (Kotar 1988), ROS setting maps (USDA Forest Service 1986), and sensitivity maps completed under the Visual Management System (USDA Forest Service 1974). For some national forests, this information is currently available forest-wide, while in other cases it would need to be created as part of the research application.

After digesting this information, participants could then view sites under study and evaluate them for the appropriateness of the management practice. Gobster (1983) demonstrates one application of this method in evaluating the appropriateness of residential development in "wild," "natural," "recreational," and "urban" lakeshore settings. In that study, written statements and photographs were used to depict the setting to study participants, who then rated the perceived visual appropriateness of development in each of the four settings for alternative sites as shown through color slides. More realistic portrayals of alternatives could be accomplished with on-site visits, as used by Brunson and Shelby (1992b) in their study of the acceptability of new forestry sites. Evaluations as well could be enriched by including open-ended questions or focus group discussions of the alternatives along with standard, rating scale data. Ultimately, this information could help to identify and model the effects that specific management attributes have in

predicting appropriateness, and in determining how perceptions of appropriateness vary as a function of context.

Table 2- Some tentative criteria for defining appropriate forestry management practices with regard to aesthetics and biodiversity

Appropriateness criteria	Context-- ROS settings		
	"Urban" (e.g. modern campground)	"Roaded Natural" (e.g. dispersed recreation)	"Semiprimitive" (e.g. backcountry wildland)
	Management emphasis		
Management goal	Scenic or "contained biodiversity"	Balanced	Biodiversity
Use orientation	Human/aesthetic	Balanced/multiple use	Ecological
	Management change		
Change from current practices	Low	High	Low
Scale of change	Small; demonstration patches	Medium	Large
Duration	Short- to long-term	Medium	Long
Visibility	High	High	High
Sustainability	High	High	High
	Expression to public		
Information	High; on-site	Low on-site, high off-site	High; off-site
Landscape design cues	Many; care as neatness; picturesque conventions	Some; care as stewardship	Few; care as ecological int

A system to identify and manage for appropriateness could be built along these same lines, using information from user and interest group evaluations either as a starting point, or later, as a means to validate a model. Like the research application described above, the management context and objectives could be defined using existing Ecological

Classification System, ROS, and Visual Management System information. Stankey and others (1985) lay out a comprehensive process for defining “limits of acceptable change,” which also could be fruitfully adapted to sUch an assessment. Perhaps within a GIS environment, areas of high scenic and biodiversity value could be overlaid with each other and with recreation setting and visual sensitivity maps to identity areas geographically. From such analyses, a set of criteria could be developed to spell out management goals and applications within different contexts. A preliminary outline of these criteria is shown in table 2.

The table lists criteria for “management emphasis,” “management change,” and “expression to the public” for each of three ROS settings. In an “urban’ context (e.g., a modern campground) where large numbers of users are concentrated for extended periods of time, the management emphasis would be on human enjoyment, and would attempt to achieve scenic beauty in the traditional sense. This emphasis would change as one moves across the ROS. In “roaded natural” settings, areas seen by moderate numbers of users who drive through or use such settings for dispersed recreation, scenic and biodiversity goals would be balanced. And in semiprimitive areas used by low numbers of people for nature-oriented recreation, the emphasis would be on biodiversity and maintenance and enhancement of ecological processes. Management changes in urban settings would not deviate much from current practices, and changes made to maintain or enhance biodiversity would remain subordinate to the retention of scenic quality. As Hobbs (1988) suggests, attempts to enhance biodiversity in urban areas might take the form of small scale demonstration projects geared more to educating the public than to maintaining or reproducing high quality ecosystems. The biggest changes might occur in roaded natural settings, where practices to maintain and enhance biodiversity would have greater visibility than under current visual management objectives. For example, slash piles and snags might be more visible, clearcut edges might be less undulating, and the scale of landscape alterations might be larger than if visual management were a primary criterion. In semiprimitive areas, scale, duration, and visibility of changes could be greater still, but current visual management practices might remain close to what is now permissible for areas of low visual sensitivity. In all settings, management changes introduced to enhance biodiversity and scenic quality should be sustainable in that they are in tune with the ecological constraints of the site and tend towards a dynamic equilibrium over the long term.

Perhaps the most important criteria in table 2 are those that help define how ecosystem management practices are expressed to the public. Information plays a key role in all settings because public perceptions of appropriateness depend on knowledge of the purposes behind the management change (Thayer 1989). This information must be conveyed sincerely and objectively to avoid suspicion that managers are trying “to fool the public” (Wood 1988). In urban settings, interpretive nature trails, kiosks, ranger programs, and other kinds of on-site information can all aid communication efforts. Off-site information may be a more appropriate way to communicate to users of roaded natural and semiprimitive areas, though unobtrusive signage can be effective (USDA Forest Service 1986).

Along with information, landscape design can offer important ways for telling the public why enhancing biological values is important. Evidence of human care, Nassauer (1992) maintains, acts as cues for interpreting the intentions behind ecologically sustainable landscape practices that otherwise might appear messy and “unnatural.” In urban

settings, these cues might include picturesque conventions that portray a diverse and sustainable landscape, albeit a landscape that is neat and tastefully designed. For example, a winding, well-maintained nature trail might be located near a high-use forest campground to show visitors the biological diversity of an uneven-aged stand. Trail layout and trailside vegetation might be selected to highlight a few larger or peculiarly shaped trees, to favor fall color, or to increase the variety in height and texture contrasts. In some cases, compatible understory, midstory, or overstory vegetation might even be planted to enhance picturesque effects. Brushpiles, snags, and other treatments that would usually be concealed in the visual management of urban areas might instead be highlighted by framing them with attractive vegetation and including interpretive signage, again to portray the intentions behind the practices. In roaded natural settings, fewer picturesque conventions might be used, or replaced by less stylistic cues that still help convey land stewardship. For example, a self-guided "ecosystem management auto tour" might be designed, where a slightly wider mowed right-of-way or pull-off would set off the land practice, and a brochure and marker sign would describe its function and purpose. In the national forests, such a tour could be incorporated within the framework of the Scenic Byways program, expanding the concept of this already successful means of public communications. Cues in semiprimitive areas might be subtle or missing altogether--perhaps unobtrusive marker posts in representative areas, keyed to a brochure available off-site. For these sites, care is exhibited by ecological integrity and largely up to forest users to discover it.

Conclusion

Appropriateness analysis offers a potentially promising way to reconcile conflicts between aesthetic and biodiversity values. However, it is a short-term fix that sidesteps fundamental problems in the way we think about and deal with aesthetic issues in forestry. Failing to address these problems will perpetuate the conflict, and compromise ecosystem management as an approach to effectively serve the best interests of the public and the environment.

Toward Adoption of an Ecological Aesthetic

Changing the situation calls for no less than changing our perception of the aesthetics of forest landscapes. This task is difficult but not impossible, and there is evidence that aesthetic ideas about landscapes can evolve when guided (or forced) by agents of change. One case in point has been the rise in popularity of "xeriscaping" in the Southwestern U.S. A decreased reliance on shade trees for cooling, combined with water shortage threats, has increased the popularity of arid-adaptive landscape design in Tucson and other urban centers. According to McPherson and Haip (1989) "Once the change began, the rapidity of its acceptance was striking. This rapid shift from horticultural to desert landscape illustrates how strong sociocultural traditions like a grassy front lawn can be modified if people are presented the right combination of incentives, mandates, and educational materials" (pp. 447-8). A second case was in the interpretation of the wildfires that moved through Yellowstone National Park during the summer of 1988. Initially, the fires were presented as a disaster of great proportions, but later reports in such popular magazines as *National Geographic* communicated the valuable benefits and beauty resulting from the fires (Jeffery 1989).

Landscape architects and other resource managers need to act like similar agents of change to move the public towards adoption of an ecological aesthetic for forest management. By understanding the ideas of ecological aesthetics and how they differ from scenic aesthetics, managers and planners can begin to think in different ways of how to design and portray ecosystem management practices to the public. Programs,

materials, and on-site experiences can help acquaint people with the multisensory, dynamic qualities of a biologically diverse forest, and show how places that may at first glance appear messy and uncared for can yield deeper aesthetic values upon closer inspection. First and foremost, however, if ecosystem management is to become the driving paradigm behind landscape management of national forests and other areas, managers need to portray, interpret, and even celebrate change rather than conceal it. Showing this change to the public through landscape design and through information was discussed previously (in the section on appropriateness analysis); these same guidelines hold true as applied to ecological aesthetics. In this light, **we** should also recognize that scenic aesthetics has a proper place in forest management, and management practices should be sensitive to the settings to which they are applied.

Researchers, too, must play an integral role in deepening our understanding of ecological aesthetics'. We must expand our repertoire of methods to identify the full spectrum of aesthetic values, to move out of the laboratory and beyond studies of visual preferences for photographic surrogates, and move into field studies where we can uncover the subtle, symbolic, and deeper values of ecological aesthetics. Studies of hunters, birders, native plant enthusiasts, and others who have an intimate knowledge of natural environments would help us to understand how "a refined taste for natural objects" (Leopold 1949) is acquired, and how ecological beauty is "seen" by people. In a study of aesthetic experiences in natural landscapes (Gobster and Chenoweth 1990), we developed and refined our research instrument (questionnaire) using a focus group methodology. This qualitative research method yielded many important insights into the nature of aesthetic experiences, as did Nassauer's (1988) use of in-depth interviews in understanding people's perceptions of landscape care. Such techniques could be fruitfully applied to an analysis of ecological aesthetics. Transferring this information into specific guidelines for forest management and planning is not always possible, but such knowledge can help us understand how people value and interact with forest environments.

Literature Cited

Appleton, J. 1975. The experience of landscape. London: John Wiley. 293 p.

Arthur, L.M. 1977. Predicting scenic beauty of forest environments: some empirical tests. Forest Science. 23(2): 151-160.

Benson, R.E.; Ullrich, J.R. 1981. Visual impacts of forest management activities: findings on public preferences. Res. Pap. INT-262. Ogden, UT: U.S. Department of Agriculture, Forest Service, lntermountain Forest and Range Experiment Station. 14 p.

Brenneman, R.E.; Eubanks, T.R. 1989. Forest fragmentation in the Northeast - an industry perspective. In: Healthy forests, healthy world: Proceedings of the 1988 Society of American Foresters national convention; October 16-19; Rochester, NY. Bethesda, MD: Society of American Foresters: 151-153.

Brown, T.C.; Daniel, T.C. 1984. Modeling forest scenic beauty: concepts and applications to Ponderosa Pine. Res. Pap. RM-256. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 35 p.

Brown, T.C.; Daniel, T.C. 1986. Predicting scenic beauty of timber stands. Forest Science. 32: 471-487.

Brunson, M; Shelby, B. 1992a. Assessing recreational and scenic quality: how does New Forestry rate? Journal of Forestry. 90(7): 37-41.

Brunson, M.; Shelby, B. 1992b. Effects of alternative silvicultural methods on scenic and recreational quality. In: Vander Stoep, G., ed. Proceedings of the 1991 Northeastern Recreation Research Symposium; April 7-9; Saratoga Springs, NY. Gen. Tech. Rep. NE-160. Radnor, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station: 169-172.

Brush, R.O. 1978. Forests can be managed for esthetics: a study of forest-land owners in Massachusetts. In: Hopkins, G; Cordell, H.K.; Gerhold, H; Wood, L., eds. Proceedings: National Urban Forestry Conference, Vol. 1.; 1978 November 13-16; Washington, DC. Syracuse, NY: State University of New York: 349-360.

Buhyoff, G.J.; Hull, R.B.; Lien, J.N.; Cordell, H.K. 1986. Prediction of scenic quality for southern pine stands. Forest Science. 32(3): 769-778.

Callicott, J.B, 1983. Leopold's land aesthetic. Journal of Soil and Water Conservation. 38: 329-332.

Carlson, A.A. 1977. On the possibility of quantifying scenic beauty. Landscape Planning.

Carlson, A.A. 1979. Formal qualities and the natural environment. Journal of Aesthetic Education. 13: 99-114.

Cox, T.R. 1985. Americans and their forests: romanticism, progress, and science in the late nineteenth century. Journal of Forest History. 29: 156-168.

Daniel, T.C.; Boster, R.S. 1976. Measuring landscape esthetics: the scenic beauty estimation method. Res. Pap. RM-167. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 66 P.

Dwyer, J.F.; Schroeder, H.H.; Gobster, P.H. 1991. The significance of urban trees and forests: toward a deeper understanding of values. Journal of Artboriculture. 17(10): 276-284.

Flader, S.L.; Callicott, J.B., eds. 1991. The river of the mother of God, and other essays by Aldo Leopold. Madison, WI: The University of Wisconsin Press. 384 p.

Franklin, J.; Forman, R.T.T. 1987. Creating landscape patterns by forest cutting: ecological consequences and principles. Landscape Ecology. 1(1): 5-18.

Gibson, J.J. 1979. The ecological approach to visual perception. Boston, MA: Houghton Mifflin.

Gobster, P.H. 1983. Judged appropriateness of residential structures in natural and developed shoreland settings. In: Amadeo, D.; Griffin, J.8.; Potter J.J., eds. EDRA 13:

Proceedings of the 14th lnternational Conference of the Environmental Design Research Association. Lincoln, NE: University of Nebraska: 105-111.

Gobster, P.H.; Chenoweth, R.E. 1989. The dimensions of aesthetic preference: a quantitative analysis. Journal of Environmental Management. 29(1): 47-72.

Gobster, P.H.; Chenoweth, R.E. 1990. Peak aesthetic experiences and the natural landscape. In: Selby, R.L; Anthony, K.H.; Choi, J.; Orland, B., eds. Coming of age: Proceedings of the 21st Annual Conference of the Environmental Design Research Association; 1990 April 6-9; Urbana-Champaign, IL. Oklahoma City: EDRA, Inc.: 185-191.

Groat, L.M. 1984. Contextual compatibility in architecture: an investigation of non-designers' conceptualizations. Report R84-3. Milwaukee, W1: University of Wisconsin-Milwaukee, Center for Architecture and Planning Research. 97 p.

Hepburne, R. 1968. Aesthetic appreciation of nature. In: Osborne, H., ed. Aesthetics in the modern world. London: Thames and Hudson: 44-66.

Hevner, K. 1937. The aesthetic experience: a psychological description. Psychological Review. 44: 245-263.

Hobbs, E.R. 1988. Species richness of urban forest patches and implications for urban landscape diversity. Landscape Ecology. 1: 141-152.

Howett, C. 1987. Systems, signs, and sensibilities: sources for a new landscape aesthetic. Landscape Journal. 6(1): 1-12.

Hull, R.B.; Buhyoff, G.J. 1986. The scenic beauty temporal distribution method: an attempt to make scenic beauty assessments compatible with forest planning efforts. Forest Science. 32: 271-286.

Hunter, M.L., Jr. 1990. Wildlife, forests, and forestry: principles of managing forests for biological diversity. Englewood Cliffs, NJ: Prentice Hall. 370 p.

Huth, H. 1972. Nature and the American: three centuries of changing attitudes. Lincoln, NE: The University of Nebraska Press. 250 p.

Jeffery, D. 1989. Yellowstone -- the great fires of 1988. National Geographic. 175(2): 255-273.

Kaplan, R.; Kaplan, S. 1989. The experience of nature: a psychological perspective. New York: Cambridge University Press. 340 p.

Kaplan, R.; Talbot, J.F. 1988. Ethnicity and preference for natural settings: a review and recent findings. Landscape and Urban Planning. 15: 107-117.

Kaplan, S. 1993. The role of natural environment aesthetics in the restorative experience. In: Gobster, P., ed. Managing urban and high-use recreation settings. Gen. Tech. Rep.

NC-163. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 46-49.

Koh, J. 1988. An ecological aesthetic. Landscape Journal. 7(2): 177-191.

Kotar, J. 1988. Ecological land classification: the first step in forest resource management. In: Johnson, J.E., ed. Managing North Central forests for timber values: Proceedings of the 4th Society of American Foresters Region V technical conference; 1988 November 29 - December 1; Duluth, MN. SAF Publication 88-04. Bethesda, MD: Society of American Foresters: 43-52.

Laurie, M. 1983. A gladdened eye: criteria for a new aesthetic. Landscape Architecture. 73(6): 70-75.

Leopold, A. 1949. A Sand County almanac, and sketches here and there. New York: Oxford University Press. 226 p.

Lyons, E. 1983. Demographic correlates of landscape preference. Environment and Behavior. 15(4): 487-511.

Maser, C.; Anderson, R.G.; Cromack, K., Jr.; [and others]. 1979. Dead and down woody material. In: Thomas, J.W., ed. Wildlife habitats in managed forests: the Blue Mountains of Oregon and Washington. Agric. Handbook 553. Washington, DC: U.S. Department of Agriculture, Forest Service: 78-95.

Maser, C.; Cline, S.P.; Cromack, K.; Jr., Trappe, J.M.; Hansen, E. 1988. What we know about large trees that fall to the forest floor. In: Maser, C.; Tarrant, R.F.; Trappe, J.M.; Franklin, J.F., eds. From the forest to the sea: a story of fallen trees. Gen. Tech. Rep. PNW-229. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station: 25-46.

McCool, S. F.; Benson, R.E. 1988. Timber harvesting and visual resources: maintaining quality. In: Schmidt, W.C., comp. Proceedings -- Future forests of the mountain West: A stand culture symposium; 1966 September 29 -- October 3; Missoula, MT. Gen. Tech. Rep. INT-243. Missoula, MT: U.S. Department of Agriculture, Forest Service, lntermountain Research Station: 117-122.

McPherson, E.G.; Haip, R.A. 1989. Emerging desert landscape in Tucson. Geographical Review. 79(4): 435-449.

Nash, R. 1982. Wilderness and the American mind. 3rd. ed. New Haven, CT: Yale University Press. 425 p.

Nassauer, J.I. 1983. Framing the landscape in photographic simulation. Journal of Environmental Management. 17: 1-16.

Nassauer, J.I. 1988. The aesthetics of horticulture: neatness as a form of care. HortScience. 23(6): 973-977.

Nassauer, J.I. 1992. The appearance of ecological systems as a matter of policy. Landscape Ecology. 6(4): 239-250.

Patey, R.C.; Evans, R.M. 1979. Identification of scenically preferred forest landscapes. In: Elsner, G.H.; Smardon, R.C., tech. coords. Proceedings of our national landscape: A national conference on applied techniques for analysis and management of the visual resource. Gen. Tech. Rep. PSW-25; 1979 April 2325; Incline Village, NV. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station: 532-538.

Rees, R. 1975. The scenery cult: changing landscape tastes over three centuries. Landscape Research. 19(1): 39-47.

Ribe, R.G. 1982. On the possibility of quantifying scenic beauty: a response. Landscape Planning. 9: 61-79.

Ribe, R.G. 1989. The aesthetics of forestry: what has empirical preference research taught us? Environmental Management. 13(1): 55-74.

Ribe, R.G. 1991a. The scenic impact of key forest attributes and long-term management alternatives for hardwood forests. In: McCormick, L.H.; Gottschalk, K.W., eds. Proceedings, 8th Central Hardwoods Forest Conference; 1991 March 4-6 University Park, PA. Gen. Tech. Rep. NE-148. Radnor, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station: 35-54.

Ribe, R. G. 1991b. A test of differences in scenic perceptions and needs across the Recreation Opportunity Spectrum. Final Report, Cooperative Research Agreement NC-89-08. Chicago, IL: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 87 p.

Robbins, C.S. 1979. Effects of forest fragmentation on bird populations. In: DeGraaf, R.M.; Evans, K.E., eds. Workshop proceedings: Management of North Central and Northeastern forests for nongame birds. Gen. Tech. Rep. NC-51. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station: 198-212.

Rosenberg, A. 1986. An emerging paradigm for landscape architecture. Landscape Journal. 6: 75-82.

Ruddell, E.J.; Gramann, J.H.; Rudis, V.A.; Westphal, J.M. 1989. The psychological utility of visual penetration in near-view forest scenic beauty models. Environment and Behavior. 21(4): 393-412.

Ruddell, E.J.; Hammitt, W.E. 1987. Prospect-refuge theory: a psychological orientation for edge effect in recreation environments. Journal of Leisure Research. 19(4): 249-260.

Schroeder, H.W. 1987. Dimensions of variation in urban park preference: a psychophysical analysis. Journal of Environmental Psychology. 7: 123-141.

Schroeder, H.W.; Daniel, T.C. 1981. Progress in predicting the perceived scenic beauty of forest landscapes. Forest Science. 27(1): 71-80.

Schroeder, H.W.; Gobster, P.H.; Frid, R. 1993. Visual quality of human-made clearings in Central Michigan conifers. Res. Pap. NC-313. St. Paul: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 9 p.

Smardon, R.C. 1986. Historical evolution of visual resource management within three federal agencies. Journal of Environmental Management. 22: 301-317.

Smith, H.C.; Lamson, N.L; Miller, G.W. 1989. An esthetic alternative to clearcutting: deferment cutting in Eastern hardwoods. Journal of Forestry. 87: 14-18.

Spirn, A.W. 1988. The poetics of city and nature: towards a new aesthetic for urban design. Landscape Journal. 7(2): 108-126.

Stankey, G.H.; Cole, D.N.; Lucas, R.C.; [and others]. 1985. The Limits of Acceptable Change (LAC) system for wilderness planning. Gen. Tech. Rep. INT-176. Ogden, UT: U.S. Department of Agriculture, Forest Service, lntermountain Forest and Range Experiment Station. 37 p.

Stark, N.M. 1988. Nutrient cycling concepts as related to stand culture. In Schmidt, W.C., ed. Proceedings -- future forests of the mountain West: a stand culture symposium; 1986 September 29 - October 3; Missoula, MT. Gen. Tech. Rep. INT-243. Ogden, UT: U.S. Department of Agriculture, Forest Service, lntermountain Research Station: 210-218.

Thayer, R.L. Jr. 1989. The experience of sustainable landscapes. Landscape Journal. 8(2): 101-110.

Thorne, J.F.; Huang, C.S. 1991. Toward a landscape ecological aesthetic: methodologies for designers and planners. Landscape and Urban Planning. 21. 61-79.

U.S. Department of Agriculture, Forest Service. 1974. National Forest landscape management volume two, chapter one: the Visual Management System. Agric. Handbook No. 462. Washington, DC: U.S. Government Printing Office. 47 p.

U.S. Department of Agriculture, Forest Service. 1980. National Forest landscape management volume two, chapter five: timber. Agric. Handbook No. 559. Washington, DC: U.S. Government Printing Office. 223 p.

U.S. Department of Agriculture, Forest Service. 1986. 1986 ROS book. Washington, DC: U.S. Department of Agriculture, Forest Service. 265 p.

Vodak, M.C.; Roberts, P.L.; Wellman, J.D.; Buhyoff, G.J. 1985. Scenic impacts of Eastern hardwoods management. Forest Science. 31(2): 289-301.

Wohlwill, J.F. 1979. What belongs where: research on fittingness of man-made structures in natural settings. In: Daniel, T.C.; Zube, E.H.; Driver, B.L., eds. Assessing amenity resource values. Gen. Tech. Rep. RM-67. Fort Collins, CO: U.S. Department

of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station: 48-58.

Wood, D. 1988. Unnatural illusions: some words about visual resource management. Landscape Journal. 7(2): 192-205.

Zajonc, R.B. 1980. Feeling and thinking: preferences need no inferences. American Psychologist. 35: 151-175.

Zajonc, R.B.; Markus, H. 1982. Affective and cognitive factors in preferences. Journal of Consumer Research. 9: 123-131.

Zube, E.H.; Pitt, D.G.; Evans, G.W. 1983. A lifespan developmental study of landscape assessment. Journal of Environmental Psychology. 3: 115-128.

Zube, E.H.; Sell, J.L.; Taylor, J.G. 1982. Landscape perception: research, application, and theory. Landscape Planning. 9: 1-33.

This page is intentionally left blank.

Defining the Social Acceptability of Forest Management Practices and Conditions: lntegrating Science and Social Choice

George H. Stankey

Abstract

Stankey, George H. 1996. Defining the social acceptability of forest management practices and conditions: integrating science and social choice. In: Brunson, Mark W.; Kruger, Linda E.; Tyler, Catherine B.; Schroeder, Susan A., tech. eds. Defining social acceptability in ecosystem management: a workshop proceedings; 1992 June 23-25; Kelso, WA. Gen. Tech. Rep. PNW-GTR-369. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station: 99-111.

At the 1993 Forest Conference in Portland, Oregon, Ted Strong, representing Native American interests, remarked “we must understand that status quo management is completely unacceptable.” His remark embraces the central feature of the forest management crisis facing the Pacific Northwest as well as elsewhere: the current situation, characterized by uncertainty, acrimony, and distrust, leaves few, if any, satisfied. And it implies the need for a search for an alternative that is characterized as “acceptable.”

What is there about the current situation that makes it unacceptable? To whom? What would characterize an acceptable alternative? Is an acceptable alternative one that is supported by a majority; if so, what is the relationship between such a judgment and long-term ecological sustainability?

Such questions are central to defining an acceptable forest management program. In this paper I first focus on the acceptability concept and its underlying rationale and role in forest management. I then turn to a framework proposed by sociologist Walter Firey defining the relationship between social acceptability and other decision factors. I conclude by outlining four basic questions that require attention if the potential of the acceptability concept is to be fulfilled.

Keywords: Social values, acceptability, decisionmaking, informed discourse, role of knowledge, cultural adaptability.

GEORGE H. STANKEY is a research social scientist, USDA Forest Service, Pacific Northwest Research Station, University of Oregon, Peavy Hall, Corvallis, OR, 97331.

The Frustrating Search for an Acceptable Forestry

Following the Forest Conference, President Clinton instructed his administration to prepare a plan to "break the gridlock" that has paralyzed forest management in the region in recent years. The resulting report (FEMAT 1993) represents the fifth analysis prepared since 1990 in an effort to resolve the seemingly intractable conflicts between interests favoring protection of endangered species, old growth, and a variety of other values and interests (Thomas and Verner 1992[1]).

Other efforts to find a "solution" to the crisis in forest management have occurred. Such ideas as new forestry (Franklin 1989), New Perspectives (Salwasser 1990[2]), and ecosystem management (Robertson 1992[3]) are attempts to respond not only to increased scientific knowledge of forest ecosystems, but to the need as well for a management approach that accommodates a wider, more diverse range of values.

These efforts share a common belief in the capacity of science to help shape and formulate public policy regarding forestry. The view derives from a century of forestry philosophy and practice, rooted in the Progressive Era of Conservation. At the close of the 19th century, the rampant depletion and waste of resources drew increased scrutiny, particularly from the scientific community and a sympathetic federal administration (Hays 1959). The response to such problems was consistent with the emerging themes of the era: a belief in science, technical competence, and nonpartisan government (Dana and Fairfax 1980). It paralleled social reforms throughout society, advocating the rational application of management principles as a means of making science serve society (Wondolleck 1988). Key elements of this movement were the view of planning as a "scientific endeavor" and the role of the state as the principal agent of calculation and control (Friedmann 1987).

These scientifically-grounded roots have served forestry well. Sophisticated knowledge and powerful technologies have combined to bring new levels of competence and understanding to forestry practices and policies. But the challenges confronting forestry today have less to do with solving complex technical questions than they do with resolving the growing conflicts over the values of forests (Wondolleck 1988). Yet the primary institutions and processes of decisionmaking remain grounded firmly in a belief in objective, quantitative analyses and the philosophical traditions of utilitarianism, positivism, pragmatism, and critical rationalism, cornerstones of the social reform school of planning (see Friedmann 1987, p. 87-136).

There is growing recognition, however, of the limits of technical knowledge and decisionmaking processes in resolving value-based conflicts. Although such conflicts

---

[1] Thomas, Jack Ward; Verner, Jared. 1992. Accommodation with socio-economic factors under the Endangered Species Act - more than meets the eye. Transactions of the 57th North American Wildlife and Natural Resources Conference. On file with the author.

[2] Salwasser, Hal. 1990. New perspectives for managing the National Forest system -- what is new perspectives and why are we doing it? Unpublished paper. Washington, DC: Forest Service. On file with the author.

[3] Robertson, Dale. 1992. Memorandum issued to regional foresters and research station directors. June 4, 1992. On file with the author.

often involve “questions of fact and can be stated in the language of science, ... [they] are unanswerable by science” (emphasis added); they are “trans-science” problems Weinberg 1972). Rittel and Webber (1973) and Allen and Gould (1986) describe a similar notion. The problems confronting foresters and the whole of society today are more than complex; they are *wicked*. A central characteristic of wicked problems is that they have no answers, in the sense of discrete, unequivocal outcomes; only more or less useful solutions can be found. They are typically symptomatic of higher order problems, and, given their idiosyncratic nature, only partially subject to trial-and-error learning.

The conflicts dominating forest management today exemplify wicked problems; their origin lies in differing conceptions of public interest held by citizens and land managers, in changing power relationships among various interests, and in the growing importance of preservation and amenity values (Wondolleck 1988). Complex ecological problems continue to confront forest managers; they require more and better science, not less. But, good science is a *necessary*, *not sufficient*, condition to resolve such problems. What is currently missing, I propose, is the present incapacity (philosophically, cognitively, and structurally) to define and integrate public judgments of acceptability in decisionmaking processes. It is a central premise of this paper that the conflicts among competing social values and meanings of forests (between and among both resource professionals and the public) confound our ability to frame effective solutions and define societal direction. Yet, current forest management paradigms continue to frame forestry as a technical-scientific endeavor, leading to the predilection to seek technical solutions. If the underlying roots of crisis lie elsewhere, however, then an alternative conception and framework for problem definition and resolution are required.

The central question before us, then, is how to frame an approach to forest management that is both **ecologically responsible** (i.e., founded upon good science) and **socially acceptable** (i.e., it commands the understanding and support of the community). While ecological issues have commanded considerable attention, however, the issue of defining socially acceptable forest management practices and conditions has received scant attention. Thus, we next turn attention to a discussion of the acceptability concept and to a framework for understanding its relationship to the technical aspects of forest management.

The Concept of Acceptability

The concept of acceptability has an alluring simplicity to it. With regard to forest management practices and conditions, we wish to promote those activities and states that are acceptable, and to avoid those that are not. But beyond this obvious, common sense proposition, what does such a concept imply?

Webster’s Collegiate Dictionary reveals a major philosophical dimension which we must engage if the term is to be of value. On the one hand, acceptability suggests being “capable or worthy of being accepted”; i.e., it implies a condition for which we strive. On the other hand, acceptability can be defined as “barely satisfactory or adequate”; i.e, it defines a threshold of tolerance that is only “good enough.”

Both notions can be found in resource management. For example, in the Limits of Acceptable Change (LAC) (Stankey and others 1985), used to define the levels of change in resource and social conditions permitted in wilderness, the latter conception of

acceptability is implied. That is, the LAC defines the maximum levels of change allowed to occur before action is taken. The former definition is implied in a statement concerning the research goals for the Forest Service's New Perspectives in Forestry program: "The research goal for New Perspectives is to enhance the scientific basis for managing the National Forests and Grasslands in an ecologically sound and *socially acceptable* manner" (emphasis added) (Kessler 1991, p. 14).

The concept of acceptability rests on several premises. First, the natural resources are social constructs, defined by their utility to society (Field and Burch 1988). The perception of utility is dynamic, varying both spatially and temporally. What society values, and the management regimes judged appropriate to realize those values, can change. Conditions and practices defined as acceptable at one time or place cannot be expected to necessarily remain the same.

A second premise is that society possesses political power to achieve its conceptions of acceptability or to override those conceptions of acceptability prescribed by the technical elite. Political power is distinguished from legal power held by administrative organizations, such as the USDA Forest Service; it rests in the body politic and it is from political power that legal power derives. Because public judgments of social acceptability have the force of political power behind them, they have the potential to be implemented, even if ecological and/or economic factors jeopardize their long-term sustainability.

Third, acceptability judgments are informed by a variety of factors in *addition to science*. These factors -- personal experience and knowledge (Friedmann 1987), ethical concerns (Callicott 1989), values, attitudes, and beliefs -- help shape public conceptions of acceptability; they cannot be expected to change solely in response to changes in the level of technical understanding.

Fourth, an acceptability judgment carries with it a need for action. If a situation is evaluated as acceptable, what steps are required to maintain it as such (or possibly to make it "more acceptable")? Conversely, if a situation is evaluated as unacceptable, what steps are required to improve it to at least satisfy minimum standards? Thus, acceptability judgments carry important implications for social choices regarding what should be done, when, at what costs, and by whom.

Fifth, the judgment of acceptability implies a willingness to bear the costs and risks of something less than perfect, or conversely, an unwillingness to bear the costs of perfection. For instance, the decision to build a dam capable of withstanding a 100-year flood implies an acceptance of the risk of a 1000-year flood occurring or, again, the unwillingness to bear the costs of the more extensive protection.

The willingness to bear costs and risks is not evenly distributed across society. Those most likely to bear these costs will likely be those with the narrowest conception of acceptability; they will be most concerned with setting standards that minimize impact upon themselves or upon those values to which they accord priority. This differential distribution of costs, and the consequent perception of their seriousness, might underlie the variability regarding acceptability found across society.

Joining Biophysical and Economic Factors with Social Acceptability

In his text Man. Mind and Land, Firey proposed a theory of resource use to identify *mechanisms operating in every social order that forever sift and sort the resource processes...possible in a given habitat or...conceivable in a given culture' (Firey 1960, pp. 19-20). In other words, what factors influence the adoption and successful implementation of certain resource activities? Firey (1960) hypothesized three broad groupings of knowledge required to answer such a question. Successful resource activities (or processes, as he called them) must be (1) **physically possible**, (2) **economically gainful**, and (3) **culturally adoptable**. Each criterion serves a mutually constraining role on the others; for example, a given practice (e.g., clearcutting) cannot persist if it is inconsistent with cultural perceptions of appropriateness, irrespective of being scientifically sound or economically justifiable (note that these fundamental criteria underlie discussions regarding ecosystem management; see Robertson 19923).

Firey's model of resource use provides insight as to the reasons underlying the failure of technical analyses to contend adequately with many natural resource management problems. The predominant emphasis on the technical dimensions of these problems has occurred at the expense of adequate attention to the question of cultural adoptability or what we more commonly refer to as social acceptability.

This is by no means an argument that the scientific dimensions of forestry problems are not important. As Schwarz and Thompson note (1990, p. 148), "that which is socially desirable cannot be achieved if it is physically impossible." The biophysical sciences and associated technologies help define the realm of the possible; however, within this realm, options and choices exist. Yet, the social system also imposes constraints on choice and sets boundaries on the range of feasible alternatives (Douglas and Wildavsky 1982); decisionmaking is, in the final analysis, a *social process*. How, in a system of pluralistic values and multiple options, many inconsistent with one another, does society make choices about acceptable ends and means to those ends?

Defining Acceptability: How Do We Ask the Right Questions

The previous discussion has outlined background to the acceptability issue, suggested some of the premises that underlie its use, and identified how the concept is related to other decision factors. Given such background, however, how does one employ the concept in such a manner so as to, if not ensure, at least enhance, the likelihood of engendering implementable outcomes?

The answer, it seems, lies in specifying the types of key issues that must be addressed. Only through posing the proper questions will it be possible to find those solutions that will prove "more or less useful." In this final section, I outline four basic questions that require attention. These questions carry implications not only for who and what we ask, but for the nature of the institutions that respond to the answers, and the nature of the continuing dialogue between forest management professionals and citizens. Within these questions lie a host of specific hypotheses that form the basis of a systematic body of research designed to enhance understanding of acceptability. It is clear, however, that the division between these questions is not always clear and the implications of answers to one question will often be significant for those to another.

Acceptability of What?

The first fundamental question concerns the definition of the attributes to which acceptability refers. In the case of forestry, acceptability questions have focused on two distinctive, yet related, aspects: practices and conditions. Practices refer to specific management prescriptions, such as clearcutting. Conditions are somewhat self-defined: they are the outcomes resulting from practices.

Although this is a convenient categorization, it may contribute more to confusion than clarification. For instance, people might express great opposition to the practice of clearcutting, but at the same time support the conditions that result from it (e.g., wildlife habitat, wildflowers). Such a relationship raises questions related to public understanding of the consequences of given practices and the effect of such understanding upon the evaluation of these practices. I shall return to this issue shortly. For the moment, however, it is enough to hypothesize that such knowledge does bear upon the evaluative stance people take, and that as knowledge of consequences increases, evaluations can change. For instance, studies of wilderness users have shown that increased knowledge about the role of fire in forest ecosystems is positively associated with support for policies advocating an enhanced role for fire (McCool and Stankey 1986, Stankey 1976). This, it should be noted, can operate both ways; increased knowledge can lead to a diminished level of acceptability.

Acceptability requires that we identify specific situational attributes that influence judgments. This has implications for such things as project planning, inventory, and monitoring. Identifying these attributes, however, is complex. Certain specific qualities can account for differences in acceptability judgments. For many people, clearcutting in any shape or form is unacceptable; for others, situationally specific features will have an effect on these judgments. Clark and others (1984) found that campers were strongly opposed (69%) to “large” clearcuts near dispersed roaded recreation areas, but only 17% were opposed to “small” clearcuts. Although the definition of what constitutes large or small is problematic, such results nonetheless remind us that people recognize distinctions that can lead to different outcomes regarding acceptability.

It is also likely that judgments of acceptability form in relation to the symbolic meaning assigned natural resources. The meaning attached to “special places” (e.g., the place where one’s family camped for many years) might constitute the most significant attribute influencing decisions about acceptability. How such meanings are tapped and incorporated in decisions represents a major challenge (Mitchell and others 1993).

Acceptability to Whom?

In a pluralistic society, holding varying knowledge, interests, values, and levels of commitment regarding forest management, there will be a concomitant variation in the definitions of acceptability. The central question underlying this aspect of acceptability is “In what ways, and why, do judgments of acceptability vary among stakeholders and other political actors?”

A key feature of the current political environment within which decisions about forest management are made is its increasing complexity. Whereas in the past, relatively few interests commanded attention and power in decisions about forest management, today a host of values demand access and consideration in decisionmaking. There is a need to consider how this increasingly varied spectrum of interests can be taken into account,

particularly in cases where these interests are nontraditional, nonlocal, or, in the case of intergenerational interests, those not yet born (Niemi and others 1990). Because forest managers have a limited ability to know what the public wants or will accept, an effort to tap a broader spectrum of interests to derive measures of social acceptability is needed.

What is the appropriate unit of analysis from which assessments of social acceptability are sought? The individual, group, community,or what? In what ways do such judgments arise? Earlier, I outlined the premise that judgments of social acceptability derive from a variety of factors in addition to science. What are these other factors,and what is their relative influence upon acceptability judgments? When judgments of acceptability lead to conditions that do not meet the criteria of physical possibility or economic gainfulness, how can such judgments be changed? How is it possible to enhance public understanding for, and appreciation of, the highly complex and often ambiguous nature of many environmental processes and functions in such a manner so as to increase the likelihood of sustainable social choices (Yankelovich 1991)? Although increased knowledge can play a role in changing public conceptions of acceptability, we lack understanding of how this process functions; e.g., the role of credibility, the timing of information dispersal, and the linkage of scientific knowledge to other forms of knowledge (Friedmann 1987).

Finally, it is important to have an improved understanding of how alternative conceptions of acceptability affect the distribution of costs and benefits associated with these decisions,and how an awareness of this distribution affects subsequent judgments. Given a particular stream of consequences, upon whom in society do the benefits and costs fall and, especially for those who bear the costs, what are the possibilities for mitigation or other compensatory measures?

Who Makes the Decisions about Acceptability?

The third basic question addresses the institutional aspects of decisions regarding acceptability. What structures and processes are required to facilitate and inform public discourse about acceptability? To what extent are current structures and processes capable of achieving such goals,and to what extent are innovative and nontraditional institutions required? What are the implications and consequences of alternative arrangements relative to the role and capacity of various stakeholders?

Socolow (1976) has criticized contemporary resource management for its preoccupation with technical analyses. But it is not just this preoccupation with analyses that is of concern, but also the failure to attend to those aspects of resource management that do not achieve the level of attention they require and *which are of concern to the community* (Mohai and Verbyla 1987). Hence, technical analyses that command attention and resources may contribute little to some acceptable resolution. In sum, there is a need for institutional processes that increase the likelihood that decisions about the “acceptability of what” embrace relevant measures.

The question of how society organizes itself to make choices about its future and the various means to attain a desired end has been the focus of much attention. In the case of forest management and the formulation of public judgments regarding acceptability, the question takes on added complexity. Pierce and others (1992) describe this as “the technical information quandary”, engendered by the intersection of (1) value changes that

lead to changes in policy demands and claims for influence upon decisionmaking processes, and (2) technological and scientific content being imparted to old issues and new policy conflict centered on technologies and their impact. The central question that emerges from these conditions is “How can the democratic ideal of public control be made consistent with the realities of a society dominated by technically complex policy questions” (Pierce and Lovrich 1983, p. 1)?

A variety of frameworks and theories have been posited to address the ways in which society might organize to address such a question, to define the idea of public interest, and to formulate action to achieve desired ends.

Among students of sociology, planning, political science, and public administration, the ideas of rationalism, idealism, and realism have been advanced (Pierce and others 1992, Rothman 1979, Schubert 1960, Wondolleck 1988). Rationalism rests on the notion of efficiency; efficient management coincides with the public interest. Through mechanisms such as Congress, the “common good” is determined as an expression of various majority interests. Idealists, on the other hand, call for an active role on the part of public administrators in defining the public interest (which they see as something of substance and absolute in its terms [Schubert 19601), using technically knowledgeable and compassionate advocates to achieve it. Not all interests are directly involved. Indeed, idealists argue that it is a waste of time to attempt to educate the public in the complexity of modern-day issues, either because of the **Inability** or **unwillingness** to become informed (Pierce and others 1992). Instead, a small professional or political elite, utilizing scientific knowledge, higher analytical skills, and a “steadfast moral position,” work to implement decisions on behalf of the public interest (Rothman 1979).

Realists reject the very idea of “the public interest”; the role of administrative organizations is to accommodate the “babel of voices” in the public arena and manage the endless conflict among opposing interests. In theory, if not in practice, realists advocate widespread citizen participation in a search for a consensus that constitutes some workable approximation of “the public interest” (Schubert 1960). Whatever “public interest” exists is transitory, changing as power relationships among contending interests shift.

The realist’s perspective is consistent with the emerging interest in a “social learning” approach to planning. Social learning departs radically from other planning perspectives in that it conceives of knowledge as a product of experience, constantly reforming in the face of application (Friedmann 1987). Through knowledge comes the capacity to act; by acting, new knowledge is acquired; indeed, this iterative relationship between knowledge and action is the foundation of the growing interest in adaptive management (Lee 1993).

It is not the purpose of the preceding discussion to provide detailed elaboration regarding these various schema. Rather, it is included to indicate that efforts to establish an appropriate and useful framework for linking science and social judgment, expert and citizen, and bureaucracies and the wider society have attracted much discussion and attention, if not consensus. However, irrespective of the disciplinary focus taken, it is clear that policymaking processes in forestry have been characterized by concern with technical issues, centralized control of knowledge and action, efficiency, and rationality.

It is equally clear that such an approach is increasingly ill-equipped to deal with the emerging sociopolitical environment within which choices are made. Its apparent **inability** to deal with such questions, in turn, leads to the perception of an **unwillingness** to do so. As a consequence, we see an increasing reliance upon the executive and judicial branches of government as a means of seeking redress (Dunlap 1991).

The barriers to openness within organizations and in their capacity to engage wider community concerns are substantial. Given form and endurance through organizational socialization processes, education systems and the like, such barriers operate to sustain organizational survival rather than to facilitate debate, discussion, and openness. The irony is that in striving to protect "turf," the blindness to the need to open discussion to the wider community of interests might, in fact, lead to a loss of that treasured turf. As Paehlke and Torgerson (1990) comment: "ln practice, the positions and interests of central organizational actors screen out the perception of relevant features of situations and problems. Conventional orientations are thus limited, ironically, in the very realm they take to be their own: knowledge" (p. 9).

In order for ecologically and economically informed discourse to occur in the formulation of public judgments regarding acceptability, new institutional structures must be examined. In particular, there is a need to look for those structures capable of achieving what Yankelovich (1991) calls "working through;" i.e, establishing forums in which the community can consider the consequences of its views. Unfortunately, society is not well-equipped with the institutions required to achieve this facilitative role. Dryzek (1987), in a review of seven major existing social choice mechanisms (e.g., markets, administrative systems, moral persuasion), concludes "any 'winner' among the seven types of social choice would, then, be little more than the best of a poor bunch" (p. 181).

Defining acceptability is, in the final analysis, a choice of tolerance as to what society accepts as the bounds of the environmental conditions with which it is surrounded and the practices it undertakes to maintain or restore those conditions. Scant research attention has been devoted to the institutional structures and processes required to enact such decisions, a failure that could affect both the ability to achieve consensus regarding acceptability or to implement those choices once made.

What is the Context Within Which Acceptability is Defined?

This final question calls for a greater understanding of the decisionmaking environment within which judgments about acceptability are derived. In essence, the question presumes that such judgments are prefaced with the conditional notion: "it depends". The substantive focus of this question, then, becomes one of understanding the nature of those conditional factors.

A host of factors influence acceptability judgments. Clearly, technical knowledge is one such factor. As the level of technical knowledge increases, it is likely that an awareness of the bounds of possibility increases as well; i.e., people gain an increased sense of the range of choices before them. The extent, however, to which such knowledge leads to changes in underlying values, attitudes, and preferences is less clear. Indeed, increased technical understanding might, in fact, reinforce opposition to particular practices or conditions.

Associated with the role of technical knowledge is the question of how an increased awareness of consequences (physical, social, economic, political) of various management practices and conditions affects society. Much attention is paid to the role of the NIMBY syndrome (not in my backyard) and its closely related cousin, LULU's (locally unwanted land uses); particular practices or conditions are all right as long as they are not next door. There is evidence to support such a view (e.g., Johnson and others 1994). The reaction seems to embrace much of the conditional nature of acceptability judgments; it's all right to clearcut or dispose of toxic wastes as long as they do not affect me.

However, it can be argued that the NIMBY syndrome reflects an important first step in public judgments about the acceptability or lack thereof of a particular resource practice. In other words, it represents more than a selfish view (Paehlke and Torgerson 1990). The NIMBY movement may represent the first step in an eventual view advocating NIABY: not in anybody's backyard. Such movements reflect a growing awareness of the adverse consequences of different resource management programs and practices and of the formation of public judgments about their relative acceptability.

The spatial and temporal context within which acceptability judgments are framed is important. For example, the silvicultural prescriptions typically associated with new forestry might be underlain by sound biological principles and knowledge. Their social acceptability, however, may be judged less by these facts and more by the situational context, which sees the area as just one more logged stand in a drainage; in essence, it is a judgment that says "how you harvest is immaterial, you've already cut too much!"

To what extent are public judgments about acceptability subject to negotiation among various interests, in a *quid pro quo* sense? Is there evidence that such judgments can be altered by formal or informal negotiations with other interests? For instance, would negative judgments currently held by industry about the acceptability of new forestry practices be affected by an agreement on the part of environmentalists to accept such practices in roadless areas? If such negotiative relationships do occur, what types of information are required and what institutional processes are needed to enable them to occur?

Finally, what is the role of ethical and moral considerations in the formation of acceptability judgments? The paper by List in these proceedings addresses this issue in more detail; such considerations are likely of growing significance. The assignment of a judgment of acceptability to a practice or condition reflects a significant normative prescription. Evolving conceptions of the proper role of society as a steward of natural resources, and the associated ethical and moral structures that underlie these conceptions, may prove to be one of the most significant influences upon such judgments.

Conclusion

The issue of defining the social acceptability of forest management practices and conditions is a major challenge facing society. In order that ecologically informed, intelligent decisions are made, it is essential that such judgments be seen as social choices reflecting both technical/scientific dimensions as well as the values and beliefs of the wider community. It is also necessary that a broader discourse involving citizen and

scientist be encouraged. Only by joining these perspectives is it possible to formulate appropriate and implementable decisions.

Literature Cited

Allen, Gerald M.; Gould, Ernest M., Jr. 1986. Complexity, wickedness, and public forests. Journal of Forestry. 84(4): 20-23.

Callicott, J. Baird. 1989. In defense of the land ethic: essays in environmental philosophy. New York: State University of New York Press. 325 p.

Clark, Roger N.; Koch, Russell W.; Hogans, Mack L. [and others]. 1984. The value of roaded, multiple-use areas as recreation sites in three National Forests of the Pacific Northwest. Res. Pap. PNW-319. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 40 p.

Dana, Samuel Trask; Fairfax, Sally K. 1980. Forest and range policy: its development in the United States. New York: McGraw-Hill Book Company. 458 p.

Douglas, M.; Wildavsky, A. 1982. Risk and culture: an essay on the selection of technological and environmental dangers. Berkeley, CA: University of California Press. 221 p.

Dryzek, John S. 1987. Rational ecology: environment and political economy. New York: Basil Blackwell. 270 p.

Dunlap, Riley E. 1991. Trends in public opinion toward environmental issues: 1965-1990. Society and Natural Resources. 4(3): 285-312.

Field, Donald R.; Burch, William R., Jr. 1988. Rural sociology and the environment. New York: Greenwood Press. 135 p.

Firey, Walter. 1960. Man, mind, and land: a theory of resource use. Glencoe, IL: The Free Press of Glencoe. 256 p.

Forest Ecosystem Management Assessment Team. 1993. Forest ecosystem management: an ecological, economic, and social assessment. Washington, DC: U.S. Government Printing Office. 1005 p.

Franklin, Jerry. 1989. Toward a new forestry. American Forests. (Nov/Dec): 37-44.

Friedmann, John. 1987. Planning in the public domain: from knowledge to action. Princeton, NJ: Princeton University Press. 501 p.

Hays, S.P. 1959. Conservation and the gospel of efficiency. Cambridge, MA: Harvard University Press. 297 p.

Johnson, Rebecca L.; Brunson, Mark W.; Kimura, Takashi. 1994. Using image capture technology to assess scenic value at the urban/forest interface: a case study. Journal of Environmental Management. 40: 183-195.

Kessler, Winifred B. 1991. New perspectives for research on the national forests and grasslands. Environmental Planning Quarterly. 8(3): 14-16.

Lee, Kai N. 1993. Compass and gyroscope: integrating science and politics for the environment. Washington, DC: lsland Press. 243 p.

McCool, Stephen F.; Stankey, George H. 1986. Visitor attitudes toward wilderness fire management policy-1971-1984. Res. Pap. INT-357. Ogden, UT: U.S. Department of Agriculture, Forest Service, lntermountain Forest and Range Experiment Station. 7 p.

Mitchell, M.Y.; Force, J.E.; Carroll, M.S.; McLaughlin, W.J. 1993. Forest places of the heart: incorporating special spaces into public management. Journal of Forestry. 91(4): 32-37.

Mohai, Paul; Verbyla, David L. 1987. The RARE II wilderness decisions: did the data make a difference? Journal of Forestry. 85(1): 17-23.

Niemi, Ernie; Mendelsohn, Rob; Whitelaw, Ed. 1990. New Perspectives and the Forest Service: a new way of thinking; report to the USDA Forest Service, Pacific Northwest Research Station. Eugene, OR: ECO Northwest. 19 p.

Paehlke, Robert; Torgerson, Douglas, eds. 1990. Managing leviathan: environmental politics and the administrative state. Peterborough, ON: Broadview Press. 310 p.

Pierce, John C.; Lovrich, Nicholas P. 1983. Trust in the technical information provided by interest groups: the views of legislators, activists, experts and the general public. Policy Studies Journal. 11: 626-639.

Pierce, John D.; Steger, Mary Ann E.; Steel, Brent S.; Lovrich, Nicholas P. 1992. Citizens, political communication, and interest groups: environmental organizations in Canada and the United States. Westport, CT: Praeger. 225 p.

Rittel, H.W.; Webber M.M. 1973. Dilemmas in a general theory of planning. Policy Sciences. 4: 155-169.

Rothman, Jack. 1979. Three models of community organization practice, their mixing and phasing. In: Cox, Fred M.; Erlich, John L.; Rothman, Jack; Tropman, John E., eds. Strategies of community organization. Itasca, IL: F.E. Peacock Publishers, Inc.: 25-45.

Schubert, Glendon. 1960. The public interest: a critique of the theory of a political concept. Glencoe, IL: The Free Press of Glencoe. 244 p.

Schwarz Michiel; Thompson, Michael. 1990. Divided we stand: redefining politics, technology, and social choice. Philadelphia: University of Pennsylvania Press. 176 p.

Socolow, Robert H. 1976. Failures of discourse: obstacles to the integration of environmental values into natural resource policy. In: Tribe, L.H.; Schelling, C.S.; Voss, J. eds. When values conflict: essays on environmental analysis, discourse, and decision. Cambridge, MA: Ballinger Pub. Co.: 1-33.

Stankey, George H. 1976. Wilderness fire policy: an investigation of visitor knowledge and beliefs. Res. Pap. INT-180. Ogden, UT: U.S. Department of Agriculture, Forest Service, lntermountain Forest and Range Experiment Station. 16 p.

Stankey, George H.; Cole, David N.; Lucas, Robert C., [and others]. 1985. The limits of acceptable change (LAC) system for wilderness planning. Gen. Tech. Rep. INT-176. Ogden, UT: U.S. Department of Agriculture, Forest Service, lntermountain Forest and Range Experiment Station. 37 p.

Weinberg, A., 1972. Science and trans-science. Minerva. 9: 220-232.

Wondolleck, Julia. 1988. Public lands conflict and resolution: managing national forest disputes. New York: Plenum Press. 263 p.

Yankelovich, Daniel. 1991. Coming to public judgment: making democracy work in a complex world. Syracuse, NY: Syracuse University Press. 290 p.

This page is intentionally left blank.

The Social Context of Ecosystem Management: Unanswered Questions and Unresolved lssues

Mark W. Brunson

Abstract

Brunson, Mark W. 1996. The social context of ecosystem management: unanswered questions and unresolved issues. In: Brunson, Mark W.; Kruger, Linda E.; Tyler, Catherine B.; Schroeder, Susan A., tech. eds. Defining social acceptability in ecosystem management: a workshop proceedings; 1992 June 23-25; Kelso, WA. PNW-GTR-369. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station: 113-126.

Among the emerging problems associated with the social context of ecosystem management are questions about ecosystem management as an idea, questions about its implementability, and questions about specific aspects of ecosystem management practices and conditions. This paper discusses several of these issues, including ones raised by national forest stakeholders as well as those arising from the workshop that led to this proceedings. The most fundamental question concerns the acceptability of the ecosystem management concept itself -- a question that largely has been ignored by those who seek to adopt ecosystem management. Reasons are discussed for this omission, as well as potential answers to the question. A key element of that discussion, and a theme that reverberates through this problem analysis, is the issue of scientific uncertainty and risk -- the overriding public and professional concern identified during this research.

Keywords: Ecosystem management, acceptability, scientific uncertainty, risk perception, biocentrism, public participation, values of knowledge.

Introduction

A frequent consequence of intensive research on a new topic is that we discover not only new knowledge, but also how much more we do not know. The articles in this report go a long way toward addressing Stankey and Clark's (1991) concern that "there is inadequate understanding of what constitutes 'acceptability' with regard to the practice of New Perspectives and of the associated impacts of these differing conceptions" (p. 23). We have seen how that understanding can be enhanced by examining the literatures of sociology, social psychology, history, anthropology, philosophy and political theory. We also have seen how disciplines as diverse as psychology, political science, landscape architecture and forestry can offer tools for studying the social context of forestry and

MARK BRUNSON is an assistant professor of forest resources at Utah State University, Logan, Utah, 83442.

incorporating social concerns into forest management. A working definition of social acceptability in ecosystem management has also been offered.

Yet this research has also helped us to identify other, emerging issues: questions about ecosystem management as an idea, about its implementability, and about specific aspects of ecosystem management practices and conditions. This final paper describes some of the more critical of these emerging problems, including ones that are central to the future of the ecosystem management concept as well as those most likely to elicit public expressions of concern about the forests being managed using an ecosystem approach.

The analysis draws on two principal sources: academic and political writings and discussions, and comments made by members of various national forest constituencies. The first category includes discussions at the June 1992 workshop which led to this report, as well as the rapidly growing literature on ecosystem management, "new forestry," New Perspectives and related concepts. The second category of sources encompasses a large number of statements made by interested persons as they learned about new approaches to forestry during the period from September 1990 to June 1992. Although the research was conducted in the Pacific Northwest, the questions that arose are likely to be applicable throughout the United States and Canada.

Gathering Public Reactions

As momentum built up in the New Perspectives initiative (1990-92) and related "new forestry" movement, forestry entities began to develop research and demonstration areas highlighting ecosystem management concepts. In the Northwest, locations for these projects included the Forest Service's H.J. Andrews Experimental Forest near Blue River, Ore.; the Oregon State University (OSU) research forest at Corvallis; Seattle's city watershed near North Bend, Wash.; and several Plum Creek Timber Co. tracts in western Washington. As forest interest groups became aware of these efforts, they often asked (or were invited) to attend ecosystem management demonstration tours of those sites. A sampling of these tours provided the research setting for this phase of the study.

On several tours, I asked participants to complete questionnaires about their reactions to tour stops or topics. Questions and comments directed to tour leaders were recorded on those same tours as well as several others where surveys were not administered. Additional data came from interviews of visitors at the OSU research forest and from audience questions and comments at public forums in Corvallis and Eugene, Ore. The study was in some ways analogous to the "scoping" process in federal environmental impact assessments; its objective was to describe in ideographic fashion the broad range of social values that might be affected by the implementation of what we now call ecosystem management.

Data gathering and analysis combined qualitative and quantitative methods, with emphasis on the former. Open and axial coding processes (Strauss and Corbin 1990) were used to develop a typology of reactions to ecosystem management practices, conditions, and objectives. The primary intent was not to measure the depth of support or opposition, nor to rank the importance of issues or concerns, but to catalog and categorize issues that arose and to identify ones that arose most frequently and/or crossed constituency group boundaries.

Foresters and scientists in related fields made up the primary audience for field tours and off-site forums. Participants, however, also included public school teachers, liberal arts and science students at Oregon State University and Linfield College, and environmental group members. Respondents typically lived in the Northwest, visited forests regularly for recreation, and had some post-high school coursework in forestry or biology. Responses to an attitude scale (McCool and others 1986) showed that tour groups ranged from moderately commodity-oriented to highly amenity-oriented in their beliefs about the proper role of forestry. Post-tour questions found generally positive attitudes toward ecosystem management concepts and practices. Nearly half of the respondents preferred alternative techniques to standard silvicultural and timber harvest methods. Further details about methods and the research sample are given in Brunson (1992).

A Fundamental Acceptability Question

The most basic question surrounding the social acceptability of ecosystem management is whether the ecosystem management concept itself is socially acceptable. As Franklin (1989) recounted, the architects of what we now call ecosystem management were initially interested in biophysical questions: How does timber cutting affect streams? What is the role of woody debris in forest ecosystems? How diverse is invertebrate life in old growth forest canopies? Only after a complex picture of forest ecosystems began to emerge, and the search began for a unified theory of management for ecosystem components, did they realize their "new forestry" might also offer an answer to a sociopolitical question: *Is there an alternative to the stark choice between tree farms and total preservation?*

The belief of forest ecologists was (and is) that the answer to that question would be yes: Yes, such an alternative exists; yes, ecosystem science can offer that alternative. And most relevant to this discussion: yes, the public will welcome the scientists' alternative. This last assumption needs testing. The underlying acceptability of the ecosystem management ideal has been largely unconsidered. In this section, I will first discuss some reasons why it has not been tested, and then discuss reasons why there might be variation in public attitudes toward the concept of ecosystem management.

Ecosystem Management as Moral Imperative

Surely there are several reasons why agency professionals and forest scientists have largely ignored the overriding question of whether ecosystem management itself is a socially acceptable concept. Perhaps the simplest one is that it is obvious something different must be done, and ecosystem management seems the most palatable known alternative. Moreover, as the concept has evolved, it has acquired a number of socially responsive trappings -- e.g., a commitment to more substantive public participation earlier in the decisionmaking process -- which are clearly designed to meet public criticisms of forest management. But the addition of these sociopolitical mechanisms serves to disguise the original question of whether the biophysical basis of ecosystem management is socially acceptable.

When fundamental assumptions go unquestioned, it is most often because the assumer cannot conceive of an alternative. In other words, the assumption is rooted in paradigmatic and/or ideological characteristics of the group (professional discipline, culture, etc.) making the assumption. Stankey (this proceedings) offered a detailed and

illuminating perspective on how the natural resource professions have adhered to a "rational-technical paradigm." Given this professional orientation, it is not hard to see how forest managers might accept on faith the notion that the current problem confronting forestry can only be addressed through a scientifically derived, technologically based solution.

Further ideological explanation can be found in the growing adherence of resource managers, as well as natural scientists and environmentalists, to a biocentric ethic (Brown and Harris 1992). In the ideology of modern conservation, "biocentric" management -- that which sets the needs of the human species no higher than those of any other species within a given ecosystem -- occupies a kind of moral high ground. This idea can be traced to Aldo Leopold's (1966) essay "The Land Ethic," often cited as a primary intellectual influence by both applied and basic natural scientists. Leopold saw ethics, which he defined as the impetus for individuals to cooperate with others in a community, following an evolutionary progression. He described how "community" has widened over the centuries from its original application (an adult male power structure) to encompass wives, slaves, children, and people of other races. The land ethic "simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land" (p. 239). By describing this extension of ethics as both an "ecological necessity" and as the next step in an evolutionary sequence, Leopold presented biocentrism as an inevitable advancement to a higher moral plain.

By implication, those who espouse biocentrism can be seen as morally superior to those who do not. A corollary to this viewpoint is that initiatives rooted in biocentrism similarly may be preferable based on moral or ethical grounds. In such case, one can conclude that it is neither necessary nor socially beneficial to ask the larger society whether it wants to adopt a biocentrically driven stratagem. (After all, we no longer ask if society wants to own slaves, or to send its children to work in sweatshops.) Ecosystem management has as its twin pillars the biocentric ideals of biodiversity and sustainability, so it may not be obvious to biocentric scientists that anyone who understands it could ethically object to it.

Alternative Models of Forest Management

But large segments of American society see humans and their destiny differently. Many people see humans as having been set apart from other organisms by Biblical fiat; they may not believe that ecosystem management fits their obligations toward the earth. Many others simply doubt that humanity has progressed very far along any moral or intellectual continuum. The central idea of ecosystem management is that *natural resource professionals can manipulate forests, grasslands, and other environmental systems in a way that mimics natural biophysical processes so that those systems can function as evolution intended, with all of their diverse components intact, while the human society obtains a suitably wide range of socially desirable products.* By adopting ecosystem management as a guiding principle, the Forest Service is expressing its confidence that such a thing both can be done and will be done. Not everyone is so convinced.

Beliefs about the ecosystem management concept are dependent on issues of trust and risk. To support ecosystem management requires trust -- trust in fundamental concepts of resource management, in government employees, in science itself. Many people believe the Forest Service is uninterested in preserving ecosystems or biological diversity. Such

distrust is clear in the environmental advocacy literature: e.g., Zuckerman's (1992) characterization of the new approach to forestry as "new hype," or Kerr's (1990) memorable description: "a kinder, gentler form of rape" (p. 22). Even in academic writing we find statements such as this from Frissell and others (1992) in the journal Conservation Biology: "Recent court decisions and congressional hearings have gruesomely exposed that the drive to extract timber subjugates virtually all other considerations within the U.S. Forest Service" (p. 461).

Beyond the question of agency intent is the question of scientific fallibility and risk. To again quote Frissell and others (1992): "The argument for the role of wilderness in conservation does not derive simply from the assumption that 'nature-knows-best.' It springs from the assumption that despite good intentions (and a few bad ones), humans, and bureaucratic systems like the Forest Service, do not always know what is best" (p. 462). In essence, two questions are being posed here: Do forest managers have the political will to manipulate forests in ways that truly mimic natural processes? And do they have the scientific knowledge to do so? Based on the earlier discussion of underlying ideologies, we must add a third question: Is a biocentric model of natural resource management the proper one for forestry to follow? Only if the answer to all three questions is yes will ecosystem management appear to be the most appropriate path for foresters to follow.

Figure 1 displays how differing responses to those three questions can lead to five or more different preferred models of future resource management. We begin by considering the ideological question: Should society manage significant portions of public forest land for the production of timber or other high-value commodities even if such production reduces the land's capability to provide unpriced or amenity resources? If the answer is yes, an anthropocentric track (left side of diagram) will be followed. If not, a biocentric track will be chosen. The second question concerns ecological risk: Do we possess sufficient scientific knowledge about forests to successfully implement strategies that permit acceptable flows of nonemphasized resources while maintaining optimal flows of commodities? And the final question concerns political trust: Do the agencies have the ability or desire to withstand interest group pressures that may shift management away from an optimal path?

No matter whether one prefers an anthropocentric or biocentric approach to management, acceptance of ecosystem management is less likely if one has little faith in agency capabilities. If an individual believes commodity primacy is appropriate in some locations, but does not have faith in the agency's capacity to practice a scientifically defensible brand of integrative forestry (i.e, a "new and improved" multiple use), he or she may prefer a New Zealand-style "segregated management" approach where lands are divided into single-resource units for timber production, recreation, biological reserves, etc.

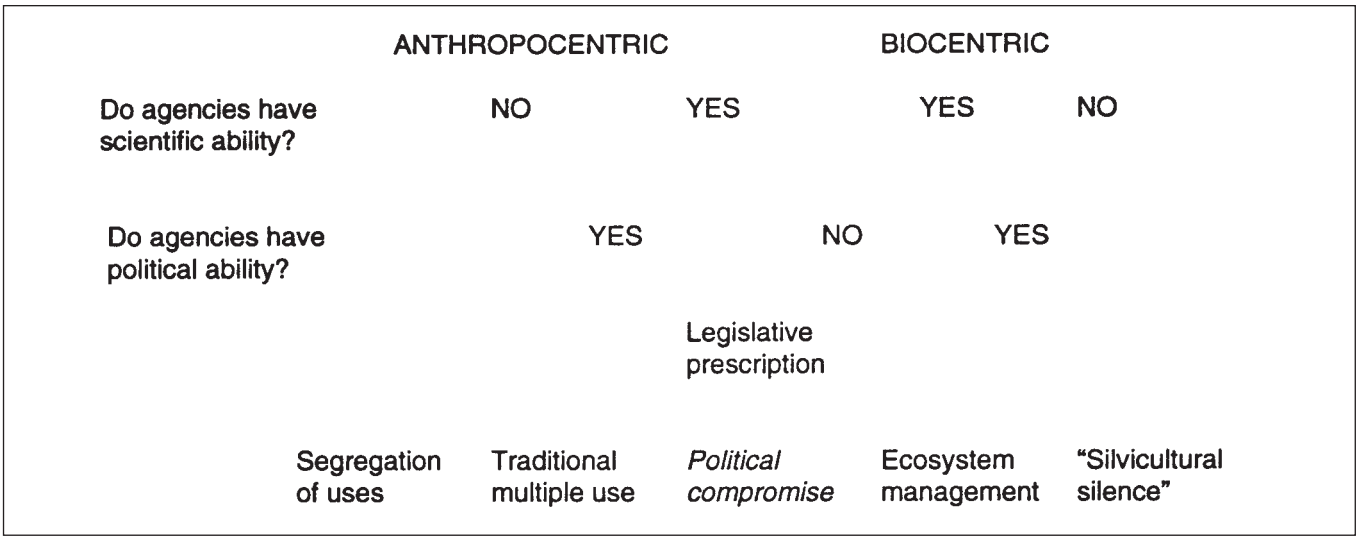

Figure 1 -- Typology of preferences for alternative models of public forest management.

Conversely, those who believe neither in commodity primacy nor the agency's capacity to practice integrative forestry may well opt for a hands-off policy, one which environmental ethicist Peter List described at the Kelso workshop as "silvicultural silence" The silvicultural silence approach is consistent with strong environmentalist perspectives such as that of the deep ecologists (Devall and Sessions 1985), who see human degradation of the nonhuman world as excessive and rapidly worsening as a result of intrinsic negative aspects of the human condition. Such people place higher value on those aspects of nature in which man's role is largely invisible or nonexistent. This is reflected in the statements of Frissell and others (1992) as noted above, and also in aesthetic orientations such as those expressed by Rolston and Coufal (1991): "Forests are never ugly; they are only more or less beautiful; the scale runs from zero upward with no negative domain. Even the 'ruined' forest, regenerating itself, has positive esthetic qualities, when trees rise to fill the space against the sky" (p. 39). Thus, even if a forest is 'ruined' by humans, it reacquires beauty through the simple means of its innate restorative capacity, "regenerating itself" without human aid.

Even if one has faith in the scientific capacities of the agencies and associated applied sciences, one still may not decide that ecosystem management is the most acceptable solution to the current socially defined problem in forestry. A biocentrist might opt for ecosystem management. But an anthropocentrist may prefer a fine-tuning of the traditional multiple use approach, wherein commodity primacy remains the principal tenet while noncommodity values are somehow given a more cosmetic level of attention. And if one doesn't trust the agencies to have sufficient political will to manage in the "right" way (whatever one thinks that way is), the preferred approach is likely to be some sort of prescriptive legislation that limits managerial flexibility and forces the agencies to manage in a particular way. The legislative prescription approach might lead to any one of the

other four models. Or, perhaps more likely, it could lead to a fifth "hybrid" model arising from a politically negotiated compromise. This model would probably contain elements of all four of the others, but in an as-yet-unknown (and perhaps unrecognizable) form.

All of these approaches have adherents both within and outside the forestry profession. It is not clear, however, which approach the "general public" prefers. Research on the New Environmental Paradigm (Catton and Dunlap 1980) suggests that the public is moving away from a preference for commodity-oriented management and toward a more biocentric approach. Several recent surveys by Steel and his colleagues (e.g., Brunson and Steel 1994; Shindler and others 1993) have included a question asking members of the public to choose among three models of natural resource management: an agricultural approach that emphasizes commodity production, a multiple benefits approach emphasizing "a long-term sustainable balance between human and ecological concerns," and a preservation approach where human interference is minimized. Typically, two-thirds of respondents choose the multiple benefits approach; of the remainder, twice as many generally favor the preservation model as favor the agricultural one.

These results may tend to suggest that the public will react favorably to ecosystem management if they believe it is possible. Clearly a multiple-benefits approach is favored over either timber primacy or silvicultural silence in theory. Moreover, statements during the field tours suggest that positive reactions to ecosystem management are positively associated with knowledge about ecosystems. Similarly, in a study of scenic impacts of alternative silviculture (Brunson 1991), knowledge about the purposes of silvicultural practices appeared to mitigate, though not alleviate, adverse reactions to their scenic impacts. Yet if lingering doubts about science are reinforced by early failures, the political debate may shift toward greater acceptance of "silvicultural silence.

Risk, Uncertainty, and Recreancy

For the sociopolitical as well as the ecological aspects of ecosystem management, acceptance is greatly influenced by perceptions of risk and uncertainty. A constant theme during field tours and public forums was that any changes in forestry practice may have unforeseen consequences. Ecosystem management critics within the forestry profession often point to a lack of scientific ground-truthing and precise objectives and definitions. They decry the speed at which ecosystem management progressed from idea to national policy (e.g., Atkinson 1992). As Fiedler (1992) put it, the skeptics "are unwilling to jump on the latest bandwagon, having seen the wheels come off so many wagons before" (p. 2).

This theme was voiced frequently on field tours, not only by those who disapproved of the ecosystem management concept in principle, but also by those who were favorably disposed but preferred a more cautious shift to the new approach. Many nonforesters also were concerned about uncertainty. Some environmentalists believe there are catastrophic risks associated with human intervention that outweigh any potential benefits (see Kerr 1990 for an expression of this view). Others simply noted that if we do not know the risks of failure, they would prefer not to require our children or grandchildren to find out the hard way.

As noted previously, risk will be a key factor in decisions about the social acceptability of ecosystem management. Fischoff and others (1981) described the acceptable-risk question in terms of five problems: (1) ambiguities in how to define the problem, (2) difficulties in ascertaining facts about the matter, (3) uncertainty about whose values are to be represented and how they are to be elicited, (4) the inevitable infallibility of experts, and (5) questions about how to evaluate the quality of the decision process.

All five of these apply to ecosystem management. The concept itself has not been rigorously defined. We have already seen the difficulties associated with defining public acceptability; concepts such as biodiversity and sustainability are likewise difficult to pin down. A Society of American Foresters task force recently opted to omit any reference to "sustainability" in the SAF code of ethics because members could not specify exactly what in forests should be sustained (Craig 1992). Facts are also questioned -- facts arising from recent research on ecological processes and conditions, as well as about the extent to which traditional practice has harmed forest ecosystems. Equally contentious are debates about which stakeholders and which values should be emphasized in national forest management.

An especially thorny issue is expert fallibility. Mistakes in slow-growing forests take a long time to detect or correct. Scientific predictions about eventual effects of ecosystem management are not easily verifiable, and the public increasingly doubts whether science can offer unbiased information or produce technologies capable of protecting natural systems (Brunson and Steel 1994; Steel and others 1994). The length of time between treatment and outcome also complicates the choice of an evaluation strategy. If the results may not become known for a century or more, when can we decide whether ecosystem management works?

A critical factor in risk perception associated with ecosystem management is that the risks accrue to commonly held lands where decisions rest in the hands of a government bureaucracy. A recent nationwide survey (Brunson and Steel 1994) found that fewer than one-third of Americans have "a great deal" of confidence in the stewardship of the Forest Service and Bureau of Land Management, while somewhat more than one-third had 'hardly any' confidence in those agencies. Confidence levels were even lower in Oregon, where there is more day-to-day contact with those agencies. Lack of confidence probably arises from disagreements about the proper role of agency resource management coming from both ends of the preservation-utilization spectrum. Nonetheless, clearly there is widespread public skepticism that a federal agency can manage "our" public lands.

Freudenburg (1993) refers to this problem as recreancy: the perceived failure of institutional actors to carry out their responsibilities with the degree of vigor necessary to merit the societal trust they enjoy. Freudenburg argues that as societies become more specialized, with greater division of labor, individuals must place greater responsibility for their fates in the hands of unknown others. Responsibilities for most things are shared, and sometimes problems can arise if any one of the responsibility-sharers fails to meet his or her or its expectations.

When institutions are recreant, it is difficult to assign blame. We attribute negative causes to government bureaucracies as surrogates for the wider network of institutions that shared responsibility. Thus the Love Canal incident is not only the fault of corporate greed, but also of regulators' failure to adequately recognize and protect society from that greed. Moreover, the corporation has gone away but the bureaucracy remains, a living memorial to the disaster. Similarly, forest management agencies may assume blame for institutional failures associated with changing forest conditions. Under such circumstances it may be difficult for the public to believe the agency can avoid the next institutional failure.

Communication as a Risk-Reduction Strategy

In surveys of community activists, Freudenberg (1984) commonly heard complaints that government agencies failed to facilitate, or even actively blocked, access to information about environmental hazards. Recreancy-related problems might be mitigated through active facilitation strategies within forestry agencies -- programs for enhancing and maintaining communication about all aspects of ecosystem management, including risks and failures. Indeed, a critical element in addressing all of these uncertainty-related issues will be communication between managers who are practicing ecosystem management, scientists who are evaluating its effects, and publics whose values and benefits are dependent on continued health of forest ecosystems.

In the Pacific Northwest Region of the Forest Service, scientists and managers have established several "learning centers," the purpose of which is to provide settings and/or infrastructure necessary to study ecosystem management methods as well as basic science, and to communicate their findings to managers and the public. As of this writing, there are five such learning centers in the region[1]. Each differs at least slightly from the others in its ecological system of interest, its primary research questions, and the model of research, application, and technology transfer it employs. Given the importance of this work, an analysis of the learning center approach should be undertaken with a goal of answering this question: Which learning center models are able to most effectively maintain open communication channels between scientists, managers, and publics?

Sensitive Aspects of Ecosystem Management Practice

Dozens of questions about ecosystem management will occupy the attention of scientists and managers both within and outside learning centers. Some of these questions are much more likely than others to strike a nerve with a broader public. Once the hundreds of questions and comments made during this study had been collated and categorized, seven issues stood out as eliciting the most widespread interest and concern. Four of these directly pertain to the relationship between forests and the wider society: public participation in ecosystem planning,

---

[1] Blue Mountains Learning Center, LaGrande, Ore.; Cascade Center for Ecosystem Management, Blue River, Ore.; Columbia Learning Center, Vancouver, Wash.; High Desert Learning Center, Bend, Ore.; and Olympic Learning Center, Quilcene, Wash.

political ramifications of adopting an ecosystem management approach, scenic impacts of nontraditional silviculture, and economic impacts of changing the mix of amenity and commodity resource outputs. The other three issues may affect the broad society less directly, but nonetheless may be likely to influence attitudes toward the new approach: growth and regeneration in stands harvested using nontraditional silviculture, safety of timber workers, and agencies' ability to monitor stand conditions and react swiftly if there is evidence of unanticipated problems.

Each of these issues can be described in terms of research questions that should be near the top of the scientific agenda for ecosystem managers because of their widespread interest and increased probability of affecting public attitudes toward ecosystem management. They involve a variety of social and biological sciences, and are offered in no particular order of importance:

1. *How can private citizens' participation be routinely incorporated into the complex business of landscape-level planning?* One of the key tenets of ecosystem management is that planning and management should occur at scales larger than the stand or site. Geographic context affects biophysical components of ecosystems just as it affects social 1 components. However, landscape-level planning is more complex than stand-level or project-specific planning. Given the difficulties agencies have experienced in obtaining public involvement at these smaller scales, how can we expect to do it effectively at a larger scale?

2. *Where does ecosystem management fit in the shifting "landscape" of political affiliations?* Much of ecosystem management's appeal, especially for nonforesters and agency managers, lies in its perceived position as a compromise between preservationism and timber primacy. Yet even if the new approach occupies some sort of middle ground, it is not yet clear how politically defensible that ground might be. Critics from both sides of the environmental spectrum disparage ecosystem management in political terms, saying it's either too similar or too dissimilar to current practice. Research is needed that analyzes where support and opposition come from, and the reasons for that support or opposition.

3. *How do aesthetic preferences affect the acceptability of ecosystem management?* As Gobster (this proceedings) points out, ecologically defensible forestry may not match the naturalistic form of scenic beauty that our culture prefers. Preliminary research (Brunson and Shelby 1992) suggests that alternative silvicultural practices are only slightly more palatable to the public than traditional clearcutting, and sometimes may be less so. Research is needed that compares a wide range of ecosystem management conditions to an equally wide range of traditional conditions. Studies also are needed that examine whether ecological knowledge can counteract negative scenic influences of ecosystem management practices.

4. *What are the safety impacts of harvesting, planting, site preparation, and intermediate stand treatments under alternative silvicultural systems?* Leaving standing snags, green trees, and down logs can increase the likelihood of accidents to timber workers. While this concern was not mentioned often, some felt passionately that this was the greatest problem associated with ecosystem management. If their outspoken opposition is borne

out by the deaths of timber workers, adverse public reaction could be swift and volatile, drawing in segments of society (e.g., urban organized labor) which are otherwise indifferent to forest policy issues. Research on ways to ease these threats is critically important.

5. *What are the broad economic effects of ecosystem management, not only on timber harvest but also on other market resources from recreation to grazing to understory products?* Clearly, ecosystem management will lead to reduced timber harvests, as evidenced by the two-thirds reduction in allowable harvest in the Clinton administration's proposed forest plan for the Northwest (Forest Ecosystem Management Assessment Team 1993). Preliminary estimates have been made of the economic cost of alternative silviculture in terms of timber production (Birch and Johnson 1992, Weigand and Burditt 1992), but other products have not been included in those calculations. As Iverson and Alston (1993) point out, economists need to broaden their focus beyond traditional products, "efficiency," and present net value if they are to provide the kinds of economic information that must be made available to ecosystem managers.

6. *What are the broad silvicultural effects of ecosystem management on the growth of future post-harvest stands?* Many traditionally-trained foresters doubt that alternative silviculture can perform as promised. They know that trees grow well using traditional methods, and doubt that biodiversity gains can offset loss of timber productivity. If they are correct, a public facing rising lumber costs and little evidence of endangered species protection may turn against ecosystem management. As with the economic question, preliminary models suggest that growth and yield of timber species will indeed decline (Birch and Johnson 1992, Long and Roberts 1992), but little has been done to incorporate the effects on other species that may perform vital habitat functions in forest ecosystems.

7. *How can we develop reliable (and reliably funded) monitoring strategies for ecosystem management?* Responses to tour surveys suggested that concerns about many of the above uncertainties could be eased if ecosystem managers are careful to make adaptive management (Swanson and Franklin 1992) a part of any proposal. Ecosystem managers must be able to keep close watch on the ramifications of their practices, and to react swiftly to problems as they arise. This is true not only for questions of public acceptability (as argued earlier in this paper), but also for questions about the effects on biophysical processes.

Conclusion

In this problem analysis, I have focused on two broad problems and a series of smaller ones. The broad ones concern our lack of knowledge about the acceptability of the underlying idea of ecosystem management, and the difficulties associated with facing the inherent risks of a fundamental change in forest management. Each of these, in turn, encompasses a number of sub-problems, only some of which are discussed here. In addition, research identified a set of seven issues that are especially likely to elicit concern about ecosystem management within one or more constituency groups.

I do not mean to imply, however, that these are all of the most important or pressing problems associated with the social acceptability of ecosystem management. Rather they are ones that rose to the surface most dramatically during a study in the Pacific Northwest -- a setting where timber harvest and endangered species are the principle forestry issues, where debate has focused on huge blocks of contiguous public lands, and where silvicultural manipulation has shown considerable promise for enhancement of multiple forest values. But what of other regions, where other commodities dominate rural economies, other patterns of land ownership predominate, or growing conditions severely limit silvicultural options?

Perhaps the most dramatic evidence of how geography might affect this question comes from the recent debate within the Society of American Foresters (SAF) over application of ecosystem management or "sustainable forestry" practice to private lands. We do not know how to effectively manage ecosystems that cross multiple ownership boundaries, nor do we know the social implications of trying to do so. Cross-ownership issues (partnerships, regulation, etc.) were probably the most prominent topic at the 1993 SAF annual meeting -- the central focus of at least 10 plenary or concurrent sessions and featured prominently in many other sessions. Yet the cross-ownership question was barely raised in the Northwest, where history and geography have tended to limit the interspersal of public and private lands.

Clearly there is a need to undertake problem analyses similar to this one in other parts of the nation. One of the central tenets of ecosystem management is that practices must be fitted to the particular landscape; we should expect no less of our social science research.

Literature Cited

Atkinson, William A. 1992. Silvicultural correctness: the politicization of forest science. Western Wildlands. 17(4): 8-12.

Birch, Kevin R.; Johnson, K. Norman. 1992. Stand-level wood-production costs of leaving live, mature trees at regeneration harvest in coastal Douglas-fir stands. Western Journal of Applied Forestry. 7(3): 65-68.

Brown, Greg; Harris, Charles C. 1992. The U.S. Forest Service: Toward the new resource management paradigm? Society and Natural Resources. 5(3): 231-246.

Brunson, Mark W. 1991. Effects of traditional and "new forestry" practices on recreational and scenic quality of managed forests. Corvallis, OR: Oregon State University. 192 p. Ph.D. dissertation.

Brunson, Mark W. 1992. Social acceptability of New Perspectives practices and conditions. Final project report prepared for the Cascade Center for Ecosystem Management, Consortium for the Social Values of Natural Resources, Olympic Natural Resources Center, and U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station.

Brunson, Mark W.; Shelby, Bo. 1992. Assessing recreational and scenic quality: how does "new forestry" rate? Journal of Forestry. 90(7): 37-41.

Brunson, Mark W.; Steel, Brent S. 1994. National public attitudes toward federal rangeland management. Rangelands. 16(2): 77-81.

Catton, William R.; Dunlap, Riley E. 1980. A new ecological paradigm for post-exuberant sociology. American Behavioral Scientist. 24: 15-47.

Craig, Ray. 1992. Land ethic canon proposal: a report for the task force. Journal of Forestry. 90(8): 40-41.

Devall, Bill; Sessions, George. 1985. Deep ecology: living as if nature mattered. Salt Lake City: Peregrine Smith. 266 p.

Fiedler, Carl. 1992. New forestry: concepts and applications. Western Wildlands. 17(4): 2-7.

Fischoff, Baruch; Lichtenstein, Sarah; Slovic, Paul; [and others]. 1981. Acceptable risk. New York: Cambridge University Press. 185 p.

Forest Ecosystem Management Assessment Team. 1993. Forest ecosystem management: an ecological, economic, and social assessment. Washington, DC: U.S. Government Printing Office. 1005 p.

Franklin, Jerry F. 1989. Toward a new forestry. American Forests. (Nov./Dec.): 37-44.

Freudenberg, Nicholas. 1984. Citizen action for environmental health: report on a survey of community organizations. American Journal of Public Health. 74: 444-448.

Freudenburg, William R. 1993. Risk and recreancy: Weber, the division of labor, and the rationality of risk perceptions. Social Forces. 71(4): 909-932.

Frisell, Christopher A.; Nawa, Richard K.; Noss, Reed. 1992. Is there any conservation biology in "New Perspectives"? A response to Salwasser. Conservation Biology 6(3): 461-464.

Iverson, David C.; Alston, Richard M. 1993. Ecosystem-based forestry requires a broader economic focus. Journal of Sustainable Forestry. 1(2): 97-106.

Kerr, Andy. 1990. New (age) perspectives: glossy dogma to hide old habits. Forest Watch. October: 22-25.

Leopold, Aldo. 1966. A Sand County almanac, with essays on conservation from Round River. New York: Oxford University Press. 269 p.

Long, James N.; Roberts, Scott D. 1992. Growth and yield implications of a "new forestry" silvicultural system. Western Journal of Applied Forestry. 7(1): 6-9.

McCool, Stephen F.; Benson, Robert E.; Ashor, Joseph L. 1986. How the public perceives the visual effects of timber harvesting: an evaluation of interest group preferences. Environmental Management. 10(3): 385-391.

Rolston, Holmes III; Coufal, James. 1991. A forest ethic and multivalue forest management. Journal of Forestry. 89(4): 35-40.

Shindler, Bruce; List, Peter; Steel, Brent S. 1993. Managing federal forests: public attitudes in Oregon and nationwide. Journal of Forestry. 91(7): 36-42.

Stankey, George H.; Clark, Roger N. 1991. Social aspects of New Perspectives in Forestry: a problem analysis. Milford, PA: Grey Towers Press. 33 p.

Steel, Brent S.; List, Peter; Shindler, Bruce. 1994. Conflicting values about federal forests: a comparison of national and Oregon publics. Society and Natural Resources. 7(2): 137-153.

Strauss, Anselm; Corbin, Juliet. 1990. Basics of qualitative research: grounded theory procedures and techniques. Newbury Park, CA.: Sage Publications. 270 p.

Swanson, Frederick J.; Franklin, Jerry F. 1992. New forestry principles from ecosystem analysis of Pacific Northwest forests. Ecological Applications. 2: 262-274.

Weigand, James F.; Burditt, A. Lynn. 1992. Economic implications for management of structural retention on harvest units at the Blue River Ranger District, Willamette National Forest, Oregon. Res. Note PNW-510. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 17 p.

Zuckerman, Seth. 1992. New forestry? New hype... Sierra. n(2): 40-45,67.

Disciplinary Roots of Social Acceptability: A Bibliography

The following bibliography was compiled by participants in the social acceptability workshop to provide a broad base of references for scientists, managers, and others interested in learning more about society's relationship with natural resources and the environment. The following books, articles, and journals were drawn from a wide range of academic disciplines. This bibliography is intended to be useful, but we make no claims that it is all-inclusive. In fact, it specifically omits the rapidly growing literature on the theory and practice of ecosystem management itself, but rather describes the breadth of scientific and philosophical writings that form the underpinnings of ecosystem management. Also provided is a list of key journals which often publish articles concerning the interrelationships between natural resources and society.

Personal Values and Attitudes Toward Environments

Becker, Robert H. 1983. Opinions about clear-cutting and recognition of clear-cuts by forest recreation visitors. Journal of Environmental Management. 17: 171-177.

Bem, Daryl J. 1970. Beliefs, attitudes and human affairs. Belmont, CA: Brooks/Cole Publishing. 114 p.

Bullis, Connie A.; Kennedy, James J. 1991. Value conflicts and policy interpretation: changes in the case of fisheries and wildlife managers in multiple use agencies. Policy Studies Journal. 19(3-4): 542-552.

Fischohoff, Baruch; Lichtenstein, Sarah; Slovic, Paul [and others]. 1981. Acceptable risk. New York: Cambridge University Press. 185 p.

Heberlein, T.A. 1981. Environmental attitudes. Journal of Environmental Policy. 2: 241-170.

Rokeach, Milton. 1968. Beliefs, attitudes, and values. San Francisco: Jossey-Bass Inc. 214 p.

Rokeach, Milton. 1979. Understanding human values: individual and social. New York: The Free Press. 322 p.

Scheibe, Karl E. 1970. Beliefs and values. New York: Holt, Rinehart and Winston. 159 p.

Taylor, Jonathan G.; Daniel, Terry C. 1984. Prescribed fire: public education and perception. Journal of Forestry. 82(6): 361-365.

Zube, Ervin H. 1987. Perceived land use patterns and landscape values. Landscape Ecology. 1(1): 37-45.

Environmental Ethics

Abbey, Edward. 1976. The monkey wrench gang. New York: Avon Books. 387 p.

Andruss, Van; Plant, Christopher; Plant, Judith; Mills, Stephanie, eds. 1990. Homel a bioregional reader. Philadelphia: New Society. 181 p.

Attfield, Robin. 1983. The ethics of environmental concern. New York: Columbia University Press. 220 p.

Brennan, Andrew. 1988. Thinking about nature. Athens, GA: University of Georgia Press. 234 p.

Callenbech, Ernest. 1990. Ecotopia. 2nd edition. New York: Bantam Books. 167 p.

Callicott; J. Baird, ed. 1987. Companion to “A Sand County almanac”. Madison, WI: The University of Wisconsin Press. 308 p.

Callicott, J. Baird. 1989. In defense of the land ethic. Albany, NY: SUNY Press. 325 p.

Davis, John, ed. 1991. The Earth First! reader: 10 years of radical environmentalism. Salt Lake City, UT: Peregrine Smith. 240 p.

Devall, Bill; Session, George. 1985. Deep ecology: living as if nature mattered. Salt Lake City, UT: Peregrine Smith. 266 p.

Diamond, Irene; Orenstein, Gloria Feman, eds. 1990. Reweaving the world: the emergence of ecofeminism. San Francisco: Sierra Club Books. 320 p.

Elliot, Robert; Gare, Arran, eds. 1983. Environmental philosophy. University Park, PA: Pennsylvania State University Press. 303 p.

Engel, J. Ronald; Engel, Joan Gibb, eds. 1990. Ethics of environment and development: global challenge, international response. Tucson, AZ: University of Arizona Press. 264 p.

Foreman, Dave. 1991. Confessions of an eco-warrior. New York: Harmony Books. 228 p.

Fox, Warwick. 1990. Toward a transpersonal ecology: developing new foundations for environmentalism. Boston, MA: Shambhala. 380 p.

Gray, Elizabeth Dodson. 1979. Green paradise lost. Wellesley, MA: Roundtable Press. 166 p.

Griffin, Susan. 1978. Women and nature. New York: Harper and Row. 263 p.

Hargrove, Eugene, ed. 1986. Religion and environmental crisis. Athens, GA: University of Georgia Press. 222 p.

Hughes, J. Donald. 1983. American lndian ecology. El Paso, TX: Texas Western Press. 174 p.

Johnson, Lawrence E. 1991. A morally deep world. New York: Cambridge University Press. 301 p.

Leopold, Aldo. 1949. A Sand County almanac. New York: Oxford University Press. 226 p.

Leopold, Aldo. 1953. Round river. New York: Oxford University Press. 173 p.

Lovelock, J.E. 1979. Gaia, a new look at life on earth. New York: Oxford University Press. 157 p.

McCloskey, H.J. 1983. Ecological ethics and politics. Totowa, NJ: Rowman and Littlefield. 167 p.

Merchant, Carolyn. 1980. The death of nature: women, ecology and the scientific revolution. New York: Harper and Row. 348 p.

Muir, John. 1911. The mountains of California. Garden City, NY: Doubleday. 300 p.

Naess, Arne. 1989. Ecology, community and lifestyle. Cambridge, UK: Cambridge University Press. 223 p.

Nash, Roderick. 1983. Sorry Bambi, but man must enter the forest: perspectives on the old wilderness and the new. In: Lotan, J.E.; Kilgore, B.M.; Fischer, W.C.; Mutch, R.W., tech. coords. Proceedings -- symposium and workshop on wilderness fire. Gen. Tech. Rep. INT-182. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range and Experiment Station: 264-268.

Nash, Roderick. 1989. The rights of nature. Madison, WI: U. of Wisconsin Press. 290 p.

Norton, Bryan ed. 1986. The preservation of species: the value of biological diversity. Princeton, N.J.; Princeton University Press. 305 p.

Partridge, Ernest, ed. 1981. Responsibilities to future generations. Buffalo, NY: Prometheus Books. 319 p.

Passmore, John. 1974. Man's responsibility for nature. New York: Charles Scribner's Sons. 213 p.

Pinchot, Gifford. 1947. Breaking new ground. New York: Harcourt Brace. 522 p.

Pinchot, Gifford. 1967. The fight for conservation. Seattle: University of Washington Press. 152 p.

Regan, Tom. 1982. All that dwell therein: animal rights and environmental ethics. Berkeley, CA: University of California Press. 249 p.

Regan, Tom. 1984. Earthbound. New York: Random House. 392 p.

Rolston III, Holmes. 1986. Philosophy gone wild: essays in environmental ethics. Buffalo, NY: Prometheus Books. 269 p.

Rolston III, Holmes. 1988. Environmental ethics: duties to and values in the natural world. Philadelphia: Temple University Press. 391 p.

Sagoff, Mark. 1988. The economy of the earth. Cambridge, UK: Cambridge University Press. 271 p.

Scarce, Rik. 1990. Eco-warriors: understanding the radical environmental movement. Chicago: The Noble Press, Inc. 291 p.

Scherer, Donald; Attig, Thomas, eds. 1983. Ethics and the environment. Englewood Cliffs, NJ: Prentice-Hall, Inc. 236 p.

Shrader-Frechette, K.S. 1991. Environmental ethics. Pacific Grove, CA: The Boxwood Press. 358 p.

Stone, Christopher D. 1974. Should trees have standing? Los Altos, CA: William Kaufmann, Inc. 102 p.

Taylor, Paul W. 1986. Respect for nature. Princeton, NJ: Princeton University Press. 329 p.

VanDeVeer, Donald; Pierce, Christine, eds. 1986. People, penguins and plastic trees: basic issues in environmental ethics. Belmont, CA: Wadsworth Publishing. 267 p.

Wilson, Edward O., ed. 1988. Biodiversity. Washington, DC: National Academy Press. 521 p.

Worster, Donald. 1977. Nature's economy: the roots of ecology. San Francisco: Sierra Club Books. 404 p.

Environmental Politics, Policy, Economics and History

Andrews, Richard N.L.; Walts, Mary Jo. 1978. Environmental values in public decisions: a research agenda. Ann Arbor, MI: University of Michigan. 90 p.

Bunker, S.G. 1985. Underdeveloping the Amazon: extraction, unequal exchange, and the failure of the modern state. Chicago: University of Chicago Press. 279 p.

Catton, William R. Jr. 1980. Overshoot: the ecological basis of revolutionary change. Urbana, IL: University of lllinois Press. 298 p.

Conn, W. David, ed. 1983. Energy and material resources: attitudes, values, and public policy. Boulder, CO: Westview Press. 206 p.

Crenson, M.A. 1971. The un-politics of air pollution: a study of non-decisionmaking in the cities. Baltimore: Johns Hopkins University Press. 227 p.

Cronon, William C. 1983. Changes in the land: Indians, colonists, and the ecology of New England. New York: Hill and Wang. 241 p.

Culhane, P.J. 1981. Public lands politics: interest group influence on the Forest Service and Bureau of Land Management. Baltimore: Johns Hopkins University Press. 398 p.

Daly, H.E.; Cobb, John. 1989. For the common good. Boston: Beacon Press. 482 p.

Davis-Case, D'Arcy. 1989. Community forestry: participatory assessment, monitoring, and evaluation. Rome, Italy: Food and Agricultural Organization of the United Nations. 150 p.

Elkins, Stephan. 1990. The politics of mystical ecology. Telos. 82: 52-70.

Foss, P. 1960. Politics and grass. Seattle: University of Washington Press. 236 p.

Harrison, Robert P. 1992. Forests: the shadow of civilization. Chicago: University of Chicago Press. 288 p.

Henderson, Hazel. 1981. The politics of the solar age: alternatives to economics. Garden City, NY: Anchor/Doubleday. 433 p.

Henning, D.H.; Mangun, W.R. 1989. Managing the environmental crisis. Durham, NC: Duke University Press. 377 p.

Inglehart, Ronald. 1977. The silent revolution: changing values and political styles among western publics. Princeton, NJ: Princeton University Press. 482 p.

Inglehart, Ronald. 1990. Culture shift in advanced industrial society. Princeton, NJ: Princeton University Press. 484 p.

Lester, James P., ed. 1989. Environmental politics and policy: theories and evidence. Durham, NC: Duke University Press. 386 p.

Milbrath, Lester W. 1989. Envisioning a sustainable society. Albany, NY: State University of New York Press. 403 p.

Milbrath, Lester W. 1984. A proposed value structure for a sustainable society. The Environment. 4(1984b): 113-24.

Nash, Roderick. 1982. Wilderness and the American mind, 3rd edition. New Haven, CT: Yale University Press. 425 p.

National Research Council. 1992. Global environmental change: understanding the human dimensions. Washington, DC: National Academy Press. 308 p.

Norton, Bryan G. 1991. Toward unity among environmentalists. New York: Oxford University Press. 287 p.

Paehike, Robert; Torgerson, Douglas, eds. 1990. Managing leviathan: environmental politics and the administrative state. Peterborough, ON: Broadview Press. 310 p.

Postel, Sandra; Ryan, John C. 1991. Toward sustainable forestry worldwide. Journal of Soil and Water Conservation. 46(2): 119-122.

Rappaport, J. 1977. Community psychology: values, research and action. New York: Holt, Rinehart and Winston. 482 p.

Schlesinger, Arthur M. Jr. 1986. The cycles of American history. Boston: Houghton Mifflin. 498 p.

Selznick. P. 1966. TVA and the grass roots: a study in the sociology of formal organizations. NY: Harper Torchbooks. 274 p.

Socolow, Robert H. 1976. Failures of discourse: obstacles to the integration of environmental values into natural resource policy. In: Tribe, L.H., Schilling, C.S.; Voss, J., eds. When values conflict: essays on environmental analysis, discourse and decision. Cambridge, MA: Ballinger Publishing Company: 1-33.

Steel, Brent. 1991. Tree-lover, spare the woodman. The Economist (June 22): 19-23.

Steel, Brent; Soden, Dennis L.; Warner, Rebecca L. 1990. The impact of knowledge and values on perceptions of environmental risk to the Great Lakes. Society and Natural Resources. 3: 331-348.

West, P.C. 1982. Natural resource bureaucracy and rural poverty: a study in political sociology of natural resources. Ann Arbor, MI: University of Michigan School of Natural Resources. 168 p.

White, Lynn Jr. 1967. The historical roots of our ecological crisis. Science. 155(March 7): 1203-07.

Measuring and Managing Landscape Aesthetic Quality

Armstrong, P.; Muir, B. 1988. Visual perception of conservation value: the distribution of flora in John Forrest National Park. Journal of Environmental Management.26: 221-228.

Anderson, LInda M. 1981. Land use designations affect perceptions of scenic beauty in forest landscapes. Forest Science. 27(2): 392-400.

Arthur, L.M. 1977. Predicting scenic beauty of forest environments: some empirical tests. Forest Science. 23(2): 151-160.

Becker, R.H. 1983. Opinions about clear-cutting and recognition of clearcuts by forest recreation visitors. Journal of Environmental Management. 17: 171-177.

Brown, T.C.; Daniel, T.C. 1986. Predicting scenic beauty of timber stands. Forest Science. 32(2): 471-487.

Gobster, Paul H. 1992. Social benefits and costs of enhancing biodiversity in urban forest recreation settings. In: Rodbell, P., ed. Alliances for community trees: proceedings of the 5th Urban Forest Conference; 1991 Nov. 12-17, Los Angeles, Calif. Washington, D.C.: American Forestry Association: 62-65.

Hamilton, L.; Rader, T.; Smith, D. 1973. Aesthetics and owner attitudes toward suburban forest practices. Northern Logger and Timber Processor. 22(3): 18-19, 38-39.

Hammitt, William E. 1980. Managing bog environments for recreational experiences. Environmental Management. 4(5): 425-431.

Hobbs, E.R. 1988. Species richness of urban forest patches and implications for urban landscape diversity. Landscape Ecology. 1(3): 141-152.

Hodgson, Ronald W.; Thayer, Robert L. Jr. 1980. Implied human influence reduces landscape beauty. Landscape Planning. 7: 171-179.

Hull, R.B; Buhyoff, G.J. 1986. The scenic beauty temporal distribution method: an attempt to make scenic beauty assessments compatible with forest planning efforts. Forest Science. 32: 271-286.

Lamb, R.J.; Purcell, A.T. 1990. Perception of naturalness in landscape and its relationship to vegetation structure. Landscape and Urban Planning. 19: 333-352.

Litton, R.B. 1984. Visual vulnerability of the landscape: control of visual quality. Res. Pap. WO-39, Washington, DC: U.S. Department of Agriculture, Forest Service.

Ribe, R.G. 1988. The aesthetics of forestry: what has empirical preference research taught us? Environmental Management. 12(1): 55-74.

Ribe, R.G. 1990. A general model for understanding the perception of scenic beauty in northern hardwood forests. Landscape Journal. 9(2): 83-101.

Ruddell, Edward J.; Hammitt, William E. 1987. Prospect-refuge theory: a psychological orientation for edge effect in recreation environments. Journal of Leisure Research. 19(4): 249-260.

Sonnenfeld, Joseph. 1967. Environmental perception and adaptation level in the Arctic. In: Lowenthal, David, ed.. Environmental perception and behavior. Chicago: University of Chicago Press: 42-59.

Steinitz, C. 1990. Toward a sustainable landscape with high visual preference and high ecological integrity: the Loop Road in Acadia National Park. Landscape and Urban Planning. 19(3): 213-250.

U.S. Department of Agriculture, Forest Service. 1974. National forest landscape management, Vol. 2, Ch. 1: the visual management system. Agricultural Handbook No. 462, Washington, DC: U.S. Government Printing Office.

U.S. Department of Agriculture, Forest Service. 1980. National forest landscape management, Vol. 2, Ch. 5: timber. Agricultural Handbook No. 559, Washington, DC: U.S. Government Printing Office.

Vodak, M.C.; Roberts, P.L.; Wellman, J.D.; Buhyoff, G.J. 1985. Scenic impacts of eastern hardwoods management. Forest Science. 31(2): 289-301.

Walters, Ron, ed. 1990. Visual quality objectives in Douglas-fir forests. Pub. No. R6-REC-IP-016-90. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Region.

Wood, D. 1988. Unnatural illusions: some words about visual resource management. Landscape Journal. 7(2): 192-205.

Zube, Ervin H.; Sell, James L.; Taylor, Jonathan G. 1982. Landscape perception: research, application, and theory. Landscape Planning. 9: 1-33.

Theories of Environmental Experience

Allen, Barbara; Schlereth, Thomas J., eds. 1992. Sense of place: American regional cultures. Lexington, KY: University Press of Kentucky. 224 p.

Andrews, Valerie. 1990. A passion for this earth. New York: Harper Collins Publishing. 224 p.

Berry, Wendell. 1977. The unsettling of America. San Francisco: Sierra Club Books. 228 p.

Brown, T.; Keane, T.; Kaplan, S. 1986. Aesthetics and management: bridging the gap. Landscape and Urban Planning. 13: 1-10.

Carlson, A. 1977. On the possibility of quantifying scenic beauty. Landscape Planning. 199:131-172.

Carlson, A. 1979. Formal qualities in the natural environment. Journal of Aesthetic Education. 13(3): 99-114.

Chenoweth, R.E.; Gobster, P.H. 1990. The nature and ecology of aesthetic experiences in the landscape. Landscape Journal. 9(1): 1-8.

Cooper, David E. 1992. The idea of environment. In: Cooper, D.E.; Palmer, J.A., eds. The environment in question. New York: Routledge Publishing: 165-180.

Dwyer, J.F.; Schroeder, H.W.; Gobster, P.H. 1991. The significance of urban trees and forests: toward a deeper understanding of values. Journal of Arboriculture. 17(10): 276-284.

Eaton, Marcia M. 1989. Aesthetics and the good life. Rutherford, NJ: Fairleigh Dickinson Univ. Press. 209 p.

Entrikin, J. Nicholas. 1991. The betweenness of place. Baltimore, MD: Johns Hopkins University Press. 196 p.

Evernden, N. 1985. The natural alien: humankind and environment. Toronto: University of Toronto Press. 160 p.

Evernden, N. 1981. The ambiguous landscape. The Geographical Review. 71(2): 147157.

Gibson, J.J. 1979. The ecological approach to visual perception. Boston: Houghton-Mifflin. 332 p.

Gruchow, Paul. 1988. The necessity of empty places. NY: St. Martin's Press. 304 p.

Hepburne, Ronald W. 1968. Appreciation and the natural environment. In: Osborne, H. ed. Aesthetics in the modern world. London: Thames and Hudson: 49-66.

Hiss, Tony. 1990. The experience of place. NY: Alfred A. Knopf. 233 p.

Howett, Catherine. 1987. Systems, signs, and sensibilities: sources for a new landscape aesthetic. Landscape Architecture. 6(1): 11-12.

Ittelson, W.H. 1973. Environment perception and contemporary perceptual theory. In: Ittelson, W.H., ed. Environment and cognition. New York: Seminar Press: 1-19.

Johnston, R.J. 1991. A question of place. Oxford, UK: Blackwell Publishers. 280 p.

Kaplan, Rachel; Kaplan, Stephen. 1989. The experience of nature: a psychological perspective. New York: Cambridge University Press. 340 p.

Kaplan, Stephen; Kaplan, Rachel. 1981. Cognition and environment. Ann Arbor, MI: Ulrich's Bookstore. 287 p.

Koh, J. 1987. An ecological aesthetic. Landscape Journal. 7(2): 177-193.

Laurie, Michael. 1983. A gladdened eye: criteria for a new landscape aesthetic. Landscape Architecture 2(6): 70-75.

Left, Herbert L. 1978. Experience, environment, and human potentials. New York: Oxford University Press. 523 p.

McHarg, Ian L. 1969. Design with nature. Garden City, NY: Natural History Press. 197 p.

Nabhan, Gary Paul. 1987. The desert smells like rain. San Francisco, CA: North Point Press. 148 p.

Nassauer, J. 1988. The aesthetics of horticulture: neatness as a form of care. HortScience. 23(6): 973977.

Nelson, Richard. 1991. The island within. New York, NY: Vintage Books. 284 p.

Orr, David W. 1992. Ecological literacy. Albany, NY: State University of New York Press. 210 p.

Pitt, David G. 1989. The attractiveness and use of aquatic environments as outdoor recreation places. In: Altman, L; Zube, E.H., eds. Public places and spaces. New York: Plenum Press: 217-254.

Raphael, Ray. 1973. Edges. New York: Knopf. 225 p.

Rees, Ronald. 1975. The scenery cult: changing landscape tastes over three centuries. Landscape. 19(1): 39-47.

Rosenberg, A. 1986. An emerging paradigm for landscape architecture. Landscape Journal. 6: 75-82.

Schroeder, H.W. 1992. The spiritual aspect of nature: a perspective from depth psychology. In: Vander Stoep, G., ed. Proceedings of the 1991 Northeastern Recreation Research Symposium; 1991 April 7-9, Saratoga Springs, NY. Gen. Tech. Rep. NE-160. Radnor, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station: 25-30.

Seamon, David. 1984. Emotional experience of the environment. American Behavioral Scientist. 27(6): 757-n0.

Spirn, Anne Winston. 1988. The poetics of city and nature: towards a new aesthetic for urban design. Landscape Journal. 7(2): 108-126.

Steele, Fritz. 1981. The sense of place. Boston, MA: CBI Publishing. 216 p.

Swan, James A. 1988. Saving the places where the spirits rise. Garden. 1988(Sep/Oct): 2-6.

Thayer, Robert L. 1989. The experience of sustainable landscapes. Landscape Journal. 8(2): 101-110.

Thorne, J.F.; Huang, C.S. 1991. Toward a landscape ecological aesthetic: methodologies for designers and planners. Landscape and Urban Planning. 21: 61-79.

Trimble, Stephen, ed. 1988. Words from the land. Salt Lake City, UT: Peregrine Smith Books. 303 p.

Tuan, Yi-fu. 1974. Topophilia. Englewood Cliffs, NJ: Prentice-Hall. 260 p.

Tuan, Yi-fu. 1977. Space and place. Minneapolis: University of Minnesota Press. 235 p.

Ulrich, Roger S. 1983. Aesthetic and affective response to natural environment. In: Altman, I; Wohlwill, J. eds. Behavior and the natural environment. New York: Plenum Publishers: 85-1 23.

Wohlwill, J.F. 1976. Environmental aesthetics: the environment as a source of affect. In: Altman, L; Wohlwill, J.F., eds. Human behavior and the environment: advances in theory and research. New York: Plenum Publishers: 37-86.

Zajonc, Robert B. 1980. Feeling and thinking: preferences need no inferences. American Psychologist. 35(2): 151-175.

Zajonc, Robert B.; Markus, Hazel. 1982. Affective and cognitive factors in preferences. Journal of Consumer Research. 9: 123-131.

Zube, Ervin H. 1984. Themes in landscape assessment theory. Landscape Journal. 3(2): 104-110.

Wildland Planning and Management

Agee, James K.; Johnson, Daryll R., eds. 1988. Ecosystem management for parks and wilderness. Seattle, WA: University of Washington Press. 237 p.

Burdge, Rabel J.; Opryszek, Paul, eds. 1981. Coping with change: an interdisciplinary assessment of the Lake Shelbyville reservoir. Urbana, IL: lnstitute for Environmental Studies, University of Illinois. 386 p.

Clark, Roger N. 1988. Enhancing recreation opportunities in silvicultural planning. Schmidt, W.C., ed. Proceedings — Future forests of the Mountain West: a stand culture symposium. Gen. Tech. Rep. INT-243. Missoula, MT: U.S. Department of Agriculture, Forest Service, lntermountain Forest and Range Experiment Station: 61-69.

Firey, Walter. 1960. Man, mind, and land. Glencoe, IL: The Free Press. 256 p.

Forester, John. 1989. Planning in the face of power. Berkeley, CA: University of California Press. 283 p.

Friedmann, John. 1987. Planning in the public domain: from knowledge to action. Princeton, NJ: Princeton University Press. 501 p.

Kuss, Fred R.; Graefe, Alan R.; Vaske, Jerry J. 1990. Visitor impact management: the planning framework. Vol. II. Washington, DC: National Parks and Conservation Association. 105 p.

Lee, Robert G.; Field, Donald R.; Burch, William R., Jr., eds. 1990. Community and forestry: continuities in the sociology of natural resources. Boulder, CO: Westview Press. 301 p.

Miller, Marc L.; Gale, Richard P.; Brown, Perry J., eds. 1987. Social science in natural resource management systems. Boulder, CO: Westview Press. 265 p.

Shelby, Bo; Heberlein, Thomas A. 1986. Carrying capacity in recreation settings. Corvallis, OR: Oregon State University Press. 164 p.

Stankey, George H.; McCool, S.F. 1989. Beyond social carrying capacity. In: Jackson, E.L.; Burton, T.L., eds. Understanding leisure and recreation: mapping the past, charting the future. State College, PA: Venture Publishing Co.: 497-516.

Stankey, George H.; Cole, David N.; Lucas, R.C. [and others]. 1985. The limits of acceptable change (LAC) system for wilderness planning. Gen. Tech. Rep. INT-176. Ogden, UT: U.S. Department of Agriculture, Forest Service, lntermountain Forest and Range Experiment Station. 37 p.

Whittaker, Douglas; Shelby, Bo. 1989. Types of norms for recreation impacts: extending the social norms concept. Journal of Leisure Research. 20: 261-273.

Anthropology and Cultural Geography

Anyinam, Charles. 1987. Availability, accessibility, acceptability, and adaptability: four attributes of African ethno-medicine. Social Science and Medicine. 25(7): 803-811.

Barnett, Homer G. 1953. Innovation: the basis of culture change. New York: McGraw Hill. 462 p.

Barth, Fredrik 1987. Cosmologies in the making. New York: Cambridge University Press. 99 p.

Burch, E.S. 1971. The nonempirical environment of the Arctic Alaskan Eskimos. Southwestern Journal of Anthropology. 27: 148-65.

Butzer, Karl. 1988. Diffusion, adaptation, and evolution of the Spanish agrosystem. In: Hugill, Peter J.; Dickson, D. Bruce, eds. The transfer and transformation of ideas and material culture. College Station, TX: Texas A&M Press: 91-109.

Cohen, Erik. 1976. Environmental orientations: a multidimensional approach to social ecology. Current Anthropology. 17(1): 49-70.

Heider, Karl. 1991. Grand Valley Dani: peaceful warriors. 2nd ed. New York: Holt, Rinehart and Winston.l49 p.

Hobsbawm, Eric: Ranger, Terence. 1983. The invention of tradition. New York: Cambridge University Press. 320 p.

Kershaw, A.C. 1978. Diffusion and migration studies in geography. In: Duke, P.G. [and others], eds. Diffusion and migration: their roles in cultural development. Calgary, AB: University of Calgary Press: 6-13.

Kluckhohn, Florence R.; Strodtbeck, Fred L. 1961. Variations in value orientations. Evanston, IL: Row, Peterson. 437 p.

Kroeber, Alfred L.; Kluckhohn, Clyde. 1952. Culture; a critical review of concepts and definitions. Cambridge, MA: The Peabody Museum. 223 p.

Osborn, Alan J. 1988. Limitations of the diffusionist approach. In: Hugill, Peter J.; and Dickson, D. Bruce, eds. The transfer and transformation of ideas and material culture. College Station, TX: Texas WM Press: 2344.

Rappaport, Roy. 1979. Ecology, meaning and religion. Richmond, CA: North Atlantic Books. 259 p.

Thompson, Michael; Willis, Richard; Wildavsky, Aaron. 1990. Cultural theory. Boulder, CO: Westview Press. 296 p.

Turner, Victor and Edward Bruner. 1986. The anthropology of experience. Urbana: University of Illinois Press. 391 p.

Vogt, Evon Z.; Albert, Ethel M. 1966. People of Rimrock: a study of values in five cultures. Cambridge, MA: Harvard University Press. 342 p.

Sociological and Political Theory

Alexander, Jeffrey C. 1983. The modern reconstruction of classical thought: Talcott and Parsons. Theoretical logic in sociology, vol. 4: Berkeley, CA: University of California Press. 530 p.

Althusser, L. 1971. Lenin and philosophy and other essays. New York: Monthly Review Press. 253 p.

Baynes, Kenneth. 1992. The normative grounds of social criticism. Albany, NY: State University of New York Press. 242 p.

Bernard, T.J. 1983. The consensus-conflict debate: form and content in social theories. New York: Columbia University Press. 229 p.

Bernstein, Richard J. 1976. The restructuring of social and political theory. Philadelphia: University of Pennsylvania Press. 286 p.

Bordieu, P. 1980. The aristocracy of culture. Media, Culture and Society. 2: 225-254.

Brand, Arie. 1990. The force of reason: An introduction to Habermas' theory of communicative action. Boston: Allen & Unwin. 152 p.

Comte, A. 1984. Auguste Comte and positivism: the essential writings. Lenzer, G., ed. Chicago: University of Chicago Press. 506 p.

Durkheim, Emile. 1984. The division of labor in society. NY: Free Press. 352 p.

Glddens, Anthony. 1984. The constitution of society. Cambridge, MA: Polity Press. 402 p.

Giddens, Anthony. 1979. Central problems in social theory: action, structure and contradiction in social analysis. Berkeley, CA: Univ. of California Press. 294 p.

Gold, D.; Lo, C.; Write, E.O. 1975. Some recent developments in Marxist theories of the state. Monthly Review. 25(5): 29-43, 27(6): 26-51.

Gramsci, A. 1971. Selections from the prison notebooks. NY: lnternational Publishers. 483 p.

Granovetter, M.S. 1973. The strength of weak ties. American Journal of Sociology. 78: 1360-1380.

Habermas, Jurgen. 1989. The structural transformation of the public sphere. Cambridge, MA: MIT Press. 301 p.

Habermas, Jurgen. 1985. The theory of communicative action, vol. I: reason and the rationalization of society. Boston: Beacon Press. 507 p.

Habermas, Jurgen. 1989. The theory of communicative action. vol. II: lifeworld and system — a critique of functionalist reason. Boston: Beacon Press. 468 p.

Hartley, J. 1982. Understanding news. New York: Methuen. 203 p.

Held, David; Thompson, John B., eds. 1989. Social theory of modern societies: Anthony Giddens and his critics. New York: Cambridge University Press. 311 p.

Jackson, Jay. 1965. Structural characteristics of norms. In: Steiner, lvan D.; Fishbein, Morton, eds. Current studies in social psychology. New York: Rinehart and Winston, Inc.: 301-309.

Lewis, Bernard J. 1991. Action, society and nature: communicative ethics and the practice of ecological economics. In: Bradley, D.; Nilsson, P., eds. Ecological economics: its implications for forest management and research: proceedings of a workshop; 1990 April 2-6; St. Paul, MN. Research Paper No. 223. Garpenburg, Sweden: Swedish University of Agricultural Science. 239 p.

Marx, Karl; Engels, Friedrich. 1970. Capital: a critique of political economy, vol. II, the process of circulation of capital. London: Lawrence & Wishart. 551 p.

McCloskey, Donald N. 1985. The rhetoric of economics. Madison, WI: Univ. of Wisconsin Press. 209 p.

McCloskey, Donald N. 1990. If you're so smart: the narrative of economic experience. Chicago: Univ. of Chicago Press. 180 p.

McConnell, G. 1966. Private power and American democracy. New York: Alfred A. Knopf. 397 p.

Mead, George Herbert. 1962. Mind, self and society. Chicago: University of Chicago Press. 401 p.

Miliband, R. 1969. The state in capitalist society. London: Weidenfeld and Nicholson. 292 p.

Parsons, Talcott. 1949. The structure of social action. Glencoe, IL: Free Press. 817 p.

Parsons, Talcott; Smelser, Nell J. 1956. Economy and society. Glencoe, IL: The Free Press. 322 p.

Sagoff, Mark. 1992. Technological risk: A budget of distinctions. In: Cooper, D.E.; Palmer, J.A., eds. The environment in question. New York: Routledge: 194-211.

Stone, C.N. 1980. Systemic power in community decision making: a restatement of stratification theory. American Political Science Review. 74: 978-990.

Thompson, J.B. 1990. ldeology and modern culture. Stanford, CA: Stanford University Press. 362 p.

Weber, Max. 1978. Economy and society: an outline of interpretive sociology. Berkeley, CA: Univ. of California Press. 2 vol.

White, James Boyd. 1990. Justice as translation: an essay in cultural & legal criticism. Chicago: University of Chicago Press. 313 p.

Bohman, James. 1991. New philosophy of social science: problems of indeterminacy. Cambridge, MA: MIT Press. 273 p.

Methods of Social Research

Burch, William R., Jr.; DeLuca, Donald R. 1984. Measuring the social impact of natural resource policies. Albuquerque, NM: University of New Mexico Press. 216 p.

Dunlap, Riley E.; Catton, William R. 1983. What environmental sociologists have in common (whether concerned with "built" or "natural" environments). Sociological Inquiry. 53(2/3): 113-135.

Fairweather, G.W. 1967. Methods for experimental social innovation. New York: Wiley. 146 p.

Fay, Brian. 1987. Critical social science. Ithaca, NY: Cornell Univ. Press. 242 p.

Henderson, Karla A. 1991. Dimensions of choice: A qualitative approach to recreation, parks, and leisure research. State College, PA: Venture Publishing. 209 p.

Hiley, David R.; Bohman, James F.; Shosterman, R. 1991. The interpretive turn: philosophy, science, culture. Ithaca, NY: Cornell University Press. 322 p.

MacRae, Duncan, Jr. 1976. The social function of social science. New Haven, CT: Yale University Press. 352 p.

Mishler, Elliot G. 1986. Research interviewing. Cambridge, MA: Harvard University Press. 189 p.

Rabinow, Paul; Sullivan, William M. 1987. Interpretive social science: a second look. Berkeley, CA: Univ. of California Press. 395 p.

Strauss, A.L.; Corbin, J. 1990. Basics of qualitative research: Grounded theory procedures and techniques. Newbury Park, CA: Sage Publications. 270 p.

Werner, Oswald; Schoepfle, G.M. 1987. Systematic fieldwork. Newbury Park, CA: Sage Publications. 2 vol.

Wright, Will. 1992. Wild knowledge: science, language, and social life in a fragile environment. Minneapolis, MN: University of Minnesota Press. 236 p.

Academic Journals of Interest

Ambio

BioScience

Conservation Biology

Environment and Behavior

Environmental Ethics

Environmental Management

International Journal of Wilderness

Journal of Environmental Management

Journal of Forestry

Journal of Sustainable Forestry

Landscape and Urban Planning

Landscape Journal

Natural Resources Journal

Northwest Environmental Journal

Society and Natural Resources

Brunson, Mark W.; Kruger, Linda E.; Tyler, Catherine B.; Schroeder, Susan A., tech eds. 1996. Defining social acceptability in ecosystem management: a workshop proceedings; 1992 June 23-25 Kelso, WA. Gen. Tech. Rep. PNW-GTR-369. Portland, OR: Department of Agriculture, Forest Service, Pacific Northwest Research Station. 142 p.

This compendium of papers was developed in response 16 the assumption that implementing an ecological approach to forest management requires an understanding of socially acceptable forestry—what it is and the implications of doing it. The papers in this collection bring to bear perspectives from a variety of social science disciplines and question whether the focus on social acceptability is an appropriate and useful one.

Keywords: Ecosystem management. social acceptability, environmental ethics, social values, landscape aesthetics, public participation.

Pacific Northwest Research Station
333 S.W. First Avenue
P.O. Box 3890
Portland, Oregon 97208-3890