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Social Acceptability of Forest Conditions and Management Practices: A Problem Analysis

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Abstract

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The purpose of this report is to improve understanding of the complex sociopolitical processes related to resource management and to help structure management response to conflict and contentiousness, misunderstanding among participants, and failed citizen-agency interactions. Public acceptance is essential to every resource management decision public agencies must make. Regardless of the issue—forest health, fuels management, riparian restoration, recreation impacts, or threatened and endangered species—the political environment surrounding most decisions is never about just single questions, nor is it about just ecological questions. Social acceptability involves many diverse factors that are only now beginning to be understood and given credence by resource professionals. In this analysis, we describe the social acceptability concept and identify 10 key problem areas needing indepth consideration for durable decisions to be made about forest conditions and practices on federal lands. A central conclusion is that public judgments are always provisional, never absolute or final. Each situation, each context, produces a unique set of circumstances affecting the formation of public acceptance. By its nature, social acceptability is a process rather than an end product. We conclude by presenting five basic strategies to help guide resource professionals and citizens toward more integrated solutions.

Keywords: Social acceptability, forest management, decisionmaking, public participation, strategic planning.

Contents

1	Introduction
2	Research Goals, Concepts, and Frameworks for Social Acceptability
3	What is Social Acceptability?
4	Why Be Concerned with Social Acceptability?
6	Disciplinary Origins
9	Aesthetics and Social Acceptability
10	Frameworks for Judging Acceptability
12	Problem Identification and Analysis
12	Problem 1
16	Problem 2
20	Problem 3
24	Problem 4
26	Problem 5
28	Problem 6
31	Problem 7
34	Problem 8
36	Problem 9
40	Problem 10
42	What Now? Five Basic Strategies
53	Conclusion
53	Acknowledgments
54	Literature Cited

Introduction

The issue of social acceptability, in one form or another, has long been of interest to social scientists. It has gained particular attention in the area of natural resource management as a result of growing incidences of political protest and intervention. For federal forest management, the debate and uncertainty over adaptive and ecosystem-based management approaches, and the conditions resulting from such practices, have raised to new prominence concerns about public acceptance. To meet the objectives of ecosystem management (or any other management strategy), however problematic the definition, forestry professionals need to understand how natural systems function and are sustained; however, they also need to understand how people interpret and respond to changes in forest settings, policy decisions, and management institutions.

The concept of social acceptability of natural resource management can be traced to the work of rural sociologist Firey (1960), who was interested in understanding why certain resource practices and prescriptions in different societies persisted, whereas others did not. He concluded that the adoption and retention of any particular resource program or action depends on the extent to which that activity satisfies three key requisites:

- Physically possible: practices are consistent with ecological processes.
- Economically feasible: practices generate revenue in excess of costs.
- Culturally adoptable: practices are consistent with prevailing social customs and norms.

Clawson (1975) introduced a similar premise focused more directly on forest environments but provided a more detailed set of criteria than Firey by arguing that successful policies must meet five conditions: (1) biological and physical feasibility, (2) economic efficiency, (3) economic welfare or equity, (4) social or cultural acceptability, and (5) operational or administrative practicality. Both frameworks acknowledge and agree on one fundamental notion: policies and practices lacking societal acceptance and approval will ultimately fail. This will occur even if these decisions and actions are supported by sound science (physically possible) and are profitable (economically feasible). Indeed, Stankey (1996) notes that Firey's three criteria are mutually constraining; each is a necessary but not sufficient quality for sustainable ecosystem-based forest management.

Although considerable effort has been made to define and measure biological feasibility and economic efficiency, relatively little effort has been made toward understanding social acceptability; i.e., how judgments are made, what they are based on, and what factors affect the durability of such judgments. There is an inherent instability to resource policies that do not adequately integrate the concerns of citizens. Adverse public judgments can postpone, modify, or prevent implementation of any management strategy, irrespective of the rigor of the underlying science or its cost-benefit ratio. Rather than accept unpopular decisions, citizens can use many methods to influence policy decisions. They can, for example, invoke the courts, lobby federal legislators, attract media attention for their cause, or at the statewide level, develop ballot initiatives to change a state's forest practice laws. When citizens seek forums that better reflect their values, these methods often circumvent traditional agency authority (Shindler et al. 1993). There is abundant evidence from the 1990s that the citizenry is able and willing to use these measures.

Research Goals, Concepts, and Frameworks for Social Acceptability

To address social acceptability, and the relative inattention the topic has received by the forest research community, the People and Natural Resources Program of the Forest Service, Pacific Northwest Research Station, initiated a problem analysis to focus specifically on the issue. Building from the current state of knowledge, both conceptual and empirical, this analysis draws on relevant research, much of it conducted in response to federal ecosystem management initiatives of the 1990s, and examines current understanding of the meaning and implication of socially acceptable forestry. This report begins by describing research goals and the concept of social acceptability, including discussions of its origins and the challenge of establishing frameworks for decisionmaking. This first section also examines why social acceptability is critical to effective resource management, or conversely, how an absence of attention will ultimately impede the best intentioned management plans and programs. The second section outlines 10 fundamental problems derived from an assessment of management experience and the research literature. An analysis of each problem and the interconnectivity between problems helps focus on future integrated ecosystem-based research. The final section offers concluding comments and priorities for research initiatives.

Public land managers are under increasing pressure to manage forest ecosystems with sustainable approaches that include adaptive management strategies. Considerable federal resources have been directed at determining what ecosystem-based, landscape-level management means and how it should be accomplished. For example, major regional assessments have been completed in the Pacific Northwest (FEMAT 1993), the interior Columbia River basin (USDA 1996), and the southern Appalachians (SAMAB 1996). Although each report acknowledges the importance of social concerns and influences, the dominant focus of each is primarily on biophysical features and ecological processes of environmental systems. This approach is not an uncommon feature of public lands assessment. From a citizen's perspective, however, uncertainties about the future of the social systems related to natural resources (e.g., rural communities, unique places, employment opportunities, recreational opportunities) are just as important as those pertaining to the future of the biophysical systems (Shindler and Brunson 1999). Thus, the failure of ecosystem-based assessments to consider fully the social risks and desired conditions of alternative management strategies hinders an agency's ability to achieve broad acceptance of forest policies.

Our research goals in this analysis are threefold. The first is to strengthen the conceptual foundation of social acceptability through an improved understanding of the complex sociopolitical processes involved in public resource management. Second, through problem identification and analysis, we endeavor to structure the management response to problems involving conflict and contentiousness, misunderstanding among participants, and failed citizen-agency interactions. Third, we intend for this analysis to provide a basis for integrative research among programs and disciplines. In this era of distributed knowledge and shared decisionmaking, inclusive, integrated approaches are essential to produce credible alternatives that result in public acceptance of forest conditions and practices. Over the long term, we anticipate this research will help (1) reduce the level and nature of conflict between resource management and various stakeholders, (2) increase the effectiveness and efficiency of policy processes, and (3) contribute to our ability to reach more durable, lasting decisions, or as Wondolleck (1988: 105) describes, "decisions that are more decisive."

This analysis is rooted in a multidisciplinary workshop convened by Brunson in 1992 (Brunson et al. 1996a). The purpose of the workshop was to respond to Stankey and Clark's (1992) call to broaden understanding of acceptability as it relates to the Forest Service's new perspectives initiative, or what has now evolved into ecosystem management. As a result, this small group of social scientists and humanists compiled a preliminary assessment (Brunson et al. 1996a) that defined the acceptability concept and brought to light many of the problems surrounding this issue. Implicit in this work is the belief that numerous influences contribute to public acceptance of ecosystem management and that many questions about the nature of acceptability still need to be addressed.

Research indicates that many citizens do not readily support new (or different) forest initiatives because they do not have much experience by which to judge them (Shindler et al. 1996, Wright 2000). People need balanced information to make rational judgments about policy issues. In one case, Ehrenhalt (1994) examined people's voting preferences for public policy alternatives and recognized not only a general lack of understanding about the alternatives but also a lack of real choices being offered by institutions. Public participation in decision processes seems to be most useful when people have an understanding of the consequences of available choices (Yankelovich 1991). It follows that public acceptability of ecosystem management relies on the ability of resource professionals to frame choices about management systems in clear and meaningful ways. From a practical standpoint, the durability of decisions involving acceptable tradeoffs will depend on how relevant the outcomes are to public concerns.

Thus, in this analysis, we examine how judgments of forest conditions, and the practices used to produce and manage them, are established, sustained, and affected. From an investigative standpoint, the primary dependent variable is the judgments held by people (recognizing that varying degrees of acceptability likely exist); the independent variables are the various influences on those judgments. Considerable attention has been given, for example, to the role of scientific knowledge in acceptance of forest practices (e.g., Jacobsen and Marynowski 1997, Pierce et al. 1992), with one simplistic interpretation being that managers just need to explain ecological processes to "educate" the public and gain their support (Bell 2000, Stankey and Shindler 1997). However, as managers focus on objectives, strategies, and outcomes, the differences in the way various stakeholders understand these issues often are overlooked (Kearney et al. 1998). Even when facts are agreed on, different conceptions of causation or ethics often lead to widely differing interpretations, with consequences for judgments of acceptability. The role of knowledge is just one factor, however, and various other influences exist, such as social norms, personal experience, degree of salience, and information exchange. It is this range of factors that we examine here and for which we attempt to provide an organizing framework to make sense of their contributory roles.

What is Social Acceptability?

In their exploration of the social acceptability construct, Stankey and Clark (1992: 23) argue for research to explain its underlying dimensions and improve its utility for management. They encourage studies that could "identify specific characteristics of stand and landscape level treatments and general social processes which enhance positive effects and mitigate negative effects on people and places" (p. 23). Subsequently, Brunson (1993, 1996a) and Shindler (1997, 1998b) as well as other social scientists, undertook investigations of the acceptability concept, which continue with the current analysis.

Although the term “social acceptability” is used widely in the resource management literature, it nonetheless lacks the rigorous definition that comes from extended use as a variable in social sciences, such as “attitudes” or “values.” Adding to the fuzziness of acceptability, the natural resources field of study is strewn with various derivatives of the term. References to resource management can be found that are appropriate, preferred, desirable, supported, tolerated, adequate, and so on. Most often, these terms are associated with applied research questions, such as peoples’ preferences for a specific management practice in a particular setting. Based on interactions with other scientists at the multidisciplinary workshop described earlier, Brunson (1996a: 9) saw the need to provide a common terminology. He defines social acceptability as

a condition that 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 . . .

Brunson also notes that, in the long run, it may be more useful to refer to this individual social-psychological process as leading to judgments of acceptability. He reasons that judgments are made at the individual level but evolve in response to a host of factors; e.g., a person’s evaluation is susceptible to the influence of others around him or her, which in turn also provides an impetus for group behaviors. Thus, the term “social acceptability” could be reserved for references to some aggregate form of public consent whereby judgments are shared and articulated by an identifiable and politically relevant segment of the citizenry. As we discuss later, this distinction also is important for assessing the merits of individual evaluations (the type most associated with personal interests) versus sociopolitical processes for developing a broader shared agreement about what should occur for the larger community of interest. Most researchers and resource professionals (e.g., Cialdini et al. 1990, Ehrenhalt 1994, Sagoff 1988) would agree that adopting a conceptual framework based on civic responsibility is preferable to one based on individual benefit. We also agree with the efficacy of this approach: It is important to understand individual judgments, but putting the focus on individual values and preferences ignores the benefits of deliberative processes and mutual learning that seems pertinent to the issue of social acceptability. Thus, paying attention to the sociopolitical processes for developing shared agreement seems highly useful and certainly speaks to the “social” in social acceptability.

Why Be Concerned with Social Acceptability?

Earlier, we suggested that practices or conditions lacking social acceptance are vulnerable to public rejection and an inability to be implemented. Yet, the view often persists among institutions that compared to decisions based on “sound science” or “good economics,” public judgments are largely a nuisance and can be overcome with more facts, logic, and rational explanations. Such judgments are often greeted with “trust us” (we’re the experts) or “let’s be rational about this.” Why, the argument goes, should organizations let public opinion get in the way of doing what is right, what is profitable, or what is scientifically correct? A closely related argument contends that such opinions can be ignored because they are superficial and wrong (e.g., “if they only understood the facts” or “people are only concerned with aesthetics”), are just about cosmetics (e.g., “clearcutting is opposed simply because it’s ugly”), or are simply selfish (e.g., “just another NIMBY [not in my back yard] response”). Opinions from citizens easily can be rationalized as having no regard for the greater public good or the potential inequities they might create.

There are at least four important reasons, however, why attention should be paid to the concept of social acceptability. First, few resource management decisions are simply a matter of objective science about a specific practice or condition. Concerns about incorporating the "best" biological knowledge or "good" economics into decisions are important, but such information seldom defines what is best, right, or correct. Technical information is critical in describing the alternatives, consequences, and implications of decisions; but ultimately, such decisions express a prescriptive judgment reflecting the values of the responsible agency decisionmaker. The extent to which these values are reflective or representative of wider public sentiment is problematic. To garner support, decisions need to account for public concerns, values, and interests as important and relevant input to the entire decisionmaking process. An apparent failure to heed sociopolitical interests was a key factor in the shift by the USDA Forest Service to an ecosystem management philosophy (Brunson and Kennedy 1995).

Second, taking public judgments into account reflects a normative perspective. Simply put, and especially in the case of public resource management, the public has a right of access to decisions about the resources of which they are the ultimate owners. Early in the scholarly debate about the role of public participation, political scientist Norman Wengert (1976: 25) observed that "increasing citizen participation is simply a matter of sound and desirable policy. . . this is a normative conclusion. . . (e.g.) the person on whose land manmade rain falls has a right to be consulted." Wengert acknowledges that although the idea of a "right" of consultation in decisions is a common theme in the literature, much less attention has been given to issues such as the nature of the involvement or its relation to decisionmaking responsibilities. As we shall discuss later, such challenges persist, specifically with regard to the issue of social acceptability.

Third, concern with social acceptability derives from a simple, political perspective. In a democracy, the absence of public understanding and support makes it difficult, if not impossible, to implement any decision; i.e., "people will not support what they do not understand and cannot understand that in which they are not involved" (FEMAT 1993: VII-113). In our political system, ultimate political power rests in the body politic; this means that the public holds veto power (which they might or might not realize and might or might not exercise). And even though it is true that the authority held by an agency such as the Forest Service constitutes a form of power, it is a form delegated through the political process. In other words, what has been delegated can be withdrawn. This can occur irrespective of the validity of public concerns; the perception that a practice or condition is detrimental or inappropriate is the reality. Thus, the ability to successfully implement resource management practices or conditions that fail to achieve social acceptance is questionable, even if the action is generally judged as economically sound and needed.

Having made this argument, the fact remains that poor choices can be (and are) made by the public. The complexity of the issues demands that scientific rigor and objectivity be present to help define the alternatives, consequences, and rationale. But ultimately, decisions about the means and ends (e.g., practices and conditions) of forest management are subject to public scrutiny and approval or disapproval. In the U.S. democratic system, the public possesses the ability to withhold an acknowledgment of jurisdictional legitimacy and authority that can affect both actions taken and

conditions produced. Moreover, the basis for withholding judgments of legitimacy can be rooted in misunderstanding or confusion—purposeful or inadvertent, strategic or incidental; but in the final analysis, it makes little difference.

The political perspective then begs the question, “Who is the public?” Or the closely related question, “What is the public interest?” We often talk about “the public” as if it were some homogeneous unit. But to talk about “the public” is pointless; there is no such thing. Instead ours is a highly pluralistic society differentiated by regional populations, ethnic groups, demographic and ideological groups, and so on. Although there are concerns and values all Americans share, society is a complex, highly differentiated collective. It is also dynamic; change is inevitable and the only constant. Thus, we acknowledge that there are multiple “publics,” and in agency interaction with them, an awareness is needed of what is shared, what is not, and what is important to the respective interests. Although such understanding adds a new dimension of complexity for resource professionals, its purpose is critical, and the reason is simple: public support is essential to the successful implementation of any resource management practice. The argument that a public's judgment is not well founded is rational, but to reiterate what we mentioned above, it really makes little difference. If an agency operates with little or no understanding of public concerns, knowledge, and beliefs, it is less likely to receive public acceptance of its management decisions.

The preceding three points pose social acceptability as a constraint; they focus on how it could limit or constrain decisions and actions. A fourth point offers a more positive illustration of why social acceptability is important; simply, that judgments of social acceptability are subject to change. Although the dynamics of this change process are unclear, it is apparent that learning is a key element of the acceptability process—learning about alternatives, about contrasting perspectives and values, about scientific bases, and about risks and costs. Social acceptability in relation to management and decisionmaking can be seen as an opportunity for discussion, debate, and learning about the complex dimensions of the issues at hand, be they harvesting practices, road construction, fuels reduction, disease and insect management, and so on. Engaging the issue of social acceptability can provide an important opportunity for an informed discussion of issues, one based on mutual learning and mutual recognition of participant interests.

Disciplinary Origins

The conceptualization of social acceptability as an aggregate expression of shared judgments among an identifiable and relevant segment of society (Brunson 1996a) draws on ideas from sociology, psychology, and political science; it is a common multidisciplinary approach to describe the human dimensions of natural resources. Each academic discipline considers different variables and research questions, any of which can address acceptability-related issues in a natural resource context. For example, social psychologists study environmental attitudes as a determinant of individual behavior, and research on environmental activism, the link between attitudes and collective behavior, occurs largely within political science or political sociology.

Until now, acceptability itself has not appeared as a rigorously defined concept in basic social science. Instead, social scientists speak of values, norms, preferences, and so on. Even so, various disciplines frequently study individual or aggregate judgments about the "rightness" or "wrongness" of observed phenomena. Political scientists study the development and progress of political movements intended to halt a particular activity, and anthropologists study why some cultures engage in behaviors that other cultures find repugnant.

A relevant sociological concept is that of norms, or shared beliefs, about the appropriateness of behaviors that often are accompanied by sanctions against those who violate commonly held standards. Cialdini et al. (1990) distinguish two kinds of norms: (1) descriptive norms, which define what is typical ("normal") or simply preferred; and (2) injunctive norms, which refer to what "ought to be" and carry sanctions for violations. Descriptive norms can foster acceptance of conditions in a deteriorated state—a frequent situation involving recreational use of public lands (Shindler and Shelby 1995)—and injunctive norms serve to direct resource conditions toward the optimal by encouraging remediation when they become impacted or overused. These ideas have direct application to problems confronting foresters, for example, as they attempt to restore fire or other ecological processes to landscapes that science tells us are in an unsustainable condition but which the public has come to consider "normal." Although a more difficult proposition, Sagoff (1988) reasons that in the long term, we are better off focusing on injunctive norms and values rather than on individual preferences (or what people think is the normal state of conditions), particularly because people likely will fall back on descriptive norms in the absence of injunctive ones. Like Cialdini et al. (1990), he based this view on the assertion that values are organized beliefs held by a community about what is right to do, and preferences are simply the desires of individual members and, as such, may not serve the larger society very well.

One of the first uses of the term "acceptability" in the natural resource literature was in the limits of acceptable change (LAC) planning system (Stankey et al. 1985), a participant-oriented model developed originally for Forest Service wildernesses but now widely applied across various settings (Stankey 1997). The authors do not explicitly define what they mean by "acceptable" but seem to use the word in two senses: to describe what is legally permissible under the Wilderness Act of 1964, and to describe what wilderness users agree is desirable (frequently determined via a consensus-creating planning process). Thus an "unacceptable" occurrence could imply circumstances of differing severity, depending on whether one referred to a violation of federal law or to an occurrence of change in forest conditions beyond that preferred by users. The consequences of "unacceptability" would likewise differ, as failure to obey the law is likely to carry more severe sanctions than failure to achieve a desired future condition. From a functional standpoint, this more adverse terminology has substantial relevance—most people can readily identify when unacceptable conditions exist. Agreeing on what constitutes acceptable conditions is usually more difficult.

Fears about accepting suboptimal conditions once they become descriptive norms historically have affected many debates over forest allocation and management. The LAC process (Stankey et al. 1985), while acknowledging that change is inevitable in human-influenced systems, was specifically designed to prevent creeping incrementalism by setting minimum thresholds for resource conditions. It did so by identifying

what was socially acceptable. But as Shindler (1992) warns, lack of diligence in managing for these thresholds may, over time, create a diminishing standards phenomena, with substantial evidence from popular wildland sites to support this view (Shelby et al. 1992). Additionally, polarized attitudes in environmental politics are reinforced by fears that a "weakened" position (e.g., assenting to partial harvests instead of clearcuts) will become the new baseline from which future policy compromises will be built (McCloskey 1991). Stankey (1996) took these ideas a step further by arguing that all management decisions, including the so-called "no decision," carry with them a need for agency action. He notes that the status quo does not sustain itself and change will occur regardless. The premise is that acceptable situations require that managers take steps to maintain the condition, whereas unacceptable ones require action to improve them. The ramifications are important because revisions to many national forest plans address fixing "what is broken" rather than maintaining "what is best."

To address social acceptability on a broad scale, forest management and research efforts historically have focused largely on maintaining visual quality. The British Columbia Ministry of Forests (1981: 7), for example, defines its visual resource management challenge "to maintain acceptable forest landscapes and, at the same time, ensure that optimum economic and social benefits accrue to the people of the province." In the United States, the Forest Service assumed people were sensitive to harvest treatments and developed a visual management system establishing five visual quality objectives to guide modification of natural landscapes (McCool et al. 1986). From these early concerns, scenic quality research typically has employed a measure of scenic beauty as a surrogate for social acceptability: if most people think a forest looks reasonably scenic, then the conditions and practices that produced the forest are taken as *prima facie* evidence of being socially acceptable, a situation so prominent in forestry that we discuss the issue of aesthetics in the following section. But the problem with this assumption, as Gobster (1996) points out, is that the concept of scenic beauty is artificially constrained; e.g., if the public were to judge forests solely by scenic beauty, acceptance could be influenced by neither conscious thought nor the other senses (sound or smell). Furthermore, the scenic quality argument largely ignores natural ecological processes, such as wildfire, landslides, or windthrow. Nash (1982) recognized that forests—even wildernesses—are not uniformly and permanently beautiful. In a world of human presence, use, and habitation, management is a necessity. If the path of ecosystem management is to be followed, there will be periods and places of ugliness in an aesthetic sense. From a sociopolitical perspective, forestry professionals will need to find ways to help people understand and accept these changes.

The social acceptability concept is linked not only to the outcome of decisions (the results people see) but also to the process (the dynamics) of arriving at particular decisions. Outcomes are certainly important; everyone cares about results and how things look in the forest landscape. But most everything else boils down to social process: how it was planned, who was involved, who got to be heard (or not), how people got information (and which sources were taken as relevant), if other resource uses were considered, how contextual elements were addressed, and so on (Shindler and Aldred-Cheek 1999, Stankey and Clark 1992). It is evident that social acceptability involves several factors, not all relevant for every situation, and it is important to have systems to account for them.

Aesthetics and Social Acceptability

As long as there has been a forestry profession, some individuals have been concerned about socially acceptable timber practices and their visual effects. In a 1925 *Journal of Forestry* article, for example, Bob Marshall (1925: 175), later chief of recreation in the Forest Service, complained about clearcutting saying, "A young plantation may be beautiful to look at from the road, but no person who goes to the woods for recreation gets the real benefit of the forest if it consists mostly of small poles." Later in the 1960s, the rise of citizen protests against such practices as clearcut logging can be traced to the impact of large rectangular harvests that were in plain view and affronted the visual sensibilities of many who looked at them. Bitter controversy over national forest clearcutting led to passage of the National Forest Management Act of 1976, which required the Forest Service to complete comprehensive forest plans that considered public concerns when choosing management actions. Many constituencies felt the resulting plans did not adequately reflect those public concerns, as evidenced by the 811 forest plan appeals filed at 96 different national forests by 1989 (Gericke et al. 1992).

As a result of the above concerns, most early social acceptability research examined aesthetics and visual quality. Studies by Wagar (1974) and McGee (1970) call attention to the need for improved scenic management as a means of mitigating the adverse aesthetic impacts of timber harvests. Other pioneering work to develop more systematic tools for assessing effects and prescribing appropriate management strategies was undertaken by Litton (1968) beginning in the late 1960s and eventually resulted in a formal procedural system establishing site-specific management prescriptions for areas based on their scenic value and user sensitivity. An indepth review of the burgeoning literature on the topic was assembled and published by Ribe (1989) and includes nearly 90 research papers and monographs exploring the complex bases for, and implications of, public preferences for forest landscapes and associated practices. Since that time, research on scenic quality has continued, often with visual imaging technology to determine public preferences among various silvicultural treatments (e.g., Chenoweth 1991, Ribe 1999, Schroeder and Orland 1994).

Although the visual appearance of forest conditions and practices is significant, this body of research indicates that the formation of scenic preferences is far more complex than simply a matter of describing something as "ugly." Public protests often were just a precursor to subsequent expressions of citizen concern over a host of other issues, such as the impact of harvests on long-term site productivity, wildlife habitat, and stream and water quality. Zube et al. (1982), for example, report that landscape assessments are influenced by perceptions of how the land is used and the ways those uses relate to the observer's value orientations and personal utility functions. Judgments about scenery differ across a host of variables and conditions; these include specific forest attributes (e.g., age, density, structure, and composition), different observer populations (e.g., gender and profession), cultures (urban vs. rural), and the situational context.

Shindler et al. (1994) also studied the effects of various silvicultural treatments on visual perceptions. Among residents near the Tongass National Forest in Alaska, they found that acceptability is linked to peoples' need to see how specific practices will look on the land once they are implemented. They suggested four key criteria on which acceptability judgments could be based: (1) an understanding of effects on natural characteristics of the surrounding forest, (2) a belief in the information provided,

(3) a sense that the practice would benefit the local community, and (4) an opportunity for a meaningful role in the planning process. Their work and that of others (e.g., Brunson and Reiter 1996) indicate that aesthetic judgments derive not only from an affective component (e.g., how the individual feels) but also from a cognitive one (e.g., what someone believes to be true about the need for a practice and how the decision for implementation was made). Subsequently Brunson (1996a), citing work by environmental psychologists, suggested that the acceptability of a forest condition or practice cannot be considered apart from its context because the interaction between the environment and the human behavior involves a transactional paradigm; i.e., the two elements are said to be mutually defined and not explainable apart from their context.

Frameworks for Judging Acceptability

A challenge confronting resource managers concerned with the issue of social acceptability centers on the need for frameworks within which decisions about acceptability can be made. Social scientists have long wrestled with this idea, usually for management of recreational settings; e.g., Clark and Stankey (1979b) and Driver and Brown (1978) initiated a series of papers based on the concept of the recreation opportunity spectrum (ROS). The ROS was founded on a basic premise that recreationists sought diversity in recreation opportunities, ranging from the "paved to the primeval." These papers suggest that it is possible to distinguish different types of opportunities from one another in terms of the various conditions characterizing each. For instance, Clark and Stankey (1979b) identify six management-relevant criteria that could be used to characterize different recreational settings: access, other non-recreational resource uses, onsite management, levels of social interaction, levels of visitor impacts, and levels of management control. By varying the specific characteristics of each of these, they argue, managers could create different types of settings that would provide diversity, and therefore increased quality, of recreational experiences.

What remains problematic in this framework, however, are the specific conditions judged acceptable and appropriate for each opportunity type. It was acknowledged in this work that the conditions needed to be grounded, at least in part, in the judgments of recreationists. This implicitly acknowledged that it was necessary to have a measure of social acceptability imbedded in the specification of conditions for each type of setting; i.e., What is the acceptability of different levels of biophysical impact on the setting, on the type and level of management control exercised, or the level of use one might expect to encounter?

Clark and Stankey (1979a) provide an illustration of how such a framework might be used to manage noise levels in campgrounds. They argue that two distinct yet related concepts need to be taken into account in making judgments about acceptable levels. First, it is necessary to measure the magnitude of the phenomenon; in this case, the basic phenomenon of sound. Magnitude can be measured objectively; e.g., one can assess the level of decibels that occur, the specific type and source of the sound (e.g., natural background sounds, mechanical), and the periodicity and timing. Second, it also is necessary to assess the importance associated with a particular magnitude. Even though the presence of various of sounds might be acceptable, there are norms or standards regarding duration, frequency, and timing of such sounds. Judgments by automobile campers about the sounds emanating from a chain saw, for example, likely would differ depending on whether they occurred in

mid-afternoon or at midnight; in the first case, the sound might hardly be acknowledged, and in the second, it is unacceptable noise. If wilderness campers were making the evaluation, even the faintest hint of the sound of a chainsaw motor running could be considered unacceptable noise, irrespective of the decibel level. In short, the concepts of magnitude and importance indicate there is a set of contextual conditions that needs to be considered in any judgment about acceptability (Shindler et al. 1999).

A related framework emerged from this work to deal with the specific issue of managing use in wilderness and related natural settings. The LAC (Stankey et al. 1985) was designed to help establish acceptable and appropriate conditions in wilderness; it also addresses the question of the management actions that might be undertaken to achieve, maintain, or restore such conditions. To accomplish this, the LAC established a series of explicit steps through which such judgments could be made. Although not a specific element of the original framework, early applications incorporated the views of users in addition to those of managers and scientists in establishing the relevant measures and standards, again acknowledging the prescriptive nature of these decisions.

The LAC, as well as derivative versions that emerged subsequently (e.g., Graefe et al. 1990 [visitor impact management or VIM]; National Park Service 1997 [visitor experience and resource protection or VERP]) highlighted the role of standards as a specific means of establishing explicit and measurable indices of acceptability judgments. Shelby et al. (1992) organized a workshop to explore the usefulness and liabilities of standards as a means of codifying acceptability judgments. On the positive side, standards help articulate the underlying management philosophy, they provide explicit means for dealing with change, they help inform visitors, and they help clarify and articulate what it is that management seeks to provide. But standards also can create a mechanistic approach to management. A continuing debate is whether standards represent the minimum condition to be provided (i.e., what is minimally acceptable and what society is willing to live with), or if they should represent a more acceptable, more desirable level.

In recent years, researchers have attempted to develop computer-based models incorporating social variables along with ecological data into decision-support systems. Some success has been achieved regarding the applicability of certain social data, notably economic conditions (Christensen et al. 2000), population shifts (Christensen et al. 2000), and recreational use patterns (Wing and Shelby 1999). But the compatibility of data representing social values, attitudes, preferences, and human interactions is considerably less reliable and has serious drawbacks. It is much more difficult to standardize these variables across settings and quantify them with any relevant precision (see Kakoyannis et al. 2001 for an in-depth discussion of the challenges and pitfalls in computer modeling of social acceptability).

Even given legitimate questions about implementation, the ROS, LAC, and similar systems represent efforts to provide an explicit, transparent, and systematic approach to dealing with what ultimately are value judgments about acceptability. Frameworks can be an important tool for managers; they provide systematic, traceable procedures, offer a method to use the best available knowledge, provide a basis for adapting to changing conditions, and help define a sense of the relations and links affecting

the decisions at hand. In short, they provide a way to think about and organize problems (Stankey and Clark 1998). But without substantive information and adequate reflection, such frameworks are of limited value. Despite the fact that more research is needed, there is a significant body of information with which social acceptability judgments in decisions can be more effectively and accurately represented. This work is organized and discussed in the following problem analysis.

Problem Identification and Analysis

This section identifies 10 problem areas, each deriving from an examination of management experience and the research literature. The analysis quickly revealed that an overriding difficulty in characterizing social acceptability is the issue of scale; local, regional, and national publics often have differing perspectives about natural resource problems (Brunson and Steel 1996). When a forest practice occurs “somewhere else,” it may be a nonissue or at least have little impact on peoples’ lives. For many citizens, however, changes in forest conditions are often place-based or situationally specific; acceptance depends on variables such as the particular setting or the identity of those who benefit and those who are harmed (or even those who are unaffected) by potential outcomes (Brandenburg and Carroll 1995). An initial implication is that those directly affected by any forest plan or proposed action will be the first to judge it, usually by how it impacts themselves (e.g., their families, their communities) and the setting itself. The extent to which a practice will affect personal property, alter traditional community economies, or change special recreational places will hold considerable contextual importance for those directly involved. This description is most reflective of the NIMBY syndrome, yet this involvement also can trigger awareness of wider resource concerns. Collectively, these often are the reasons why individuals join interest groups or become active in the political process (of decisionmaking). Because a basic premise of ecosystem management is to address forest resources at local and regional scales, our problem analysis examined the factors and influences most relevant at these levels.

Problem 1

Achieving socially accepted conditions and practices is hampered by a focus on decisions rather than decisionmaking processes.

Too often decisionmakers focus on acceptance of a decision by the public without fully considering that an agency’s attempt to implement socially acceptable resource policies is inherently a question of process instead of outcomes (Kakoyannis et al. 2001). A growing body of evaluative research throughout the last decade has shown that the public’s idea of fairness and legitimacy involves the quality of the decision-making procedures. Of particular importance are opportunities for citizen participation (e.g., Lauber and Knuth 1997, Shindler and Neburka 1997, Tuler and Webler 1999); e.g., interactions between agencies and citizens in forest communities are closely linked with public acceptance because management decisions are made and implemented in settings important to those communities. It is not only opinions about procedural fairness that influence acceptance of and compliance with resulting policies but also how people feel about the decisionmakers (Lawrence et al. 1997). How well citizens are incorporated into decisions affecting their livelihood and quality of life is critical to their judgments; thus, no forest management decision occurs in isolation from other factors. Agency relations with constituents, and therefore the acceptability of resulting plans and actions, are shaped by the cumulative nature of multiple interactions over time (Shindler and Aldred-Cheek 1999).

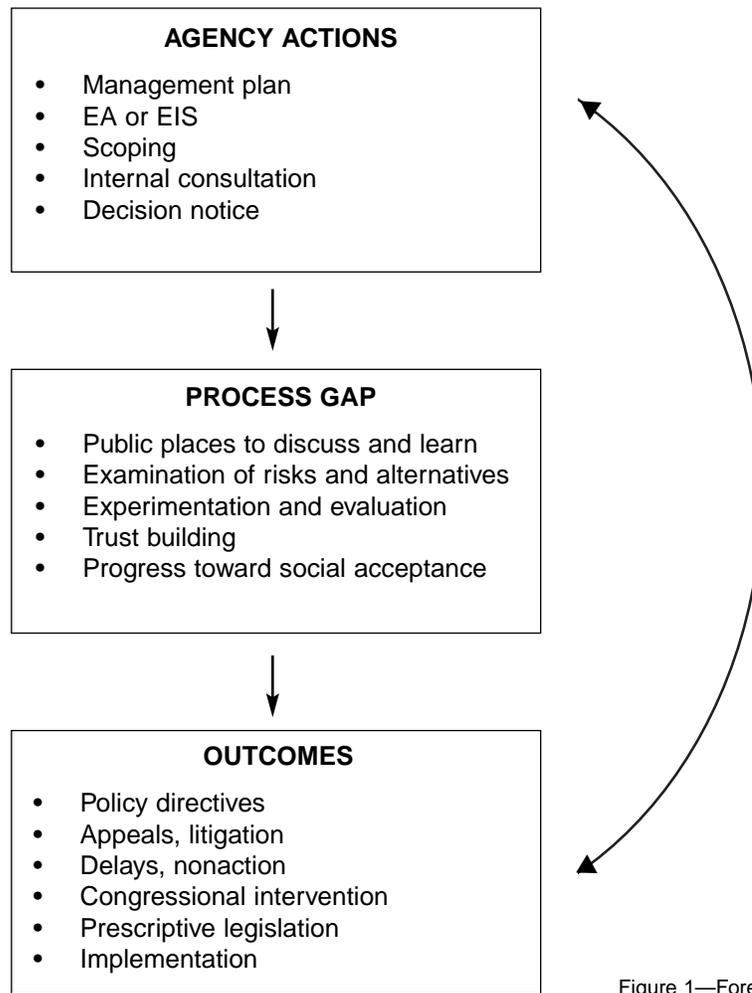


Figure 1—Forest policy process gap.

Wondolleck (1988) discusses how decisionmakers often begin with the wrong emphasis by first asking, What decision should we make? or What is the proper allocation of resources in this situation? Instead, they would be better off asking questions such as, How should we make such a complex and controversial decision? or Who should be involved, what roles will they play, and what information is needed? This second approach reflects a more thoughtful planning strategy that can help structure the public involvement process in advance. Only after agency staff first deliberate and agree on planning objectives, how decisions will be made, and who the public is for a given issue, should a particular process be initiated (Delli Priscoli and Homenuck 1990). Using this deliberative planning model helps to avoid costly problems later on. Not only does it make it easier to engage the public but it also forces the planning team to discuss their expectations about the public's role, determines which individuals are best suited for a public contact role, and helps team members develop ownership in the eventual process.

Because so little attention is given to these upfront activities, problems do occur later on. Figure 1 depicts the process gap existing in many agency decisions. Forest agencies typically are good at meeting procedural requirements (the formal steps in box 1) associated with policy decisions. Staff have become particularly adept at National

Environmental Policy Act (1969) procedures such as writing environmental analyses and environmental impact statements and drafting formal plans; however, the public has indicated that these formats are poor methods for communicating information (Shindler and Wright 2000). From a mechanistic standpoint, agency staff also have mastered the traditional scoping process by which the public can provide input on a plan or project, but these sessions frequently are sterile, rule bound, one-way exchanges (Cortner et al. 1996); they represent what has become known in some western communities as the “three i’s” of federal public involvement: i.e., inform the public, solicit their input, and then ignore it (Shindler and Neburka 1997).

Most often missing from these processes are the components found in box 2, which creates the gap in the policy process. These are the in-between steps of legitimate public process—ways and places to deliberate, forums for examining risks and consequences of various choices, methods for working out acceptable strategies—all with the likelihood that trust will build among constituents. These are largely informal steps and the ones most often undervalued, ignored, or simply bungled.

Consequently, what we often end up with is in box 3: formal policy directives from agencies and frequent attempts by citizens to override unpopular decisions. The latter may take the form of appeals and litigation, which usually result in lengthy delays. For some citizens or groups, delays are preferred, but others view this as the agency’s inability to act. In time, congressional action or other intervention may occur, and some form of the plan may finally be implemented, but little of this activity is conducive to socially acceptable decisionmaking. More legitimate processes through which judgments are formed and sustained involve what Yankelovich (1991) calls “forums for working through.” Given the nature of the complex, multivalued decisions with which natural resource managers are concerned (e.g., species restoration, reintroduction of fire to landscapes, riparian system management), there is a great need to understand how ordinary citizens respond to this complexity, including the social dynamics of reaching acceptable solutions. This will likely involve not only the provision of factual material but also the legitimization of alternative values and world views, and development of trust among participants.

Recent applied research has uncovered many cases where agency personnel have successfully engaged their publics and reached decisions that enjoy consensus (see Yaffee and Wondolleck 1997). One is far more likely to find, however, that institutional barriers contribute to procedural problems; Cortner et al. (1996) provide an insightful discussion about how these relate to implementing ecosystem management. Specific examples at the interface level demonstrate the need for improved staff selection and proper training for more successful interactions to occur (Stankey and Shindler 1997).

In acknowledging the importance of decision processes, we also must underscore that social values are at the core of public judgments, particularly those involving questions about desirability and fairness of practices. Desirability is usually easy to assess; anyone can tell you what they want most (i.e., old growth, jobs, wildlife habitat, more off-road vehicle trails). However, judgments depend not only on one’s preference for those alternatives, or the likelihood that they could be implemented, but also on their beliefs about whether those alternatives should occur. The imagined range of alternatives is a product of personal knowledge, including an awareness of how one affects the others, with the choice coming down to personal values.

Managers may be able to influence the number of alternatives a person considers through various forms of information provision. But influencing value decisions is a far more complex task; e.g., people who were equally knowledgeable about fire ecology differed in their beliefs about the acceptability of the 1988 Yellowstone fires. Judgments depended on beliefs about preserving national park values for future generations (Sellars 1990), the National Park Service's ability to have foreseen and prevented the fires, or the government's responsibility to safeguard the interests of private tourist businesses that suffered during the fires (Buck 1989).

Self-interest alone cannot explain the lack of social acceptance for some management practices. Natural resource situations are complicated because decisions go beyond accounting for personal values to include broader questions about fairness. Examples across resource settings are illustrative. Steelman and Carmin (1998) examined opposition to a mining project and found that although individual concerns about local property rights and personal health did influence public opposition, there also was strong motivation to protect common property objectives, such as stewardship of water, habitat protection, quality of life, and the short- and long-term distributive impacts of the mine on economic well-being. Lober (1996) reports similar findings in a study of opposition to siting of waste facilities, and Lauber and Knuth (1998) found common property concerns raised in debates over moose (*Alces alces*) reintroduction in New York. Beliefs about the fairness of a management strategy for various constituencies (including those not yet born) is not new; it represents the higher ground that has always been a core Forest Service legacy from the days of Roosevelt and Pinchot: "the greatest good for the greatest number for the longest time." Although subject to interpretation, the fairness position is also subject to a measure of objectivity and better able to withstand scrutiny by others (Sagoff 1988).

Choosing to base resource policy on either individual preferences or community values has considerable implications for how we structure public processes (Lauber and Knuth 1998). The latter involves methods to determine what people think is right and not merely what they prefer. Policy based on shared community values about fairness requires engaging all relevant parties in discourse about what is best for a particular setting (Sagoff 1988, Stankey 1995). Indeed, the public's idea of fairness includes the quality of decisionmaking procedures and opportunities for their participation (e.g., Lauber and Knuth 1997, Tuler and Webler 1999). In a well-documented assessment of citizen involvement, Lawrence et al. (1997) argue that judgments about procedural fairness influence not only the acceptability of and compliance with resulting policies but also how citizens feel about the decisionmakers. They concluded that regardless of the outcomes, inattention to norms about fairness will result in public disaffection. Overall, the fundamental principles of ecosystem management (i.e., integration of economic, ecological, and social imperatives; developing a shared vision; emphasis on ends and means) seem well suited to reducing the tension over fairness (Healy and Hennessey 1999). As a cooperative model, it has the potential to break down adversarial divisions among citizens as well as between managers and citizens.

Problem 2

Many citizens do not trust natural resource agencies and therefore do not support their decisions or the way those decisions are made.

There is little doubt that the overall acceptability of forest policies is strongly linked to how citizens view the sincerity and credibility of resource professionals and the agencies that use them. In evaluating public reaction to government initiatives, Ehrenhalt (1994: 6) puts the problem bluntly: "Nobody can fail to notice, in this decade, voters all over the country are looking for ways to inject themselves back into a government process that they feel the professional politicians have screwed up." It is really no surprise that governments are not widely regarded as credible or trustworthy these days. In a society that deeply distrusts experts and institutions, people are likely to regard their friends or important associates as more reliable sources of information, even if these sources have no particular expertise in the area being discussed (Jamieson 1994). Yaffee (1994), for example, attributes the failure to find a solution to the growing spotted owl controversy in the late 1980s to the pervasive lack of trust in the Forest Service's willingness or ability to implement policy in accord with the interests of stakeholders. Other researchers have observed that this failure to provide for an open and inclusive public consultation is a primary reason for distrust of agencies and has led to most court challenges of forest management plans (Brunson 1996a, Shindler 1998a). Over time, barriers have been built between the public and resource institutions that center on issues of trust, communication, and a general frustration with the bureaucracy, so much so that the Nation has become suspicious of institutions and politically driven processes (Cortner et al. 1996, Yaffee and Wondolleck 1997).

To complicate the relation between resource professionals and citizens, forest management has become not only complex but also "wicked" (Allen and Gould 1986). Wicked problems involve both environmental risk and value-based priorities, a combination requiring new ways of thinking. In these situations, trust and credibility in resource agencies are associated with perceptions of knowledge and expertise, openness and honesty, and concern and care (Peters et al. 1997). If acceptance of innovations in forest management is to be enhanced through public interaction, forestry professionals must be able to engage citizens through means seen as genuine and trustworthy. Trust is the central ingredient of working together effectively. Alternatively, mistrust is the dark heart of wicked problems (King 1993).

Research from forest and range communities (where most ecosystem management decisions are implemented) confirms the importance of a genuine participation process in building trustworthy relations. In comparing cases from the United States and Australia, Moore (1995) notes the importance of trust in both personnel and organizations. She found that trust in individuals most often derives from interpersonal attributes, such as honesty and reciprocity, that foster productive planning environments. Organizational trust stems from decision processes the participants perceive as fair. Subsequently, Shindler and Aldred-Cheek (1999) conducted an extensive examination of citizen-agency interactions and concluded that effective, trustworthy relations could be organized around six common factors: (1) inclusiveness, (2) sincere leadership, (3) innovative and flexible methods, (4) early commitment and continuity, (5) sound organizational and planning skills, and (6) efforts that result in action. In one example, the authors illustrate how having good scientific data is not a new idea; but when managers invited citizens to help analyze information to

form new alternatives, new knowledge, and new solutions, outcomes were more credible and relations were strengthened. Across all cases, interactions between even the most strongly opposed groups tended to soften as people, over time, got to know others around the table and realized their personal concerns were often common concerns. The key to finding acceptable solutions is in this genuine dialogue and real listening that occurs when people begin to discuss problems, lay out the range of options, and eventually see patterns in their interactions (King 1993). Stakeholders repeatedly say that developing trust is more likely when resource professionals articulate their reasons for involving the public and then make good on their commitments (Shindler and Aldred-Cheek 1999).

Across the United States, researchers consistently have found high levels of public distrust of federal forest and rangeland managers, which has led citizens to become leery of participation in agency ecosystem-based management programs (e.g., Hoover et al. 1997, Jacobson et al. 1996). Examples of specific concerns range from the adaptive management areas in the Pacific Northwest (places where forest agencies test new approaches for integration of ecological and social objectives, but where stakeholders believe managers have not lived up to the promise of more inclusive and more meaningful forms of public involvement¹) to the Greater Yellowstone region where Freemuth and Cawley (1997) contend that the paradigm of favoring technical factors over public deliberation has caused resource managers to pay lip service to social concerns.

Sorting out where pockets of trust and support exist is a more difficult task. From analysis of a series of opinion surveys, Steel et al. (1998) found that rural residents (particularly those who derive their income from timber) have a substantial degree of confidence in the Forest Service and the Bureau of Land Management (BLM); however, these same individuals demonstrate little support for ecosystem management. Alternatively, people most likely to hold positive opinions about ecosystem management (urban residents, more highly educated, younger cohorts) are least likely to trust the land management agency (Forest Service, BLM) most closely responsible for implementing it.

Confounding the problem is that different stakeholders place greater trust in different parties in a controversy. This is reflected in differences between personal trust and institutional trust. Shindler (2000), for example, found that many citizens have a personal relation with local resource managers ("I trust Joe to do the right thing"), but they are skeptical of the larger organization's motives ("I don't trust the agency to let Joe do his job"). Similarly, local people also are skeptical of frequent personnel changes in an agency; residents in forest communities report frustration over the "revolving door" and with having to "break in" yet another district ranger or management specialist (Shindler et al. 1994). Moreover, local and national perspectives are sometimes in apparent conflict. National organizations (e.g., Sierra Club) frequently opt out of local discussions and even have attempted to squash community-based planning (sometimes when the local chapter favors involvement) because it is viewed as a threat to the group's national agenda (McClosky 1991). Individuals who view nature as fragile, and therefore focus their attention on environmental risks, tend to

¹Stankey, G.H.; Bormann, B.T.; Ryan, C. [et al.]. 2002. Learning to learn: adaptive management and the Northwest Forest Plan. Unpublished report. On file with: G.H. Stankey.

trust traditional institutions less than they trust citizen groups (Dake and Wildavsky 1991, Steel et al. 1998). Environmentalists are less likely than other groups to accept information from forestry agencies, particularly when it is intended to promote manipulative approaches to restoring natural conditions (i.e., through prescribed fire or mechanical thinning rather than “letting nature heal itself”). Achieving broad-scale trust across groups for agency actions may mean major organizational changes at the national level. In the meantime, building trustworthy relations may be most realistic at the forest or ranger district level, essentially “places where the war won’t be won or lost” (Shindler and Neburka 1997).

Collaborative planning and management processes often are espoused as ways to improve information flow, and to engender trust, because stakeholders no longer can depersonalize those with whom they disagree. We recognize that assessments of collaborative processes for environmental issues are not definitive; e.g., Kenney (2000: 11) argues that the case in favor of collaboration often is based on a negative assertion (“traditional means of management and problem-solving do not work”) rather than on a reasoned endorsement of the merits of such approaches. Regardless, collaborative efforts generally are viewed as stimulating a greater atmosphere of trust because decision processes theoretically become more transparent to citizen observers. This view is consistent with theories of procedural justice (Lawrence et al. 1997, Tyler 1989) whereby people who participate in rule making are more likely to accept unfavorable outcomes based on those rules. In the United States, the issue may not necessarily be whether all groups are represented, but rather whether those affected by or interested in the outcome of a decision are given the opportunity to participate. For example, citizens report that they do not have to have as much say as others (who may claim a larger stake in the outcomes), so long as they feel they have had a legitimate chance to participate (Richardson 1998).

Deliberations in 1998-99 of a committee of scientists, appointed by the Forest Service to assess the agency’s planning processes, placed much heavier emphasis than before on collaboration with constituency groups (Johnson et al. 1999). Because the agency has had little experience with collaboration—and indeed has been actively discouraged from doing so through judicial interpretations of laws such as the Federal Advisory Committee Act (1972)—it lacks the institutional structures, interpersonal skills, and reward systems needed to make collaboration most effective (Cortner et al. 1996, Stankey and Shindler 1997). Brunson (1998) argues that cross-jurisdictional stewardship requires institutions that can balance needs of all participants to achieve common goals while protecting territorial self-interest. It is unclear what those institutional structures will be, but the research discussed here provides some basic components.

One overriding factor is the organizational capacity of the forest management agencies. Cortner et al. (1996) undertook a critical review of these institutions and their ability to respond to ecosystem-based management in the face of growing public dissatisfaction with resource policies. The authors’ central premise was that to maintain productive ecological systems, the agencies need to be complex and adaptive rather than hierarchical and rigid. Danter et al. (2000) also argue that agencies need to adopt internal activities that support organizational change; e.g., improved communication strategies that reflect leadership capacity instead of management function will be essential. There is general recognition among social scientists and practitioners

that more meaningful, more open public dialogue is integral to achieving social and political acceptance of forest practices (Bengston 1994, Clark and Stankey 1991). But merely saying that your organization has a commitment to people is not enough: governments make such promises all the time, and citizens rarely believe any of it. Most of the time, people will dismiss a new initiative as simply another platitude. In these cases, Behn (1997) argues, bureaucratic leaders first have to convince their own employees that the organization is serious—a tall order, given the institutional barriers of working within federal natural resource agencies (Cortner et al. 1996).

From their studies of citizen-agency interactions, Shindler and Neburka (1997: 19) found a common message for managers about trust building: “Basic organizational skills, attention to detail, commitment to constituents, and good leadership—all things people normally expect from our forest resource agencies—often mean the difference between success and frustration.” In the long term, building trust with stakeholders most often will come through the interaction process, particularly when people are able to see their own ideas and concerns given consideration. As Shands (1992: 364) observed:

For public agencies, the real product of planning is not the plan, but an enduring relationship with the agency’s constituents, clients, and customers. Properly done, the benefits of public involvement will continue long after a plan is complete or the decision is made.

Legitimizing citizen's interactions with agencies seems essential in building trusting relations, but people also expect that managers can actually produce once information is generated and recommendations are made. In evaluating the prospects for overcoming such barriers for national forest management, Jamieson (1994: 27-28) characterized the problem:

Competence needs to be developed both within the Forest Service and in the communities with which the Forest Service enters into dialogue. In the bad old days there was a tendency for government agencies to dictate policy to citizens. These days there is a tendency for citizens to try to dictate policy to government agencies. There is an admission price for engaging in a public dialogue. Part of the price is purely formal: to treat others with respect, to be sympathetic to alternative points of view, to strive for impartiality, and so on. Part of the admission price also involves knowing something substantive about the issues: the relevant science, the economics, the values and interests that are at stake, and so on. People do not come with a ready-made ability to engage in a constructive, deliberative dialogue. The Forest Service should do what it can to develop its own competence, but it also should contribute to developing the competence of those with whom it engages. Only then will the turn towards public participation be mutually educational.

Behn (1997) may have best summed up the competency issue: “In this age of citizen cynicism, having a reputation for knowing how to run the place is a prerequisite for actually doing it. To accomplish anything, public agencies first need a reputation for competence.” Finally, this collective research also suggests a fundamental premise about social acceptability: it is not a static concept that simply embodies enduring, monolithic stances but reflects perspectives that can change in response to a host of variables.

Problem 3

Adequate attention has not been given to all contextual aspects—spatial, temporal, and social—when evaluating acceptability practices and resource conditions. For example, the uniqueness of a place and its meaning is particularly important for citizens, but prescriptive one-size-fits-all policies ignore most contextual circumstances.

In one form or another, every problem discussed in this analysis involves “context.” In the lexicon of resource professionals, particularly those with a biological or technical background, the term “scale” is used more frequently—as in how ecosystem management is about planning at the landscape scale—and usually includes only a spatial or temporal orientation. However, social scientists frequently use the term “context,” not only because it is more inclusive and perhaps a more intuitive term for the broader public, but also because it conveys that there is meaning in each set of spatial, temporal, or social conditions. It is this contextual meaning that often goes unexamined in attempts to design ecosystem-based strategies.

The importance of contextual considerations is in acknowledging that practices and conditions acceptable in one situation will not necessarily be acceptable in another. We usually examine context because it illuminates a particular set of circumstances, as well as associated opportunities or constraints. Even when a management problem is the same as that encountered elsewhere, the circumstances under which a particular event occurs, or a decision is made, can greatly influence acceptance locally. Recognition of context may help managers address the tension that exists between uniformity and idiosyncrasy. This reflects the notion that there is stability in doing the things we know “work” vs. trying new approaches or experimentation.

A second reason to pay attention to context is that additional factors may be revealed that at first did not seem relevant or important. For example, no agency planning process starts with a clean slate; without adequate reflection, it is easy to overlook that every Forest Service management unit has a history linked to its own particular pattern of forest practices, to surrounding communities, and to a legacy of decisions. We also examine contextual conditions from one setting to another because this adds to a body of knowledge that can help provide a frame of reference for new problems. Our understanding of context is a cumulative process most often built on previous situations (Magnuson 1990). Finally, because context is about an identifiable place, event, or action, paying attention to these features helps us understand peoples’ motivations and the relevance of agency activities.

Spatial context—From the problem statement, we recognize at least three types of context are important. The first, spatial context (often the primary focus of landscape management), is usually about large areas (e.g., watersheds) where management programs such as sustainable forestry or restoration ecology are imposed. Difficulties arise from operating within this landscape-scale context when agencies attempt to address problems with one-size-fits-all policies. Swanson and Sparks (1990) argue that unless a site’s spatial context (e.g., its location within a region, its function within the larger natural system) is taken into account, the significance of management programs and scientific findings within the ecosystem can be difficult to interpret. As geomorphologists, their perspective was a biophysical one, but the same can be said from the sociopolitical perspective. Citizens often have difficulty identifying with large landscape designations; their orientation is usually to particular places that have meaning for their family or their community (Stankey and Shindler 1997).

From a social acceptability standpoint, the central problem with spatial context is that natural resource management agencies have adopted regulatory and legal processes for assigning intangible meanings to landscapes, an approach that frequently ignores the uniqueness of places within these designations and the affected groups (Williams and Patterson 1996). Agnew (1989) argues that place-based decisionmaking is a vital part of the social fabric but believes that the meaning of geographic characteristics is treated as if independent (or even nonexistent) from the social order. In terms of human geography, places are relational devices for enabling and embedding people's experiences within the context of their physical surroundings. Places are centers of meaning and affect how people (groups, communities) determine what objectives and actions are appropriate in that place (Williams and Patterson 1996). As such, constructing a "sense of place" offers resource professionals a way to anticipate, identify, and respond to the attachments people form with specific places (Williams and Stewart 1998). This view recognizes that society values natural resources in ways not easily or necessarily captured by more traditional measures, such as "yield" or "use." Contextual, place-specific interactions generate their own set of shared meanings for citizens and agencies that may be distinctly different from the broad "placeless" planning efforts that people often see in today's landscape-level approaches.

We acknowledge that there has been much emphasis recently in the social science literature on the importance of place. A potential shortcoming of using place meanings, however, is that they can be equated with whether a setting is special. We cannot discount the notion that many places are special to someone or some community for some reason, but Williams and Stewart (1998) argue that the feelings about uniqueness of places are what should be characterized; i.e., what gives places specialness is that they are unique in context: each has its own history, each has its own pattern of occupation and use, and each carries with it expectations about future uses. Treating a forest as merely a collection of trees, or even an ecosystem as a "functioning unit," denies its contextual relevance to others. Knowledge about the spatial characteristics of unique places, and of the people who tend to form such attachments, can be useful for managers hoping to identify where ecosystem management practices may be considered unacceptable (Williams and Stewart 1998, Williams et al. 1992). We also recognize, however, that it can be difficult for managers to identify which places carry a special meaning for local residents (Jakes et al. 1998) and which biological, geophysical, and social elements are most essential (Geyer and Shindler 1994).

Another potential constraint in giving credence to contextual considerations of place is the NIMBY syndrome. There is no denying that citizens take notice, with many becoming activists for the first time, when their personal uses of place are at stake. Managers often think of NIMBY as local carping about decisions that did not go someone's way (Williams and Stewart 1998); however, negative reactions also may reflect unhappiness with a planning process that was essentially placeless because it did not take into account particular locations, and thus largely precluded local involvement in the decision (Williams and Matheny 1995). Local communities usually are not involved in federal policies about toxic waste siting, for example, but these decisions eventually play out in real locations.

Other examples point out that the public's approval in principle of "environmentally friendly" practices does not necessarily translate to blanket approval of their application at any location. Although education about the beneficial effects of fire produces more favorable attitudes overall, it has not led to acceptability of prescribed fire in many recreation areas (Taylor and Daniel 1984). Similarly, citizens are less likely to support timber harvesting on public than on private lands (e.g., Bliss et al. 1994, Tarrant et al. 1997). Additionally, the spatial context is not simply a matter of NIMBY self-interest. How people feel about the distribution of conditions within a specific area can affect acceptability. Citizens may be generally receptive of a sustainable forestry practice, such as a thinning treatment, but be against it in locations that they feel are already too heavily harvested (Stankey 1995). Many opponents of forest decisions are individuals with no backyard or who have no personal stake in the outcome beyond its lack of consonance with their ideals. Unless acknowledged, such reactions may contribute to the growing pattern of NIABY (not in anyone's backyard) responses.

Temporal context—A second contextual influence is the temporal dimension of natural resource decisions. For most of the 20th century, the temporal context of decisions was not of much concern to the public. Although forests have more recently begun to be viewed as finite, it is still difficult for most citizens to understand ecological processes (i.e., succession, natural disturbance) and sort through what management practices may mean for the long term. Similarly, Magnuson (1990) argues that because most research is not longitudinal in nature, it simply produces "snapshots" in time of resource conditions. He describes what currently is known about ecosystems as being in the "invisible present," where there is a tendency to think of the world as static and thus underestimate the degree of change occurring. When resource professionals are unable directly to sense slow ecological changes and in turn are unable to interpret their cause-and-effect relations, serious misjudgments can occur in attempts to manage environment. The Forest Service, in particular, has come under fire for a lack of monitoring and institutional memory about the systems it manages (Cortner et al. 1998).

Temporal context frequently is incorporated into discussions of the biophysical dimension of ecosystem management (e.g., Brunson et al. 1996c, McCarter et al. 1998) but is less frequently part of discussions of the social dimension. Do acceptability judgments differ depending on how gradual the intended changes in condition might be? Do they differ with the length of time needed to recover if a planned intervention doesn't work? Answers to such questions can be valuable in analyzing tradeoffs among ecosystem management alternatives. This may be particularly important as fire managers attempt to implement a range of fuels reduction treatments in fire-prone communities. Some of these treatments are more risk-free than others (understory mowing vs. prescribed fire) and some probably are less controversial, but their effectiveness over time is not well documented.

Social context—A third category of contextual influence is the social environment, particularly the social processes described in problem 1. The sociopolitical environment surrounding any natural resource problem is complex, meaning that any decision will not be made in a contextual vacuum. Instead, it will be made among a community of players that includes agency personnel (often at the ranger district or forest level), interest groups, and concerned individuals, many of whom have a

history together. This contextual culture, formed by many interactions, will strongly influence the alternatives considered and the acceptability of the outcomes. Over time, these interactions also determine how people feel about the ability of decision-makers to seriously consider the full range of contextual consequences and, ultimately, how much they trust the decisionmakers.

The reality of resource managers having to consult with industry, environmental, woodworker, and homeowner groups makes the task of gaining acceptance more complicated. The sociopolitical context of forestry decisions is now so polarized that any new initiative, such as ecosystem management, will be viewed with suspicion and likely will elicit predictable responses from groups on all sides of the debate. This is particularly evident in the often stiff, controlled Forest Service meetings with citizens, such as issue-scoping or information-sharing sessions, where traditional reactions to bureaucratic proposals tend to be reinforced (Cortner et al. 1998). Not only do people align with their reference group in these settings, but the agency also represents a single, easy target for all groups; these situations frequently evolve into "us vs. them." Carroll (1989), for example, suggests that a negative view of the Forest Service is an important unifying theme at meetings for groups like loggers. Discussions of forest management are invariably on Forest Service turf, at least in the Western United States, and the dynamics of reference group behavior may result in less acceptance by loggers (or environmental activists, for that matter).

Formal Forest Service meetings also can reinforce traditional reactions to government proposals, because planning participants are asked to publicly voice their opinions in front of others who are often the most vocal advocates of partisan positions on forest management issues. In such situations, the social cost of going against a "correct" opinion may be too great; e.g., Brandenburg and Carroll (1995) found that people voice different judgments in a public setting than they do in a private one. Brunson (1996a) notes that acceptability often is characterized as a product of individual judgments, but it is susceptible to group influences and provides an impetus for group behaviors. An individual may rationally decide that a practice or condition is acceptable, yet behave publicly as though it were unacceptable, because to do so reflects the image he or she wants to project to important others. Alternatively, a person may have no opinion but simply side with the views of an influential group (which also points out a weakness of traditional opinion research).

Another difficulty in understanding social context is that judgments are affected by the intended purpose or objective. Brunson and Shelby (1992), for example, found that the evaluations of alternative silvicultural treatments differed depending on whether the evaluators worked from an aesthetic perspective or a recreationist one. In other words, those attributes that contributed to scenic quality were not necessarily the same as those that contributed to the site's potential for a direct recreational use, such as hiking or camping. This is consistent with research by Shindler and Collson (1998), who found that negative assessments of harvested sites are not absolute; for some recreationists, such as hunters and berry pickers, harvested areas often are conducive to their chosen activity. The research on social acceptability is characterized by a recurrent finding that points to the site or activity-dependent nature of the evaluation. This "dependency" dimension of social context can confound any effort to find similarities and patterns, yet ways must be found to account for it in decision processes. Given the polarization characterizing many contemporary debates about natural resource decisions, it may be much more efficient to target reference groups (and use neutral meeting sites) to influence judgments of acceptable practices.

We tend to agree with Cortner et al. (1996: 26) who argue that “ecosystem management as a practice cannot be a blanket prescription levied only from the top down or the bottom up. Variation in biophysical, social, and economic characteristics of geographic areas must be respected.” Each agency unit (forest or ranger district) must be able to conduct experiments and develop management programs that reflect local concerns and conditions. Not only do one-size-fits-all policies ignore most contextual circumstances, they are becoming a source of frustration (and a reason for loss of credibility) in many forest communities (Shindler and Aldred-Cheek 1999). But this does not mean that it is simply a matter of managing ecosystems by applying more spatially and temporally sensitive practices. It is likely that the debate over the appropriateness of these decisions will continue. Another shortcoming of this approach is that it promotes a descriptive understanding of ecosystem management rather than a normative one. It needs to be recognized that ecosystem management is a process for reaching agreement on the importance of ecological functions and healthy forests. It is a process for analyzing contextual circumstances and clarifying normative commitments to managing forest resources.

Problem 4

The promise of ecosystem management suggests some balance can be reached among multiple (and often competing) resource objectives. But attempting to achieve multiple objectives increases the difficulty of finding acceptable strategies.

Although few people can define what a sustainable ecosystem is, most believe achieving these conditions is desirable. Many also believe it is possible to supply forest products and maintain the integrity of U.S. forests at the same time, particularly because forest agencies and industry have been extolling the virtues of sustainable, ecosystem-based management. Public expectations that managers can produce on the multiple benefits promise are real. People know what they want: clean water, clean air, a constant supply of affordable wood products, decent jobs, recreation sites, scenic vistas, and so on. The problem, of course, is that neither resource professionals nor politicians have done a good job of framing the choices, associated consequences, and tradeoffs required to achieve multiple benefits (Shindler and Brunson 1999). Too often, policy decisions are presented as single choices involving only yes or no answers that do not adequately reflect the costs involved: Shall we preserve wildlife habitat? protect old growth and salmon? reduce hazardous fuels? increase riparian buffers? And if we choose one or more of these options, How will it affect other values? Public acceptance of a balanced ecosystem-based approach is more likely when the multiple objectives philosophy can be spelled out and demonstrated across landscapes. Until then, citizens might be receptive to the idea of ecosystem management but will be waiting to see how well it works before making final judgments (Shindler et al. 1996).

Regardless, federal forest managers have been charged with the task of achieving multiple values through ecosystem management. But, as we mentioned previously, many of the problems in multiple resource forestry are considered "wicked," not just because they are complex but because, by their nature, they include moral and social issues that are decided on in the political arena (King 1993, Rittel and Webber 1973). Thus far, public stakeholders have had little input in this discussion, and they do not have much understanding of ecosystem management or what constitutes sustainable levels of forests under any set of objectives (Beckley 1998). Wicked problems will require reexamination of approaches to forest management that is likely to push

resource professionals beyond traditional (and comfortable) problem-solving strategies (Shindler and Cramer 1999); e.g., consideration of citizens' experiential, or "local" knowledge, as opposed to data-based knowledge, which has been the basis for scientific forestry, will not only be important for the quality of decisions but also for acceptance of those decisions.

Like public discussions thus far, the limited research in this area is not particularly focused. Findings continually indicate the general public's preferred forest management option is that middle ground, however problematic it may be to find, where multiple objectives can be achieved. In broad-based studies throughout the Northwest, Brunson et al. (1997) and Shindler et al. (1993, 1996) have asked people about the value of the environment vs. the importance of the economy. In every case, citizens overwhelmingly supported a balanced, ecologically responsible approach to forest management, with a majority siding slightly with the environment. Similar studies conducted in rural Alaska (Shindler and Collson 1998), Oregon,² and Tennessee (Bliss et al. 1994), areas traditionally timber-dependent, reveal that citizens continue to support sustainable timber harvesting but often believe that nontimber uses of forests are just as important as producing wood.

Public acceptance of conditions is likely to hinge on questions about feasible alternatives. Typically, agency decision systems have produced limited either-or choices. Ecosystem management, however, has been touted as embracing collaborative processes that seek compromise solutions based on a range of reasonable options and ultimately can be crafted into a plan for achieving multiple objectives. Public acceptance of this approach likely will depend on the ability of managers to identify and articulate compatible alternatives. Although citizens living near adaptive management areas (AMAs) in the United States and model forests in Canada initially supported proposed ecosystem-based concepts in general (including scientific experimentation with forest systems [Robinson et al. 1997, Shindler et al. 1996]), many were skeptical about the approach because of a lack of experience with these ideas. Four years later, the skepticism surrounding the AMAs has only increased because forest agencies have failed to demonstrate alternative practices and have not effectively engaged citizens in a discussion of such treatments (see footnote 1).

There may be times when multipurpose strategies can be a detriment to public acceptance; e.g., if a practice also improves profitability, some will applaud while others will claim that the measure was adopted solely to make money. Additional purposes can increase the chances of opposition because each new objective can have its naysayers. Similarly, problems arise when attempts are made to manage for multiple benefits in every location. Not every site can support the full range of forest values and this does not make sense to people who are familiar with the history and contextual capabilities of each setting.

National forests are not the only place where managing for multiple resources is considered legitimate. Brunson et al. (1996b) examined attitudes of nonindustrial private forest landowners in 11 states. A majority of respondents supported use of

² Davis and Hibbits. 1999. Oregonians discuss forest values, management goals, and related issues: executive summary of a public opinion research project for the Oregon Forest Resource Institute, Portland, OR. On file with: G.H. Stankey.

ecosystem management principles on both public and private lands, though they were more likely to say these practices should always be used in public forests than in private forests. When asked about different principles of ecosystem management, respondents were most likely to support greater attention to multiple spatial and temporal scales, formation of landscape-scale/multiagency partnerships, and a shift from single-species to ecosystem-level strategies to maintain biodiversity. This group was more ambivalent toward increased consideration of public opinion in resource management decisions, and this aspect of ecosystem management was felt to be inappropriate for private lands.

Although it would be easy to conclude that there is growing opposition to harvesting activities on public forests, it would be a mistake to think this is a blanket response of public acceptance of new management approaches. Timber production in some form is generally viewed as a legitimate use of forest land by all but the most extreme groups (Shindler and Collson 1998); however, it is clear that there is a desire for a different balance between commodity uses and noncommodity values in forests (see footnote 2). This view is shared by many scientists who have observed a shift in public values from the dominant (extraction based) paradigm to a new (more holistic) natural resource paradigm (e.g., Brown and Harris 1992, Dunlap 1992, Inglehart 1990). Now that it is known that a balanced approach is important to people, the problem becomes one of achieving multiple resource objectives. Solutions will not only be about which values to protect but also the process of how the alternatives are understood and decisions about implementing them are made (Shindler 2000). The trend toward multipurpose management is likely to continue unless such strategies prove entirely unworkable. And the nature of collaborative planning—assuming that it, too, continues to grow in importance—lends itself to the development of multipurpose strategies, because compromise is likely only if all participants are able to find some benefit in the outcomes of a proposed action.

Problem 5

The rational, technical-scientific decision model does not adequately incorporate public concerns; thus it is difficult to reach decisions that are acceptable to citizens.

Since the time of Gifford Pinchot and his emphasis on the use of science to guide forest management, most natural resource management problems have been considered as solvable through the use of science and technology. This reliance on what is often described as the “rational, technical-scientific” model of decisionmaking (e.g., see Wondolleck 1988) generally has served resource professionals well; it is what made systematic, informed management of our forests possible. Consistent with this model, forest agencies have adopted a value system that emphasizes technical expertise in managing natural resources; e.g., this value system is deeply ingrained in the types of educational programs supporting forestry and other natural resource programs (Brunson 1993). But even though application of this model, with its emphasis on technical and scientific knowledge, to resource management decisions is required, its capacity to address the value-based concerns that exist among a broad public is limited (Stankey and Shindler 1997). Several inherent flaws in this model account for the limited ability of the rational, technical-scientific model to address the “wicked problems” (Allen and Gould 1986) confronting natural resource management today.

Because the results of science are imbued with multiple meanings by decision-makers, rational explanations of environmental events are both central to and contested in management decisions. Various sources of ambiguity contribute to the conflict and confusion when both resource professionals and members of the public look to science for definitive, unequivocal answers. One source of such ambiguity is the very rhetoric of science that can convey the impression, especially to nonscientists, that research is objective, unbiased, and the source of ultimate truth (Wynne 1987). Such rhetoric reinforces popular myths that science is the source of “usable nuggets” of solid, undisputed facts (Ravetz 1987). This also implies only one answer for any question and if it isn’t known now, it will be eventually. Experts, so this myth claims, can agree on what is true and what is not. The resolution to confounding natural resource management problems is to be found in the facts themselves; when “scientists disagree, then one of them must have lied or made a mistake” (Mazur 1981: 10).

Another limiting factor is the “criterion of adequacy” (Clark and Majone 1985: 12), which argues that science as it is currently practiced is simply unable to provide answers to urgent problems. Often “better” (or more) science is called for by decisionmakers based on the belief that objective science will produce the truth; moreover, this truth will unequivocally inform everyone on the appropriate political solutions. These beliefs often are constrained by the reality that the needed information is unavailable or cannot be produced in time to meet decision deadlines. Wienberg (1972) describes such issues as transcendent; i.e., problems that can be stated in scientific terms but cannot be resolved scientifically. Such problems are, at their core, questions of competing values and conflicting social and political choices.

Earlier, in our discussion of problem 2, we mentioned the role that trust (or more correctly, the lack of trust) plays in the process of achieving socially acceptable decisions. This factor also influences the extent to which scientific and expert judgments about ecosystem management are taken into account by the public. When people hear experts provide different answers to the same question, it is not surprising that many will disbelieve them all (Brunson 1993). This situation is exacerbated when citizens see politicians use science to defend and rationalize any decision that furthers their particular interest (Caplan et al. 1975, Lindbloom 1990). Newspaper accounts of natural resource issues are replete with passages decrying the influence of “junk science” and the lack of “sound science,” which are often code words for dismissing science that refutes, or fails to support, a particular self-interest.

There is a particularly detrimental, even insidious, form of distrust that challenges the dominance of and reliance on the technical-rational model; as Earman (1996: 18) describes it, “Many people hold views that run counter to scientific belief, and often, due to their lack of scientific knowledge, or the belief that many environmental atrocities have been the direct result of science, they tend not to trust scientists, whom they believe have damaged their world.” The role of science and scientists, from the creation of the atom bomb to the emerging technology of genetic engineering, is perceived to confirm the image of a 1950s grade B science fiction movie, with the unconstrained pursuit of scientific accomplishment irrespective of its consequences for people and society.

Today, the stakes of natural resource management are sufficiently high to focus intense public scrutiny and criticism on all aspects of scientific efforts. Collingridge and Reeve (1986) argue that policy decisions based primarily on a scientific model are doomed, because the culture of science is uniquely unsuited to the policy and management arenas, especially in contentious value-based debates. Improved models that lead to informed decisions and, ultimately, improved resource conditions will require an increased sensitivity to the social, normative nature of the underlying questions (Stankey and Shindler 1997).

We must recognize that knowledge about particular places and systems is held by many individuals, not just managers and scientists (Lang 1990). This knowledge is acquired not only through scientific inquiry but also from the various interactions between people and the places in which they live, work, and recreate. Even though this personal, experiential knowledge can add rich insight and understanding about natural resources (Friedmann 1987), incorporating it into formalized organized models, including those governing scientific inquiry, often is difficult. Such knowledge typically is discounted, demeaned, or rejected outright, in large part because it neither conforms to the conventional models of scientific analysis (e.g., quantitative models) nor fits the conventional molds of scientific investigation (e.g., hypothesis testing). The irony here is that by rejecting such knowledge, scientists can unwittingly jeopardize the very conditions they seek; i.e., incorporation of the best state of knowledge into the decisionmaking process. They do this in two ways: first, by ignoring important sources of knowledge and information held by others, and second, by exacerbating suspicions and distrust about the scientific process (e.g., feeding suspicions about the “black box” approach to decisionmaking), thereby reducing the social acceptability of their information, irrespective of its inherent validity or reliability. As Westley (1995) argues, an inability to pick up on stimuli signaling fundamental environmental changes (whatever the source or nature) reduces the capacity of an organization to respond effectively to new demands on the system. Alternatively, when we unburden ourselves from the narrow focus on technical information, we are more likely to identify shifts in resource uses, changes, and responses. One benefit of assigning credibility to a wider spectrum of experience and knowledge would appear to be an enhanced social acceptability of decisions based on such knowledge (Mackinson and Nottesad 1998).

Problem 6

Efforts to maintain or achieve natural conditions are confounded by a wide range of perceptions about what “natural conditions” might be.

Ours is a culture in which “natural” is desirable, or at least acts deriving from nature are forgivable. One reason why natural conditions or causes may be acceptable, even to those who do not believe that nature knows best, is that natural forces are generally thought to be unforeseeable, unpreventable, and largely inevitable. No option to accept or reject is offered, thus the consequences lie outside the realm of judgments. But even this point of view has become arguable. Floods, for example, are no longer always seen as “acts of God,” but instead as the possible result of mismanagement or even global warming. Regardless, the quest for natural forest conditions is at the forefront of U.S. public land management policies.

After nearly 300 years of manipulation, what is perceived to be natural about U.S. forests is not necessarily what is natural, and a lack of scientific consensus about what constitutes natural conditions only contributes to the problem. Further, different world views, particularly “myths of nature,” underlie debates about how natural settings might be managed. Schwarz and Thompson (1990) point out that people see nature in fundamentally different ways; some see nature as perilously fragile (humans should impact Earth as little as possible) and others view it as perpetually resistant (Earth will “fix” itself) and therefore what individuals do does not matter. More moderate viewpoints suggest nature is resilient but only to a point. The diversity and validity of these plural perspectives only reinforce the necessity to act collaboratively (Stankey and Shindler 1997).

Approaches that attempt to pinpoint one historical era (e.g., presettlement or turn-of-the-20th-century forests) on which to base or standardize ecosystem management practices seem fruitless. Surely today’s forests are not the same ones that Native Americans once knew, and scholars cannot agree on the extent to which conditions immediately prior to Euro-American settlement were natural as opposed to human caused (Kay 1997). In any case, such thinking tends to discount human ecology; e.g., perceptions of forest conditions have been altered by long-held Forest Service policies, such as the 100-year-old view about extinguishing all fires. Fire suppression has affected forests in all Western States, thereby causing severe consequences for forest health, and scientists are just beginning to determine how people feel about these types of “natural” conditions. The real issue here is the extent of agreement and understanding of differing standards of naturalness and not their use as definitive truth. Williams and Stewart (1998) argue that an ecosystem is simply a social construct and thus ecosystem management is also a social construct. If we accept this as true, the problem then becomes one of agreeing on what our “natural” forests should look like—what the Forest Service calls desired future conditions—and which essential ecological components their management should be based on.

Research has shown that what is perceived to be natural is not necessarily what is natural. Forest settings people believe to be most natural tend to be those having the greatest amount of vegetative diversity and thus are the most attractive (Lamb and Purcell 1990). The natural condition may not be acceptable. Examples can be found in residential subdivisions at the urban fringe where reintroduction of low-intensity fires to reduce fuel loads by managers of adjacent public lands typically meets with public resistance. Brunson (1995) suggests that, in such cases, managers could choose to maintain a condition outside the range of natural variation in the short term and use environmental education strategies to increase the likelihood that efforts to reduce understory densities will become acceptable to most residents. One mechanism for introducing these ideas to the public is through demonstration projects as in Oregon, Washington, and other Western States. Coupling information with exposure of community members to prescribed fire demonstration sites close to populated areas has proven useful (Reed 1998). The Deschutes National Forest (Oregon) and a private industrial timber firm have jointly conducted citizen tours on the company’s forest land to demonstrate the application of alternative silvicultural treatments for similar purposes.

Because Americans often believe that natural is better, ecosystem management seeks to bring existing conditions full circle. Forest managers now are attempting to mimic natural conditions, sometimes with techniques from restoration ecology, by reintroducing fire or using silviculture treatments that look like small, natural disturbances (e.g., Mutch et al. 1993). Preliminary research suggests that public reaction to such treatments is generally favorable (Brunson and Shelby 1992); however, not everyone accepts this approach. In their evaluation of adaptive management in the Northwest, Stankey and Shindler (1997) note that some groups see these strategies not as mimicry but as “business as usual” by federal forest agencies and a contrived rationale for continuing the harvest agenda. Thus, the issue is not merely one of visual quality. In any case, the natural-is-better argument has been confounded by historical management activity in forests and, more recently, by public scrutiny of agency intentions. Although natural forests are more acceptable, how those conditions are achieved is subject to debate.

Restoration ecology practices may produce individual stands that are judged more or less attractive than other areas where timber harvesting takes place, but overall the results are meant to be judged at the landscape rather than the stand level. Asking the public to evaluate conditions at this scale presents additional problems; for most people, it does not represent an intuitive or familiar frame of reference (Geyer and Shindler 1994). An additional problem is that “natural disturbances” come in shades of gray; e.g., recent mudslides in the Pacific Northwest (one resulting in multiple deaths) are controversial because their origin is being debated. Public acceptance of what once was considered naturally occurring phenomena will no doubt hinge on whether they are perceived as human induced (e.g., from clearcutting) or as random acts of nature (Brunson 1996a).

Another twist on the natural-is-better idea has occurred in some areas of the West where people are reacting to overstocked, deteriorating forest stands created by human exclusion of natural fire. For generations, Smokey Bear decreed that suppressing any forest fire was “normal”; now foresters tell people such stands are not “natural” and that managers need to intervene to return the balance in nature. As with other practices, information about the ecological basis for such practices seems to increase the acceptability of stands managed in this way (Brunson and Reiter 1996, Ribe 1989). Public reactions to increased amounts of smoke and diminished air quality from more aggressive use of prescribed fire are yet to be accounted for, however. Overall acceptance of a condition may depend on judgments about both the practice that created it and how people feel about the management objective behind it.

Additional research can help improve understanding of the complexities of managing for natural conditions. Factors leading to judgments that a condition is “natural” need further exploration. To what extent are judgments based on aesthetic criteria rather than those that can be influenced by further knowledge about forest ecology? When this is known, it then may be possible, as Gobster (1996) suggests, to promote widespread adoption of an “ecological aesthetic” that would be more reflective of North American ecotypes than the naturalistic, human-influenced “scenic aesthetic” predominating in American culture today. Under what conditions can citizens accept that active manipulation by humans (ecosystem-based management) can restore conditions that are more “natural” than those occurring without human intervention? No doubt part of the answer lies in the problems discussed in this analysis. Resolving

issues of public trust in agencies, questions about risk, knowledge of alternative treatments, attention to context, and an inclusive process for discussing options, all will contribute to reaching an acceptable desired future condition. Ways must be found to discuss the options with a public uneasy about new or different approaches to forest management.

Problem 7

Natural resource management involves much uncertainty about how systems work as well as a degree of risk in their implementation. Few places exist where discussions can occur to help people understand the risks, allow them to weigh the tradeoffs, and thus increase the acceptability of management approaches.

Because ecosystem management implies uncertainty and unpredictability, public perceptions invoke questions about the risks involved. Logically, the greater the risk (or the greater the uncertainty about risk potential), the less acceptable a practice will be. We noted earlier that judgments about acceptable conditions are the result of some comparative process. Risk often is related to questions about the feasibility of practices and the equitability of outcomes (Brunson 1996a). With ecosystem management, the feasibility of many practices is not yet known; the condition a treatment will produce in 40 or 50 years might be predictable, but there is little experimental evidence. The equity issue can be equally far reaching—consequences will be borne by generations who had no opportunity to help determine (or prevent) the outcome.

Problems involving risk and uncertainty are complicated by ambiguities. From the public viewpoint, mere uncertainty about an issue often turns into worry over the risk of outcomes. For forest ecosystems, fear over uncertainty is aggravated by an equal level of concern about the potential for and the consequences of mistakes (Clark et al. 1999). The worry is that mistakes may not only be costly but also irreversible. Treating all uncertainty as risk is problematic. Conversely, some scientists do not acknowledge uncertainty; they maintain the pervasive notion that every problem in society has an answer, and thus, there is no risk that cannot be explained. Fischhoff et al. (1981) describe this dilemma as the values of the evaluators intertwined with the facts of each alternative. By not treating all uncertainty as risk, however, the ambiguities can begin to be sorted out; e.g., resource professionals often struggle over how to define an ecosystem problem: which facts are most relevant, whose values are to be represented (and how to elicit them), and how to account for the inevitable fallibility of (science) experts. Such an approach helps to come to terms with the idea that resource professionals do not know all the answers and that we need methods for reaching agreement on “acceptable risk.”

Among factors Fischhoff et al. (1981) cite as affecting perceptions of risk are (1) the nature and consequences of making an error, (2) the extent to which consequences are localized, (3) the length of time before consequences are known, (4) the length of time required to recover from error, and (5) the irreversibility of erroneous decisions. One view is that evaluations of risk are made at the individual level, the community level, and even the generational level (Steelman and Carmin 1998); e.g., if we do not know the risks involved, many would prefer not to obligate our children or grandchildren to find out the hard way (Brunson 1996d). Alternatively, the public’s attention to problems may simply be a matter of how serious, certain, and soon the risk will be.

Public perceptions and a basic level of understanding seem essential to addressing risk. This will involve having alternatives to compare, being sure that people possess adequate knowledge of these alternatives, and because agencies have a role in shaping assessments, having a mechanism to govern the evaluation process. If natural resources are to be managed through a system of informed governance, public opinion must be acknowledged to be most meaningful and useful when people have some insight into more than one side of the question (Ehrenhalt 1994). Merely asking people if they want wildfires suppressed (or fewer timber sales or clean drinking water) does not bring agencies much closer to solving resource concerns; one could easily predict the response to such questions. And the problem is not that opinion pollsters are wrong or that people are stupid. Public responses lack meaning because no real choice was offered or considered; people are missing pieces of the puzzle. Yankelovich (1991) warns of the tendency to use mass public opinion, a term he uses to describe poor-quality opinion research where, in part, people fail to or are not given the opportunity to take the consequences of their views into account. Instead, he argues for content-based public opinion in which an effort is made to truly understand public judgments formed when people think about and struggle with an issue, an "approach that presents people with the consequences of their views and then measures their reactions" (Yankelovich 1991: 43). Collectively, these ideas underscore the importance of building a scientific literacy among a lay public that influences forest policy decisions.

Research from forest communities has shown the role of improved information. A well-known example involves the use of fire in managed forests. The tradition of fire suppression on public lands in the United States has enjoyed broad-scale public support for generations, largely from messages by Smokey Bear. Analyses of attitude surveys since 1976 have shown, however, steady support for the use of manager-ignited fires (e.g., Bliss et al. 1994, Brunson 1996b, Shelby and Speaker 1990, Shindler and Reed 1996) and for letting natural fires burn (Brunson 1996b, Manfredo et al. 1990). A central theme in these studies is that the more people understand about the use of fire and the diminished risk from using prescribed fire versus the high risk of catastrophic wildfire, the more acceptable these practices become. Attitude change about managed fire has been well documented, but other practices have begun to be studied as well. Evidence comes from Bliss et al. (1994), who found that support for clearcutting doubles when respondents are simply assured by managers that trees will grow back in the harvest units. Similarly, Ribe's (1999) studies of public responses to new ecosystem-based harvests vs. more traditional ones showed that detailed descriptions of the Forest Service's ecosystem strategies made the former more acceptable to people.

Even with the wholesale move to ecosystem management on national forests, people still are reticent to express support for new or different management practices (Shindler et al. 1996). Each individual practice carries with it uncertainty and embodies a different type of risk. Introducing fire into a system is probably a short-term (although potentially high-level) risk because outcomes become evident rather quickly; the fire is out, risk to private property is gone, smoke dissipates, even "green up" occurs within a year or two. But harvest treatments probably are longer term risks because they require considerably more time to evaluate; many years can pass between a decision to thin a stand, some level of recovery, and full recognition of the consequences. Other, less intensive treatments currently being introduced to help

reduce public concern over forest fire risks (e.g., mowing, crushing, grazing, restoration planting) may be more palatable, but their long-term effectiveness is debatable. One additional and important risk factor is the degree to which citizens trust resource professionals to actually implement the described practices successfully. This has been compounded recently by the growing dichotomy of credibility among large agencies and their locally based management units. Citizens are now frequently expressing trust in their local forest managers (i.e., at the district or forest level) but are worried that the larger, politically driven agency (based in Washington, DC) will not allow those managers to do their jobs (Shindler and O'Brian 1998).

Some of the uncertainty problems might be mitigated by forest agencies making more serious attempts at adaptive management approaches. They could begin by organizing serious multidisciplinary discussions; i.e., ongoing events for exploring all aspects of ecosystem management, including risks and failures. Brunson (1996d: 121) argues that "a critical element in addressing all 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." One caveat, however, is the danger of providing information without proper context. The Environmental Protection Agency, for example, has taken "the public's right to know" as sacred doctrine and has begun flooding the electronic airwaves with data and information about toxic chemicals. It does not matter if extremely small emissions of a compound do not really threaten public health, just listing it as toxic "is the regulatory equivalent of giving the chemical a scarlet letter" (Arrandale 1999). An analogous issue in forestry might be smoke management. The issue is so contentious today that the tendency is to trigger a media inquisition or prompt politicians to overreact about public fears over a "problem" without adequate attention to the contextual perspective. Such scenarios only reinforce the need for forums to openly discuss and interpret forest information, practices, and conditions.

This will mean that agencies must be more forthcoming about difficult decisions and the choices involved. Traditionally, managers have been susceptible to risk aversion, an inability to admit failure, and the perceived threats of existing interests (Walters 1997). They usually have preferred one-way means of communication that have allowed them to control the flow and content of information. Instead, more open, interactive exchanges among managers, scientists, and the public may be useful for evaluating potential scenarios prior to policy changes. Any such approach must consider that much of current society is poorly equipped to contribute to long-term decisions. Even ecosystem language (particularly agency jargon) is without context for most individuals (Brunson 1992). Any interactive approach will need to help people sort through the ambiguities surrounding ecosystem-based problems (Geyer and Shindler 1994). Natural resource conditions and policies are more meaningful when people can equate them to local problems such as a familiar tree or fish species and place them at recognizable rangelands or forest recreation sites. These problems then will become genuine social concerns because of the affect on peoples' livelihood and quality of life.

Problem 8

Confusing the provision of information with increased public understanding, and ultimately with public acceptance, is a mistake. Information alone is rarely sufficient to produce change. Public understanding is based on various factors wrapped in the context of personal experience.

Natural resource agencies often think their job is to develop information and deliver it to the public. And too often these days, we hear the lament of frustrated forestry professionals who say, "If we could just educate people and inform them about what we do, then they would understand and support us." Confusing information provision with understanding, and ultimately acceptance, is a mistake, however. There is much rhetoric about the need for improved information; although good knowledge is essential to any public communication strategy, it is not sufficient.

Brunson (1993) notes that public education programs must be tailored to specific, desired audiences. Although resource professionals recently have expanded their outreach efforts to include more public meetings, newsletters, brochures, field trips, and so on, most efforts continue to be unidirectional communication devices where the attempt is to "educate" people about agency programs (Brunson 1992, Cortner et al. 1998, Shindler and Neburka 1997). It is unlikely that people's judgments will change solely on the basis of technical enlightenment (Stankey 1996), because judgments are formed from many factors in addition to scientific information. People initially are likely to rely on visual references obtained through personal experience and interpreted through previous experience. This is not to suggest that scientific input is not necessary or useful in an individual's decisionmaking process, but that how and why information is presented is just as important. Substantial research (e.g., Shindler et al. 1994, Yaffee and Wondolleck 1997) indicates that any new practice is more likely to be accepted if the public understands the rationale for it, if they have been genuinely engaged in a questioning process (preferably before implementation), and if they recognize the potential outcomes. Jamieson (1994: 26) saw the need for more meaningful forms of communication as a way to truly understand people's concerns and to positively alter behavior patterns:

Generally programs that provide information are not very successful in improving understanding or changing behavior. Serious thought must be given to what it means to educate both the public and the policymaking community, as opposed to delivering brochures or reports. People tend to respond to stories, analogies, examples, and so on. Education is more likely to occur in the context of a personal relationship than in anonymous information-provision.

There is general consensus that people possess two types of knowledge: scientific and experiential (Wright 2000). Scientific knowledge, also called expert or technical knowledge, is generally learned and passed on through scientific research and formal education settings (DeWalt 1994, Kloppenburg 1991). Experiential knowledge, also known as local, tacit, traditional, or indigenous knowledge, is a more in-depth form based on personal observations and experiences (DeWalt 1994, Saint-Onge 1996). Dissanayake (1986) refers to this as "value knowledge"; it reflects beliefs and world-views and allows for choice among alternatives. Dissanayake (1986) articulates a third form, normative knowledge, which enables further evaluation of alternatives and helps provide a "standardizing function" (Buttolph and Doak 2000). Thus,

public judgments about any worldly condition or action will have various antecedents: personal experiences, social influences from childhood onward (including education, parental guidance, and other normative pressures), affective responses to a particular event, cognitive beliefs that may be based in fact or hearsay (or propaganda), and so on. We see no logical reason why acceptability judgments about forests would not be influenced by the same factors.

Researchers investigating natural resource problems report that people use both scientific information (Bitgood and Cleghorn 1995) and experiential learning (Kloppenborg 1991) in forming judgments. But even though adequate measures can be developed of how much scientific knowledge people possess, this may not tell us much about how the information is processed or connects with people's value systems. Consequently, a better understanding is needed of how all types of information are used and interpreted. Information delivery also seems to be important. In studies of citizen-agency interactions, Cortner et al. (1998) and Shindler and Neburka (1997) found that people do not respond well to traditional agency information-sharing or scoping meetings, which are common components of the National Environmental Policy Act process. In the urban-rural dichotomy, rural publics in general are more accepting of information delivered by forest managers, and urban residents prefer information from research scientists (Steel et al. 1998). Providing an opportunity for citizens to evaluate the range of related information, instead of selected bits of information, is also important (Brunson and Reiter 1996). People are capable of responding to information about tradeoffs, including the positive and negative consequences, and often welcome the chance to do so. These examples suggest that a poor fit between an audience and a message can be detrimental to public acceptance of management policies. When given a rational set of choices, even limited or imperfect choices, citizens often will choose the lesser of two evils and accept it (Ehrenhalt 1994). The ability of resource professionals to specify the situational context and communicate the nature of the options is just as essential as the provision of objective, unbiased information.

Knowledge that emerges from personal experience has become increasingly valuable for addressing complex issues within natural resource decisions; for instance, members of affected interests will respect new scientific knowledge, but they want forestry decisions to be based on local experiences as well as good science (Shindler and Collson 1998). In a regional (Oregon and Washington) assessment on the interface of scientific information and its source, Shindler and Reed (1996) found a high correlation between support for ecosystem management practices (prescribed fire and thinning treatments) and people's belief that the Forest Service presents credible and reliable technical information.

There is a conventional view that social acceptability is primarily a function of the knowledge and understanding that one holds about a given phenomenon; i.e., it is primarily a cognitive dimension. Knowledge is a key notion; e.g., in their research on citizen involvement in watershed management, Shindler and Wright (2000) found that although most respondents claimed an interest in and concern about watershed management, few were well informed about the technical or scientific aspects specific to the issue. The researchers also note that respondents held many information providers in high trust and that this trust level was associated with the perception that

the information provided by these organizations was useful. This suggests that the judgment process also has an affective component; i.e., how people feel (or how emotional they are) about the information, the providers, and the processes influences the specific judgments they hold. The open hostilities in the forestry debate bear this out; people respond based on their feelings for things that are important to them, such as the impacts from timber harvests on aesthetics or recreational experiences.

In forest communities, managers can choose how they provide information and what type of experiences will be created for citizens. Poorly communicated management plans are certain routes to frustration and disapproval. The most positive public responses come from situations where resource professionals are able to articulate in clear terms the purpose of a particular practice or treatment, including the ecological basis for it (Shindler and Neburka 1997). Identifiable objectives, openly expressed by agency personnel, provide a common focus for solving problems and reaching agreement. Widespread public acceptance is more likely to emerge from a common (and jointly gained) understanding of environmental complexities; Delli Priscoli and Homenuck (1990) found that when a body of information results from a public consultation process, it is viewed as more credible and reliable. Public deliberation also should be understood as a process for generating alternatives, not just evaluating them. In sum, it is not the information by itself that leads to understanding; scientific facts do not speak for themselves, they must be appreciated and interpreted (Jamieson 1994).

Problem 9

The initial basis for personal judgments of forest landscapes is often visual, but it is clear that a more comprehensive, holistic form of public evaluation of conditions is needed.

There is little dispute that the overall visual appearance of forest conditions provides an important initial basis for public judgments of acceptability. Over the last 25 years, much visual quality research has attempted to identify the components of scenic beauty and also quantify their acceptability. But from a social science standpoint, this approach seems limiting, largely because many other contextual factors are not accounted for in these assessments, and socially acceptable forestry of the future will not be about single-issue management. Our premise is that judgments about acceptable conditions go well beyond perceptions of scenery to include a broader range of observable outcomes. Sometimes management practices are “ugly” (certainly for a while), but if the long view of ecosystem stewardship is to be promoted, it will mean instilling a different (expanded) set of factors for evaluation, one that encourages people to look beyond the scenic to an ecological perspective.

First, it is important to recognize that over the past three decades, considerable research has examined how forest management affects scenic perceptions (see Ribe 1989, 1999). Methods usually have involved asking people to evaluate photos or slides of forest scenes and, most often, silvicultural treatments. Visual quality studies can be done at either the landscape or stand level, although the latter approach often is preferred because it allows researchers to examine the effects of individual stand components (large trees, stumps, understory shrubs) on aesthetic perceptions. Results of studies conducted in most forest zones of the United States and Europe show that high scenic beauty is associated with presence of large mature trees,

moderate tree densities, grass and herb cover, color variation, and species diversity (Brunson 1996b). Low scenic beauty is associated with presence of numerous small-diameter trees, dense shrub cover, bare ground, large amounts of woody debris, insect outbreaks, evidence of fire, and the presence of mechanical disturbance. Over the years, scientists have tended to focus social acceptability research on visual management practices. Although researchers realize that many other factors are relevant, and many have argued for their inclusion in an acceptability framework (e.g., Brunson 1993, Shindler and Collson 1998), there is no denying the importance of what people see. Visual knowledge is powerful because it is based on direct, immediate, and observable experience.

Given that acceptability is strongly influenced by visual appearance, discourse and information alone cannot offset the aesthetic costs of disturbance-based management. Irrespective of suggestions made in problem 8, conceptions of the "scenic aesthetic" (that which is dramatic and visual) will not easily be cast aside as an evaluative tool in favor of the much more subtle "ecological aesthetic," which depends on an appreciation of biologically diverse and dynamic environments created through ecosystem management practices (Gobster 1996). When Reed (1998) provided management objectives to participants who were making onsite evaluations of ecosystem management practices (prescribed fire and mechanized thinning), the most important consideration for people was still the visual impact on the landscape (from slash, down wood, tree spacing) and not information about the treatment. Likewise, Ribe (1999) found the best predictor of acceptability of forest landscapes, when comparing citizen's ratings either with or without information, was the extent of the harvest disturbing the forest cover. Visual images are what visitors remember most as opposed to other environmental messages (Bitgood and Cleghorn 1995). Ecosystem management can produce disturbances that contribute to "messy, cluttered" forests, and changing the public's mind about what they observe will be difficult.

Confounding influences—Thus far, most research on public judgments about forests and forestry has focused on timber harvesting and its associated impacts, no doubt because harvesting is the predominant management activity and public controversy surrounds its many forms of implementation. Public opposition to clearcutting, for example, has become especially strong, a sentiment found so consistently across the United States (e.g., Bliss et al. 1994, Bourke and Luloff 1994, Shindler et al. 1993) that federal land managers are required to use alternative practices. Similar research in Canada indicates citizens there also have strong views about this form of forest management. In a national study (Robinson et al. 1997), three quarters of the Canadians polled agreed that clearcutting has negative environmental effects and will lead to overcutting. Other connections exist between aesthetic and ecological conditions. Both Schuh (1995) and Bliss et al. (1994) report that visual impacts are associated with judgments about ecological impacts, and in turn, these led to questions about the motives of foresters. Each notes that when a clearcut dominates a view, the public suspects environmental damage is occurring. In Schuh's (1995) study, many participants assumed erosion and stream sedimentation were occurring whenever they were shown clearcuts on steep terrain; Bliss et al. (1994) found that residents who oppose intensive harvesting believe these practices lead to soil erosion, aesthetic damage, and loss of resources. Consequently, as people observe these practices, many also come to believe that federal forest agencies and the timber industry have been exploitive and unresponsive to concerns about other

resources (e.g., Shindler et al. 1996, Willhite et al. 1973). This exposes a bigger problem: if citizens view these actions as irresponsible, they may lack trust in the entire (agency) system.

One of the first studies to examine public responses to ecosystem-based forestry was by Brunson and Shelby (1992), who studied silvicultural practices in the Northwest. Their dependent variable was not an estimator of beauty, but a judgment of the "acceptability" of stands in a timber-production forest as locations for scenic viewing, hiking, and camping. The authors believed that cognitive evaluations (about purpose and use) and nonvisual sensory inputs would influence acceptability as well as visual assessments of scenic beauty. Their research showed that acceptability judgments are linked to auditory, olfactory, and tactile stimuli (Brunson 1996c), and a followup study showed judgments to be influenced by information that evaluators received about the ecological basis for the silvicultural systems used (Brunson and Reiter 1996).

In other studies, researchers have focused on attitudes about alternative approaches, such as selective logging or shelterwood systems intended to address public concerns and uses of forests (e.g., Brunson and Shelby 1992, Ribe 1999), the application of herbicides and pesticides to meet community objectives (e.g., Bliss et al. 1994, Brunson 1996b, Buse et al. 1995, Carrow 1991), and the use of salvage operations and prescribed fire to reduce forest health concerns (Shindler 1997, Tarrant et al. 1997). In such cases, citizens certainly react to aesthetic impacts, but their responses also are rooted in knowledge of forest practices (Hansis 1995). Many positive judgments are associated with information about the scientific basis for (unfamiliar) practices intended to achieve ecosystem management objectives (e.g., Brunson and Reiter 1996, Ribe 1999).

Researchers also have examined whether there is more to peoples' assessments of forest settings than the visibility of clearcuts or messy landscapes. Recent studies have begun to examine public support for why certain practices are undertaken. Research by Shindler and Collson (1998) is representative of the view that the acceptability question goes well beyond visual perspectives. In several qualitative assessments, they found that a much wider range of factors contributes to people's observations and eventually to judgments about relevant outcomes. Citizens were concerned whether decisions promoted a balance between the economy and the environment, traditional uses (hunting, hiking, travel) were protected, the opinions of local citizens were included in forest plans, and practices reflected objective and credible information rather than interest group politics or wholesale decisions made in Washington, DC.

In short, peoples' judgments depend not only on a particular forest scene or what a specific treatment looks like, but also on their observations of the broader surrounding circumstances. McQuillan (1998) argues that forest patterns exist at different scales. Large-scale patterns (particularly harvest patterns) set the context for the smaller scale; without the larger view, people may erroneously judge individual sites as acceptable. People are not necessarily conditioned to making assessments at the large landscape level (Shindler 2000), however. As Gobster (1996) argues, the most reliable measures of acceptability may be those made onsite, where people can observe with all five senses engaged and can consider the place context of the

management practice. Brunson (1991) collected empirical evidence for these ideas and found that acceptance of alternative silvicultural approaches intended to meet ecosystem objectives is greater when people are able to visit and evaluate the stands in person rather than simply view slides of them. Similarly, Reed (1998) found reinforced support for forest management treatments when people were able to see first hand how they were implemented. The things we “see” in the landscape can change as we begin to look beyond the scenic to an ecological perspective (Brunson 1996c).

Understanding why—In today’s environment where agencies are promoting new forms of management (or at least programs with new sounding names; e.g., restoration ecology), people will likely reserve final judgment about any of them until they can see how these practices turn out. Thus, there is a need for management outcomes to be observable (van Es et al. 1996). Providing opportunities to raise people’s awareness of management objectives and show them what resulting treatments look like (e.g., demonstration sites, interpretive trails, guided field visits) may be critical to wide-scale acceptance. One unintended consequence of tourism promotion in Oregon may be the opportunity to test some of these ideas. In 1997, the state’s transportation department designated 11 new scenic byways through Oregon’s outback to boost visitation and economic activity in rural communities (Corvallis Gazette-Times 1997). By encouraging people (primarily urban residents) to take a drive and see “the real Oregon,” promoters also may be increasing citizen interest in how these recreational and scenic landscapes are being managed. These scenic routes also may invite criticism of past forest practices. It seems essential, then, to help people understand and make informed judgments about what they observe.

One approach is to help people judge forest settings not only by what is there but also why it is there. And with growing public concern for keeping natural ecosystems and biodiversity intact, citizens are asking “why” with much greater frequency. Whether the concern is over the long-term impacts of certain practices or about the trustworthiness of decisionmakers, the need to know is prevalent and legitimate. Research (e.g., Shindler et al. 1996, Yaffee and Wondolleck 1997) shows that any new or “different” practice has a much better chance of acceptance if the public understands the rationale behind it and recognizes the potential outcomes. Accordingly, the ability to adequately discuss the reasons for management practices is now an essential element in gaining public support for them.

Putting these concepts to use beyond models that include only visual assessment criteria is currently an important focus for researchers. Geographic information systems (GIS) and other data visualization models are targeted as potentially useful tools as a result of their success in biophysical research. Sociopolitical applications of these technologies have been slow to develop. They often oversimplify the complex nature of the assessment problem (McQuillan 1998), and because of the transient qualities of the data (e.g., many variables that matter are not spatially dependent), GIS-based technology may never reach the level of usefulness for social science that many scientists have hoped for. At the same time, decision-support systems are under development that attempt to integrate sources of information and peoples’ understanding about the compatibility of harvest alternatives with other resource

values (e.g., McCarter et al. 1998, Reynolds³). Most are fledgling efforts, but they recognize the importance of accounting for the role of information and knowledge in public acceptance of management practices. More important may be that they legitimize the interdependency of various forms of information, its provision, and the context in which it is applied.

Because visual perceptions are such a strong influence on public judgments, it is likely that more personalized mechanisms will be needed to relate information about management practices (and options) to what people see in practice. Several techniques that have made a difference with citizens include manager-stakeholder field tours (Shindler 2000); information teams in the Oconee National Forest, Georgia, that visit landowners to explain an upcoming prescribed burn; partnerships with citizen groups for monitoring treatment effects (Johnson 1996); and onsite interpretive messages that describe practices and management objectives (Veverka 1996, Yaffee and Wondolleck 1997). In the future, forestry professionals will need to use these creative approaches and be more open in their attempts to educate the public.

Problem 10

People respond to unacceptable conditions in both thought and action. Their behavior is important because it is more easily observed and is how salience is measured. But an early warning system is needed, one that helps in understanding which factors push someone from thoughtful inaction to a behavioral response.

Acceptability or, more likely, lack of acceptance is best reflected in human behaviors rather than in peoples' attitudes about a forest practice or policy. Certainly behavior is important because it warrants attention from people in authority (i.e., managers, politicians); typically, it is how salience is measured. Of course, behaviors can differ widely from simple avoidance of a problem to attending a meeting, writing a letter, or even outright demonstration in protest. Sometimes simple verbal expressions do not necessarily reflect an individual's real strength of feeling about a forest policy because he or she may not have to pay the cost of a new initiative or of derailing an old one. When people put forth much effort to get what they want, however, they demonstrate not only what matters to them but also just how important it is to them. These behavioral responses usually occur in outward demonstrations; people are motivated to react, either in support or more likely opposition, to a practice or condition. Frequently, these are the loud voices that resource professionals are compelled to answer. Apolitical behaviors also can be the results, such as rejecting a potential recreation site because nearby timber harvesting is judged unattractive (Daniel et al. 1989). The problem then becomes a measurement issue: How do managers know when people find things acceptable? The old adage "silence is acceptance" is not likely to be very useful. People simply may not be fully aware of any self-interest in an issue, or they may be aware but choose to focus their energies on other priorities (Creighton 1983).

³ Reynolds, K.; Stankey, G.; Clark, R.; Kruger, L. 1998. Research proposal: knowledge-based integrated assessment of compatibility of wood production with other resource values. Unpublished data. On file with: People and Natural Resources Program, U.S. Department of Agriculture, Forest Service, 4043 Roosevelt Way NE, Seattle, WA 98105-6497.

Cognitive responses to management actions come in several forms, which contribute to the complexity of the acceptability issue. Aside from simple agreement, there also is acquiescence, tolerance, apathy, or even feelings of powerlessness. In most cases, these reactions are undetectable because people choose to not become engaged. Or they may choose to rely on other mechanisms or institutions to do it for them, particularly when they have too many other priorities in their lives; e.g., some people give money to organizations that they feel can defend their interests and carry a message they agree with. Alternatively, people may simply give over responsibility (and support) to the agency professionals whose job it is to deal with environmental problems and decisions. Problems may be less intractable when responses are primarily cognitive, but problems also can go unobserved until they intensify to a point that they elicit various behavioral responses (Brunson 1996a). Often that behavior occurs through participation in political activities of an interest group seeking a change in policy or management or in individual protest behaviors, such as the deliberate disobedience of unpopular rules governing natural resource use (Margavio et al. 1993, Muth and Bowe 1998).

Most of the research examining public judgments about natural resource settings, policies, or management actions has not examined social acceptability per se, but instead it has assessed public attitudes. Studies of attitude typically measure orientations of survey respondents toward an object by analyzing their levels of agreement or disagreement with a series of statements about the object. Such research can mask the differences between cognitive and behavioral responses because there is little or no cost to the survey respondent to claim that a behavioral response would be made. Moreover, as Bright and Manfredi (1995) point out, attitudes expressed in public surveys may be formed on the spot by people having little interest in the topic. As such, they can be poor predictors of behavioral responses that might be made to certain practices or conditions. Telephone surveys, in particular, can produce results that reflect transitory responses to questions about issues for which no strong attitude has formed (Lauber and Knuth 1998). Bright and Manfredi (1995) argue that strength of attitude (how much someone cares about an issue), which has not consistently been measured in studies of attitudes toward natural resources, is a better predictor of behaviors than the attitudes themselves. Although opinion and attitude surveys may show generally how people feel about forest management actions and associated conditions, care needs to be taken with how those results are used as indicators of public support for specific practices in particular locations.

The recreation behavior literature, where researchers discuss peoples' reactions to forest conditions over many years, suggests how small actions often can be indicators of growing dissatisfaction. Hoss and Brunson (1999), for example, found that when recreationists believe wilderness conditions are less than optimal, they gradually shift from cognitive responses to minor behavioral responses and later to more costly behaviors. For instance, if a popular area were becoming crowded, a visitor's first response might be to engage in some sort of rationalization ("there are more people here than I'd like, but I can still enjoy myself"). The next step, if conditions continued to worsen, might be to make a minor behavioral change; e.g., choosing a slightly earlier departure time or a different route. Only if the latter behavioral response is ineffective is one likely to choose a more drastic response such as visiting a different wilderness, because there is a high cost to foregoing

future visits to a favorite place or adding to an area's decline through some form of depreciative behavior. For managers, it is important to identify problems before high-cost behavioral responses occur.

Saying that a good early warning system is needed acknowledges that small problems are easier to address than big ones. Social science techniques can help identify the kinds of minor behavioral responses that can serve as early indicators of nonacceptance. Because contextual significance is important to people, early detection of potential problems must include involvement of affected parties when discussion is still useful and the stakes are not too high. This is also the time to determine what is important to people. As discussed in previous problems, any one of many factors (failure to provide a credible decision process, mistrust among parties, lack of attention to local conditions, the degree of risk in implementing a plan) can trigger a negative public response. But there are also issues of trust (Would people trust the agencies more if they felt that managers wanted to know about problems before they caused much damage?) and fairness (Why do I have to suffer before you'll listen to me?). These ideas suggest logical connections to adaptive management principles. If social acceptability is not monitored regularly, just as ecological conditions are, how can agencies claim to be responding quickly when their strategies go down unanticipated paths? Understanding attitudes is a critical part of responsive management, partly because the act of asking shows an interest in what citizens think, and partly because attitude measurement, if strength of attitude is considered, can be part of an effective early warning system about potentially unacceptable conditions.

Because there is a multiplicity of potential factors, managers can easily be blindsided. There is no single solution, however, in all this; there is no do-this-and-you-will-get-this resolution. History has shown, however, that if agencies fail to pay attention to these factors, they are ultimately condemned to responding to the public's negative reactions. As in the medical field, investing in preventative measures is much cheaper (and less painful) than having to find a cure.

What Now? Five Basic Strategies

Social acceptability is an essential element in virtually every resource management issue facing public agencies today. Regardless of the problem (forest health, fire suppression and fuels management, riparian restoration, recreation impacts, threatened and endangered species), the political environment surrounding most decisions is never just about single questions, and it is not just about ecological questions. At the same time, the inclusion of various stakeholder points of view has been difficult for many in the resource professions. In any case, the need to attend to social processes has been integrated into public forestry.

In light of this critical role of social acceptability, we have identified 10 key problem areas. We believe that attention to these problems will help organize thinking about this critical concept and improve the ability to more effectively integrate it into forest management. Conceiving of social acceptability as a fundamental element of resource management, decisionmaking will facilitate the creation of structures and processes responsive to public conflict. It also will help promote research on the factors that constrain and facilitate informed public judgments about management policy and programs and the integration of these judgments into the decisionmaking process.

A central conclusion emerging from our analysis is that social acceptability judgments always are provisional. Public judgments about the acceptability or unacceptability of forest management practices, policies, and conditions are never absolute or final. They depend on many influences; e.g., institutional factors such as conflicting legislation, a reliance on expert-driven planning models, confusion over agency and stakeholder roles, ideology, a lack of organizational will and capacity. As a result, it is unlikely that any simple “index of acceptability” can be (or should be) created. Moreover, although it is possible to address social acceptability in a rigorous, formal, and systematic way (e.g., Kakoyannis et al. 2001), it is unlikely that estimates of social acceptance of some action can be generated through a mechanized, routine planning procedure. Each situation, each context, produces a unique set of circumstances affecting the creation of public acceptability judgments.

The provisional, idiosyncratic nature of social acceptability judgments does not mean that they are without structure or are not subject to critical thinking. Our analysis has revealed some of the consistent and predictable aspects of the concept; e.g., acceptability judgments reflect a political perspective—i.e., they are the product of the interactions between citizens and management organizations over time and reflect the trust, beliefs, and confidence that citizens hold about those responsible for the stewardship of the nation’s resources.

Social acceptability is also crucial because the management of natural resources is always faced with choices and consequences: biophysical, social, economic, and political. Some of these costs and consequences are well-known, measurable, and immediate; others are highly uncertain, difficult to capture, and displaced in both space and time. These latter factors help explain, as noted above, why acceptability judgments are always provisional; as costs and consequences become apparent, what seemed eminently reasonable at one time becomes intolerable at another. But the key point here is that choices about management cannot be avoided; there is no such thing as doing nothing. To choose to do nothing is still a choice, with impacts, consequences, and implications for both society and the environment. As management organizations give increased attention to the issue of social acceptability, this fundamental reality needs increased attention.

Finally, our analysis clearly reaffirms the idea that judgments about what is good or bad, acceptable or unacceptable, are not simply a product of some single external force (experts, the media, colleagues) but rather derive from complex forces that come from within individuals themselves and from the social context within which they participate. Both the nature of the judgments held by people and the strength with which these judgments are held are shaped by the personal relevance of the issue and situation. Judgments are particularly strong when the issue is salient or personalized by proximity, the likelihood it will affect a valued place or a strongly held belief. These judgments are formed at two levels: those that involve personal interests or benefit a single group, and those that develop from a broader shared agreement about what should or could occur for the larger community of citizens.

Although we have pointed out specific problem areas to help focus management and research efforts, we recognize these are integrated problems frequently embedded within one another. Greater public acceptance will come from being aware of, and responsive to, various related circumstances. Thus, our concluding comments involve

themes expressed as five basic strategies that emerged from our analysis. These are intended to help guide resource professionals and citizens toward more integrated solutions:

- Treat social acceptability as a process.
- Develop the capacity within organizations to respond to public concerns.
- Approach trust-building as the central, long-term goal of effective public process.
- Provide leadership to develop a shared understanding of forest conditions and practices.
- Focus on the contextual conditions of forest landscapes and communities.

Treat social acceptability as a process—There is substantial justification for conceptualizing social acceptability as a process rather than an end product or reaction to a particular decision. In the past, public acceptance usually has been viewed in a stimulus-response sense; i.e., managers act (plan, treat) and people judge (evaluate, respond). But such an approach provides for little participation on the part of the public and thus little commitment, either in the action itself or in the process by which it was developed. An alternative strategy is to treat social acceptability as a process, one that cultivates understanding through the creation, dissemination, and evaluation of knowledge as well as a method for generating and using alternatives. This approach recognizes that social acceptability is always in a provisional state: conditions that are acceptable now can become unacceptable in due time. In a sense, the pot is continuously boiling with volatility always a possibility; thus, the process needs continual “care and feeding.”

Also inherent to social process is the notion that acceptability is not something an agency can directly control; instead, it is more likely to evolve from an informed public. Ideally the acceptability process, if taken as a method for sharing knowledge and evaluating alternatives, is one in which people truly come to form “public judgments” and differentiate these judgments from mere individual preferences. Yankelovich (1991) uses the term “public judgments” to depict good-quality public opinion that is stable, consistent, and responsible. It reflects understanding of issues and their implications. His rationale is not that citizens comprehend all the facts surrounding an issue or that they always agree with those in decisionmaking authority; instead, citizens give thoughtful consideration to a problem, even struggle with it, and reach a judgment to which they are committed. More importantly, if leaders understand the nature of this high-quality public opinion, they have “a stable context to work in—either to offer solutions that fit within the public’s tolerances, or if they disagree with the public’s judgment, to take their case forcefully to the public with full awareness that the public’s view will not change easily” (Yankelovich 1991: 42). In giving credence to the notion of process, resource agencies acknowledge the constant tension between citizens’ desire for substantively “correct” decisions made by technical experts and for democratic decisions made through public participation (Wenner 1990).

Because of the increased emphasis on collaborative approaches for making decisions, it is important to be realistic about how to evaluate these processes. Everyone would like measures of success that are immediate, are easily identified, and result in substantial payoffs. In practical terms, this requires some specific and observable on-the-ground achievement, such as a significant reduction in forest fuels, increased salmon runs, or fewer landslides; in other words, decisions that achieve management objectives. In most cases today, immediate and identifiable ecological outcomes are unrealistic. As Kenney (1999) argues, many resource impacts have accumulated over decades, and measuring “success” by fixing these problems cannot reasonably be expected for years. Certainly there are examples where plans or projects have provided timely results; however, one of the most frequent frustrations heard from collaborative groups is that, in the end, the agency did not accomplish much that people could actually see in their local forests (Shindler and Neburka 1997). This is particularly true in the Pacific Northwest where prescriptive legislation prevails and gridlock seems to have set in. Relying on measurable ecosystem response as the sole indicator of success can be a burdensome proposition for collaborative groups.

Instead, according to Kenney (2000: 9), there is a second, much more forgiving definition, one stating “that success can be measured by ‘organizational’ criteria, such as changes in the level of trust (and/or satisfaction) among stakeholders and resource managers, the degree to which management efforts better recognize systemic and transboundary qualities of natural resources, and the enhanced involvement of local actors in decision-making.” Within this definition is an assumption that an organization’s ability to publicly articulate objectives and lead its stakeholders through a decision process are prerequisites to achieving the more fundamental, tangible on-the-ground results. Although the values found in participatory processes may be more difficult to see than applied outcomes, they should not be underestimated (Lawrence et al. 1997). Sometimes these values are the **only** measurable benefits that accrue, and they often mean the difference between success and frustration (Shindler and Neburka 1997). The process is iterative. Discussion of problems results in more stakeholders surfacing, who then enrich the problem definition (Westley 1995)

Develop the capacity within agencies to respond to public concerns—Much was made in the 1990s about the limitations of natural resource agencies and the deep-rooted barriers to reaching durable, lasting policy decisions (e.g., Cortner et al. 1996, Wondolleck 1988). For years the Forest Service was viewed as the federal superstar (Clarke and McCool 1985), with motivated employees who possessed a can-do spirit and got things done. Now the organization seems hamstrung; many citizens, politicians, and employees of the agency are skeptical of its ability to manage effectively (Cortner et al. 1998, see footnote 1). A recent National Research Council (1996) study describes the agency as lacking an institutional stability and organizational culture that enables experimentation and learning.

Adequately responding to public concerns is difficult when the current situation is hostile and calls for immediate results. In this climate, a responsible course of action must include four basic components. First, efforts to develop capacity among personnel also must be supported by an agencywide commitment for implementation. It is not enough to refer to citizens as stakeholders, provide staff with training programs in public involvement, and rely on the traditional National Environmental Policy Act process. There must be an organizational plan with conviction at the national and regional levels for conducting business in this era of multipartner management.

Part of the problem is the tension between setting policies at the national level and creating strategies for managing forests at the community level. The problem is not new; community-based governance approaches have been around for two centuries, and with ecosystem management as our current model, we are now in the midst of the most recent cycle. To be successful, any plan will require visible administrative leadership to structure the organizational approach for improving citizen-agency interactions. Recently, bureaucratic priorities and oppressive oversight have severely limited the ability of managers to achieve success locally. To help legitimize the role of field personnel, an immediate priority should be on discovering how agencies acting at the national level can support a workforce that must function at the forest and community level. The agency needs to recognize that local managers need better tools for engaging the public; by any standard, the existing "tool kit" is antiquated. At the same time, field personnel need to be given adequate authority to lead at the forest and community level. This commitment will require staying power to convince all parties just how serious the agency is about building effective multipartner relations.

The second component involves recognition of the skills necessary to do the public outreach job. Forestry personnel operate in a world of high expectations, but they often have a low level of understanding of constituent concerns, possess inadequate communication skills, and work in a climate of diminishing public trust (Blanha and Yonts-Shepard 1989). In assessing Forest Service outreach, Yaffee and Wondolleck (1997) recognized two key factors in addressing the implementation problem. These involve internal arrangements that (1) enable motivated personnel to develop effective strategies and (2) encourage them to experiment with public bridge-building techniques.

Enabling activities include developing staff capabilities through hiring and training programs and developing policies that reinforce external relations. The idea is to match talented people with outreach positions and supply them with the resources to conduct public partnerships. Westley (1995) notes how difficult it can be to institutionalize this kind of leadership. The most effective public processes historically have involved one or two agency members with genuine interpersonal skills who also were willing to take a risk. "Enabling" means providing administrative flexibility that allows these individuals the freedom to implement good ideas.

"Encouraging" requires establishing a climate and a context for outreach efforts. Influencing attitudes internally is as important as the outreach activities themselves. Because opinions among personnel are widely scattered as to the necessity for such programs, many staffers in the public contact role often proceed with a hesitancy that is not particularly reassuring to the participants. Staff may feel insecure about the ground they stand on, they may be afraid to fail, or they may be afraid to open the door and let the public in because they do not have answers yet to all the questions that might be asked. These staff members need encouragement from an organization committed to both their efforts and the public's role in resource planning.

The third component involves the clarification of roles. Today, the roles that agency personnel are being asked to play are much different than in the past, when citizen participation was minimal and technical expertise was foremost. These individuals need assurances that a broader scope of public contact is essential and that any reasonable program will be a long-term endeavor. The agencies also must define their relation with the public as well as the role they are willing to let citizens play.

Too often people are asked to participate in planning exercises without a clear understanding of planning objectives or how decisions will be made. As one frustrated participant voiced in a letter to the BLM, "I am not interested in attending a never-ending series of meetings if they are just supposed to make me feel better because I was involved."

Clarification of roles and agency commitments is particularly important to the frontline personnel in outreach positions. They cannot make important decisions on their own and the public will not believe them anyway. If agencies do not accept the role-setting responsibility, someone else is likely to do it for them: when the Forest Service convened a public forum in Seattle to ask citizens how the agency might better serve them as customers, the response was, "We are not your customers . . . we are your owners" (Cushman 1994). Effective leaders have long known the two fundamental organizing strategies for public discourse are defining roles and setting good objectives (Shindler and Aldred-Cheek 1999).

Fourth, there is a need to allow greater flexibility for personnel to take risks and experiment with new ideas. These actions must play out publicly and collectively, in places where people can come together to learn about the uncertainties of forest management, to understand the risks involved, and weigh the tradeoffs. One method is to create several (pilot) centers for developing the capacity within the agencies for more effective collaborations. These should not be replicas of the largely failed adaptive management areas, places that received far too little agency direction, funding, and latitude to try new things (see footnote 1). And they should not be offsite training workshops, where employees attend short courses on public involvement skills and then report back to their work station. Instead, this will require designated, widely sanctioned forest-size units that function first as places where all personnel are engaged in building attitudes and skills for community-based ecosystem management. Under such an arrangement, the surrounding forest communities then become experimental sites for consultative planning and implementation, with agency members providing leadership and establishing a common ground for learning "how to do" ecosystem management.

Research has a substantial role here as well—to help provide the planning and organizational tools for effective process and then to monitor and evaluate the outcomes. Scientists also can capture the learning that occurs; they can identify common elements across settings and assess the management context in which unique findings occur. Frameworks for monitoring and evaluating these interactions have begun to emerge (see Selin and Chavez 1995, Shindler and Aldred-Cheek 1999), but they need refinement and to be given a legitimate status among the responsibilities of resource agencies. Although the focus for these centers will be on building internal capacity for effective agency-public interactions, these activities may run into some initial barriers, or even resistance, given the recent history of downsizing, budget cutbacks, and the age structure of the organization. But most personnel are likely to support this shift (Shindler and Cramer 1999), particularly if their efforts help provide an early warning system that allows managers to recognize problems before they intensify and thereby become intractable.

Approach trust building as the central, long-term goal of effective public process—The common thread that runs through all aspects of ecosystem management is the importance of trustworthy relations among parties. No matter how meritorious a plan may be, nothing is validated unless the people involved trust one another. But in this era of wicked problems, where ecosystems are admittedly complex and people's basic values are at stake, building trust is difficult. It takes great patience, requires many opportunities for parties to interact, and is a product of various factors that all contribute to the endurance of relations. As Westley (1995) notes, achieving a balance point among parties is a continual process of adjustment.

Given the need for more trustworthy collaborative arrangements, it is important to consider the context in which this call is being made. Many scholarly observers have noted that the case for collaboration is more of an attack on traditional natural resource management programs than a reasoned endorsement of alternative approaches to decisionmaking (e.g., Amy 1987, Rosenbaum 1995). The distinction is noteworthy because (at least) two separate outcomes can result when participatory methods are attempted in response to public frustration with existing institutional programs (Berman 1997). If the management organization is perceived as weak and ineffectual, then little satisfaction is achieved and citizens will continue to seek other remedies to their frustration. This usually undermines the intent of the collaborative action and deepens the rift between the public and the agency. If, on the other hand, the agency is capable of a focused and effective dialogue that gives people a legitimate place to be heard, then civic process becomes a meaningful activity and restoring confidence among parties is a realistic outcome.

Similar to the preceding discussion about capacity building, the first requirement for building trust is in fully understanding the nature of managing public resources and making an organizational commitment to multipartner relations. The importance of agencies taking long-term responsibility plays out on the two levels where trust is most commonly achieved. At the organizational level, it boils down to whether an agency is serious about genuine involvement of stakeholders and how its actions reflect this philosophy, meaning the extent to which citizens have meaningful participation in decisionmaking (e.g., simply expanding the number of informational meetings vs. providing opportunities for people to express ideas and consider the range of alternatives). National studies of successful public partnerships show that trust among the Forest Service constituency is more likely to occur where there is visible evidence of agencywide commitment; such conditions are demonstrated, for example, by a continuity in personnel and philosophy and with mechanisms to maintain communication among parties (Yaffee and Wondolleck 1997). Within this atmosphere, more innovative methods that go beyond "one-size-fits-all" policies become possible. Because of agency instability and lack of any clear mandate for public outreach, we also have concern about how these partnerships might be sustained in any meaningful way.

At the local level, a demonstrated organizational commitment can have far-reaching effects for staff and community participants. Currently, the trust-building process remains largely the job of personnel at lower rungs of the organization. Much of the existing public trust is at this interpersonal level, often within a particular ranger district or national forest, where relations have been established with individuals over time (see footnote 1). These are the places where good interpersonal skills and

face-to-face leadership can make a difference for citizens and their communities. Coglianesi (1997) argues that the informal give-and-take that occurs between agency personnel and citizens is perhaps the most productive form of relation building. Yet this can occur in any large measure only in an organization that understands and promotes these ideas as the long-term goal of public interactions.

With sufficient administrative commitment to building multipartner relations, midlevel managers in particular will have a key role, as will social scientists. Middle managers are in a position to interpret organizational decisions and bridge the gap between top-down policies and bottom-up implementation. They should be encouraged to act as integrators between the strategic levels of the agency and personnel operating at the public interface (Westley 1995). They can be supported by methods designed to facilitate conversations between internal functions as well as across partnerships. This requirement for effective learning is essential (Michael 1995). This is a place where research can support management efforts. Social scientists can help identify already well-developed techniques for facilitating group actions and assist in training activities. The most useful role for research, however, is in monitoring collaborative efforts, evaluating factors that contribute most (or least) to trust among participants, and bringing these ideas back into the management arena. Unfortunately, the difficulty thus far has been to get those in management to implement interaction strategies that can be tested and measured. There are many substantive reasons for this (a number have been discussed in this report), but the fact remains there are too few long-term efforts underway and far fewer funded studies that allow for longitudinal analysis of contributory factors.

When we approach trust building as encompassing a set of attributes—a set that will not necessarily produce a quick fix, but rather be a normal and continuing process for conducting business—then the goal of trustworthy, long-term relations is realistic. The more that agency strategies at the top can be influenced by the learning that occurs at the bottom, the more responsive the organization is likely to become (Westley 1995). The freedom to try new ideas and monitor and evaluate the outcomes requires a shift in management culture. Agencies will need to install an adequate support system, encourage risk taking, and provide a professional reward system for those who are being asked to take their place on the front lines (Cortner et al. 1996). They also will need to accept the enduring nature of such a commitment.

Provide leadership to develop a shared understanding of forest conditions and practices—Stable leadership is essential for developing shared understanding among the forest constituency. Even with the recent rise in citizen groups for community action (e.g., watershed councils and grassroots conservation organizations), current studies indicate that the public still views the Forest Service as an important and credible force (e.g., Shindler 1997, Shindler and Brunson 1999). A majority are looking for the agency to play a stronger leadership role and to set a strategy for collaborative efforts. Stankey and Shindler (1997) outline ideas for more effective management strategies as greater experimentation occurs in federal forests. Three ideas stand out as critical to greater understanding of conditions, and central to each is genuine leadership by resource professionals to promote mutual learning among participants.

First, a common definition is needed of the problems that ecosystem management is intended to solve. Naturally this includes the fundamental principles of ecological function and ecosystem health, but one must be careful about the tendency to jump too quickly to “scientific” responses for treating forests. This concern comes from the traditional view that problems can be fixed by applying science and finding technical solutions. This approach often ignores what the collective group of stakeholders (managers, researchers, citizens) may want from forests. The real issue, initially, is the extent of agreement about the goals of ecosystem management and the problems to which forest managers might legitimately respond; effective leadership can facilitate the problem-framing process.

It must be understood that interactions with the public will be strongly influenced by what citizens “know” about forests. Judgments, particularly critical ones, often derive from what people believe to be “true” about various choices (Boulding 1956) and largely reflect differences in how people understand the “facts” (Kearney et al. 1998). But opinions of resource professionals are normative as well; definitions of “naturalness” from biologists or ecologists also are human constructions and can be just as artificial as the public’s interpretations. A current example is the attempts to reach agreement on defining forest health. A healthy forest can be both a value judgment and a measurable condition (O’Laughlin et al. 1994); thus, good leadership is needed to structure the conversation and allow a common understanding of environmental complexities, one including known causes and effects, consequences of choices, and resulting long-term ramifications (Stankey 1995). To be relevant to the public, these ideas need to be placed in a context that is important to them. In other words, to the extent possible, managers and researchers will need to provide scenarios depicting what the changes in forest conditions will look like, how soon they could occur, and what the consequences of such changes are for the forest environment and surrounding communities.

The second step involves legitimizing the range of concerns identified and the knowledge revealed. Once the foundation for most natural resource management decisions, local or experiential knowledge lost credibility as society became more scientifically oriented (Kloppenborg 1991). Information from experts became the standard for doing business. But frequently, such information is presented apart from the social process that produced it, which also tends to separate the providers from the consumer-evaluators. Managers need to leave behind the idea of “educating” the public to gain agreement. Given that both concerns and knowledge derive from people with long histories of living and working on the landscapes being managed, it is critical that their opinions be given a level of legitimacy that ensures serious and thoughtful consideration. This approach reflects the more desirable and interactive view of social acceptability that comes through mutual learning, or what people working together come to understand. With such relations comes an additional benefit. Because natural resource problems are complex and technical, and people have difficulty judging the accuracy of information, they often base their judgments on the level of trust they hold for the information provider (Steel et al. 1992-93). An atmosphere of meaningful, interactive disclosure greatly contributes to public perceptions of openness and honesty.

Third, for citizens and communities to have a real ability to participate in and influence management decisions, they must possess a capacity for participation. This requires a mutual respect for the knowledge and beliefs of others as well as appropriate venues for learning about the issues. As mentioned previously, a foremost concern in any public dialogue is that management agencies possess a certain level of competence to do the job; however, as Jamieson (1994) argues, resource professionals also should do what they can to contribute to the competence of those with whom they engage. There is a need for places where people can come together to observe, discuss, and deliberate over potential options, because people do not come with a ready-made ability to participate in a constructive, deliberative dialogue. The discussion is much more useful when they understand something substantive about the relevant science, the economics, and the interests that are at stake. Perhaps the best-known example that has led to a misunderstanding of ecological processes and consequences is the lesson every child has learned from Smokey Bear: that *only you* can prevent forest fires. Part of the problem is that for years this message was the only thing many people knew about fire. Only recently, as people have come to understand existing forest conditions and how they evolved, has there been broader public acceptance of more liberal fire management policies.

As competency is built among institutions and publics, an organizational atmosphere is created in which learning can occur, and methods are developed to reach agreement on the conditions that are acceptable for various settings. In support of these efforts, social science research should specifically target the factors within citizen-agency interactions that are most likely to contribute to increased competence; e.g., How are attitudes and resulting behaviors influenced by different approaches taken to help stakeholders understand ecological complexities? Should methods be sought that allow people to assess tradeoffs among alternatives and evaluate the short- vs. long-term impacts? Are there places where citizens can view for themselves and discuss the practices and outcomes of ecosystem management? Which outreach activities and simulation techniques are most effective in improving people's understanding of changes in forest conditions over time? How are responses to ecosystem management strategies affected by the forum in which new information is presented and how do group dynamics influence the discussion? These situations will create further opportunities for citizens to ask questions of managers and scientists, an opportunity essential to informed public participation. They also will help ensure that decisions reflect the knowledge and concerns of citizens.

Focus on the contextual conditions of forest landscapes and communities—Context involves many ideas, but the most important for citizens is the sociopolitical context of what forest settings represent and in which decisions are made (Stankey and Clark 1992). For resource professionals, the importance of contextual concerns is amplified because practices and conditions acceptable to the public in one setting will not necessarily be acceptable in another; e.g., how management initiatives affect specific places or community uses greatly influences public acceptance. Thus, a better understanding of the range of contextual factors needs to be developed, including the uncertainty and risk of various alternatives and how the public responds to them.

Recent experience with the Northwest Forest Plan has shown that policies cannot stem strictly from ecological interpretations or be blanket plans for large regions imposed from the top down (Stankey and Shindler 1997). Differences in biological, social, and economic characteristics also need to be respected. From a jurisdictional standpoint, each management unit must be able to conduct experiments and develop management strategies that reflect local concerns and conditions. This will require a range of options for assessment and management, a lot to ask in an era when federal forests are increasingly subject to prescriptive legislation. And yet, it is this same political climate that calls for an improved understanding of the scope of an issue and its relation to different geographic, temporal, and normative contexts (Clark et al. 1999).

Contextual considerations naturally include the uncertainties and risks of any proposed management plan. For the most part, it is the uncertainty of actions that gets people excited. Citizens and politicians alike are frustrated because they are not getting simple and consistent answers to natural resource questions. Holling (1995) recognized that answers are not simple and consistent largely because concepts and methods to deal with the nature of environmental problems are only beginning to be developed. But people still want to know what will happen and when, where it will happen, who will be affected, and how uncertain the outcomes are. They are afraid of possible unknown “dangers” (Wildavsky 1988) that might result from actions or non-actions. Unfortunately, under the current agency system, environmental risks are not easily assessed, even though doing so is a central tenet of ecosystem management. As Stankey et al. (see footnote 1) argue in a recent agency evaluation of adaptive management, we are living with a “Catch-22 phenomenon: experimentation is not permitted until sufficient evidence is available to predict confidently that the treatment will not have an adverse impact, but until such experiments can be undertaken, it is not possible to generate such knowledge.”

In the haste to prevent harm to forest ecosystems, it seems that practices now have to be foolproof. Consequently, the Forest Service has assumed a position where it insulates itself from risk, or at least it thinks it does. Of course, this issue goes well beyond the agency; the United States has become a risk-averse society where many actions are dictated by conservative public policies in which “no fault” can be identified (Wildavsky 1988) and, consequently, there is less chance of litigation. In any case, the reaction on the part of the Forest Service is not difficult to understand, but the result is that little experimentation occurs and thus little learning as well. Wildavsky (1988) describes this situation as choosing trial without error over trial and error. The trial-without-error option is useful only when all potential consequences are understood—difficult if not impossible in the kinds of complex, uncertain situations that typify most natural resource debates—and is much less useful for learning how the system works. Methods for overcoming the uncertainty-risk conundrum, and thus enhancing the ability to achieve broader acceptance of management policies, lie in actions discussed throughout this problem analysis; e.g., research to improve knowledge of forest conditions, more effective information flow among parties, and processes for creating shared understanding all contribute to a more socially acceptable forestry in which the public believes forest agencies can be trusted to handle the risks associated with ecosystem management.

Conclusion

The research community has a significant role in creating a more socially acceptable brand of forest management. Not that there is an insufficient amount of either theoretical or applied research already to draw from. What is in short supply, however, is (1) well-defined, manager-friendly frameworks for conducting more socially acceptable processes, and (2) the institutional will (i.e., commitment, time, and resources) for experimentation and implementation. On the first point, several strategies have emerged from recent research; however, these typically have resulted from studies focusing on narrow topics such as public involvement (e.g., Daniels and Walker 1996, Shindler and Aldred-Cheek 1999) or on particular locations with specific problems. This problem analysis, along with the initial 1992 workshop on defining social acceptability (Brunson et al. 1996a), represents the most comprehensive effort to examine the implications and consequences of social acceptability as a process. The next level of research should include a thorough critique of these ideas by a national panel of social scientists. One goal might be to refine these ideas and suggestions based on this broader representation of the social research community. Another would be to craft an implementation plan, one that includes ongoing, longitudinally evaluative research, and advocate for its use by management agencies.

The second point identifies a much more ambitious undertaking that will require the conviction of agencywide commitment discussed earlier. In the last decade, committees of scientists (e.g., Johnson et al. 1999) have determined what the problems and alternatives are for serious, large-scale (national) resource issues. The problem of socially acceptable forestry needs similar action, perhaps an advisory panel of social scientists who come together to craft a rigorous national research and management strategy to help agencies structure their public interactions and capacity-building efforts. One method to ease the burden of implementation is to establish formal, continuing research and management partnerships. Given the latitude to experiment and to try different approaches, managers are good about finding ways to make things work. The job becomes much more manageable with guidance and design support from social scientists.

Researchers also can attend to the important task of monitoring and evaluation; they are particularly well suited to capturing the learning from events as they occur and making sense of the outcomes. With appropriate political will, setting up cooperative partnerships is not much of a stretch. Many social scientists already have worked with agency personnel in key settings on short-term applied projects; consequently, they are familiar with community issues and interests. In some cases, data sets already exist and can be used to conduct longitudinal research. By its nature, social acceptability is a continuing long-term concern that, like every other ecological problem, requires long-term arrangements for research and experimentation. Over time, these efforts will contribute to the collective knowledge base and influence the values of both citizens and resource professionals (Yaffee and Wondolleck 1997); they also may lead to political agreement on agency direction.

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The **Forest Service** of the U.S. Department of Agriculture is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives—as directed by Congress—to provide increasingly greater service to a growing Nation.

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