

## Barriers to Effective Natural Resource Planning in a “Messy” World

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*In the increasingly wicked and messy world in which natural resource planners function, traditional rational-comprehensive planning processes seem to function poorly, exacerbating already contentious situations, leading to decision paralysis and public dissatisfaction. New paradigms for natural resource planning have been recommended by many academics, planning theorists, and practitioners. Understanding the barriers experienced in current planning processes may suggest design criteria for these new processes. This study of planners, using a qualitative methodology, in four typical Western U.S. planning situations revealed some fundamental barriers to their effectiveness. These included lack of agreement on goals, rigidity in process design, procedural obligations and requirements, and a lack of trust. More fundamentally, institutional barriers in the design of natural resource planning processes often lead to these more operational level issues. The authors pose a heuristic model for understanding the linkages among these barriers.*

**Keywords** barriers to planning, collaborative decision making, natural resource planning, participation, planning models, public land management

Natural resource planning has entered an era of turbulence where goals are frequently contested, temporal and spatial scales of analysis have increased and significant uncertainty exists about the effects of management actions. An often contentious natural resource planning setting is exemplified by growing public dissatisfaction and is expressed in many forms, including a lack of public participation, animosity and distrust toward government, appeals and litigation, and occasionally even threats and violence.

Natural resource planning has long been based upon the synoptic or rational-comprehensive model (Cortner and Moote 1999; Hudson 1979; Poisner 1996). This model is a scientifically based, expert-driven approach to management and allocation

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decisions that implicitly assumes consensus on a singular objective, availability of all the data needed to support a decision, and seemingly unlimited financial resources and time—conditions that are rarely attained in the complex, time-compressed, politically volatile and financially strapped real world in which natural resource planners function (Forester 1989). Concerns about the appropriateness of this traditional model of planning have been increasingly expressed in academic, government, and private sectors (e.g., Forester 1989; Friedmann 1973; Lee 1993). At the same time, planners are plagued by the inability to implement natural resource plans because of various challenges including an overburdened working environment, conflicting, complex and changing legislative mandates, shifting public values, and the potential for appeals, lawsuits, and injunctions. Such situations often lead to a paralysis of action where agencies, attempting to “bullet-proof” planning processes through a heroic focus on procedures, are stalemated in attempts to complete the work that is mandated by state and federal legislation.

Natural resource management problems have thus moved from the well-defined to the “wicked” and “messy” (Ackoff 1974; Allen and Gould 1986; Forester 1989; Ludwig 2001; McCool and Guthrie 2001; Rittel and Webber 1973; Shindler and Cramer 1999). Wicked problems and messy situations are typified by multiple and competing goals, little scientific agreement on cause–effect relationships, limited time and resources, lack of information, and structural inequities in access to information and the distribution of political power. While synoptic approaches are suitable and highly effective methods of designing the future in situations where problems are well defined, values are shared, and goals unambiguous and uncontested, they are not well suited to messy situations. Under these circumstances, negotiating a successful conclusion to a planning process requires an understanding of barriers planners experience in contemporary planning environments. Successful planning is more than simply producing a product (e.g., the final planning document) but rather involves dimensions related to learning, relationship building, ownership, and improved social and political acceptability (McCool and Guthrie 2001). In addition, issues of fairness, interaction, or mutual respect have been recognized to be critical attributes related to public involvement in land planning (Hunt and Haider 2001; Lawrence et al. 1997; Smith and McDonough 2001; Smith et al. 1999). This article presents the results of a study designed to assess natural resource planners’ perceptions of contemporary planning environments and the barriers to planning they experience.

## **Background**

### *History of Natural Resource Planning in the United States*

Natural resource planning in the United States grew largely from the Progressive Era policies of the early 20th century based on “technocentric utilitarianism” in which science and efficiency took precedence over values (Klyza 1996, 15). Planners employed by public agencies were presumed to represent the public interest (McGarity 1990), which at one time appeared to be unified and of one voice. This synoptic approach to planning tended to be solely within the realm of scientists and technicians and guided by experts to serve the public interest. Agency decision making was designed to be both professional and objective to avoid the appearance of bias (Poisner 1996). Data were considered suspect “unless gathered by experts, analyzed by experts, and interpreted to the public by experts” (Bryan 1996, 149). Thus, public

participation was often viewed as chaotic and unnecessary. Public perception of the abundance of natural capital and faith in technology negated radical reform.

Statutes including the National Environmental Policy Act (NEPA) of 1969, and the Federal Advisory Committee Act (FACA) of 1972 were responses to the perceived deficiencies of the Progressive Era planning models that worked “in a vacuum” and tended to isolate the public from decision makers. These laws sought to improve information sharing, promote greater public involvement, and encourage consideration of a broader range of values and consequences. However, the legislation that was thought to increase the transparency of state and federal decision-making processes has been replete with criticism including critiques of NEPA’s focus on procedure instead of process (Bergman and Kemmis 2000; Caldwell 1998; Webster 1997) and FACA’s attention to meeting demanding requirements with often ambiguous and conflicting mandates (Cortner and Moote 1999; Norris-York 1996; Schlager and Freimund 1997; Solomon et al. 1997). The reformist legislation that was supposed to provide for greater public involvement and information sharing has actually been responsible for greater alienation, apathy, and bureaucracy because it often promotes an adversarial context for planning.

Progressive Era approaches still tend to dominate natural resource planning today as demonstrated by natural resource agencies’ faith in scientific expertise (e.g., the Forest Service planning rule proposed in fall 2000 that increases the role of science in national forest planning) and the reluctance of agency planners to involve the public in a substantive and meaningful way in decision making. Under the synoptic model, public participation conforms to an expert-based model and serves primarily as a method of information collection, education, and technical analysis (Poisner 1996).

Admittedly, there exists a legitimate role for science within the planning process. However, many authors question the positivistic process of inquiry that has traditionally dominated planning or policy making (Burchfield 2001; Dryzek 1987; Fischer 2000; Innes 1990; Williams and Matheny 1995). Burchfield (2001, 240) maintains that while science can inform us that we are meeting standards, science cannot address the desirability of the conditions since these are normative decisions that involve standards that are exclusively “judgments made on factors that are socially and politically desirable.” Following what Williams and Matheny (1995, 39) refer to as a “postempiricist” view of science, planning models that recognize multiple interpretations and types of knowledge are termed postpositivist (Fischer 2000). These approaches to planning are “distinctive in saying that knowledge is not the exclusive province of experts, ... [while] accepting a subject element in all knowledge” (Innes 1990, 32). Thus, science under these conditions functions as a “guidepost” that serves to inform or reinforce but not dictate actions in messy situations (Burchfield 2001, 240).

### *Contemporary Messes and Natural Resource Planning*

Given that the goods and services the public demands are based on dynamic and often conflicting social values and judgments, it is no longer possible for the planning agency to represent all voices or to act in an unbiased manner. In these messy situations, the view of the planner as an omniscient representative of the public interest is highly questionable. Natural resource planning is therefore an intrinsically political process involving community deliberation and struggle. As Burchfield (1998, 36) notes, planning should be “politics with science advisors, instead of

science with political meddlers,” adding “the root of the problem is not that it has become too political; it is simply not political enough.”

No longer are the goods and services expected from natural resources viewed purely as commodities but rather, as Williams and Patterson (1999, 143) assert, “many important meanings and values are not identified through exchange or market transactions alone, if at all.” Symbolic meanings derived from cultural processes, for example, are hardly subject to typical expert analysis tools (such as linear programming and geographic information systems) and require different planning processes if they are to be identified, weighed, and evaluated.

To some extent, recent shifts in policy related to natural resource planning such as ecosystem-based management and the recent U.S. Forest Service (USFS) Committee of Scientists’ Recommendations for National Forest Planning Report have sought to address these issues (Johnson et al. 1999). However, critics have viewed these as only cursory responses since an ecosystem-based management approach that continues to utilize a synoptic model is simply the same problem analyzed at a larger spatial and temporal scale. Cortner and Moote (1999, 51) caution that while ecosystem-based management may employ adaptive and flexible management regimes, “the values, theories, methodologies, and tools of the old paradigm have not yet been discarded.”

Numerous individuals in diverse disciplines have expressed dissatisfaction with current planning models and have proposed innovations to improve natural resource planning, particularly concerning collaboration with the public. Stankey et al. (1999) maintain that a social learning model of planning, where scientists, managers, and the public jointly pursue problem solving, is most appropriate. Friedmann (1993) asserts that planners should act as facilitators involved in linking many types of knowledge to action using a transactive approach. Moote et al. (1994) establish a series of principles of ecosystem-based management, one of which recognizes a need for collaborative processes that allow for greater participation in problem definition and decision making. Machlis et al. (1994) propose an ecosystem model that places questions of human uses and values at the center of their approach. A new genre of literature now explores the potential of collaborative decision making applied in various settings (Cesteros 1999; Selin and Chavez 1995; Wondolleck and Yaffee 2000). Together, these authors, and many others, suggest that synoptic-based approaches are no longer appropriate in the messy situations commonly found in natural resource planning.

While there have been a number of attempts to use alternative models of planning, the absence of knowledge concerning barriers to effective and successful implementation of alternative planning models remains a critical gap. The research presented in this article explores barriers to natural resource planning in contemporary settings as reported by natural resource planners. In addition to identifying and describing the nature of barriers, the article concludes by positing a model that serves as a heuristic device illustrating how individual barriers interact and operate at different scales.

## **Methods**

Rather than conducting a general study of natural resource planners, we felt it was important to study specific planning contexts because of the linkages between context and barriers. We selected four contemporary planning processes that have

occurred in the northern Rocky Mountains in the United States: the Bitterroot Ecosystem Grizzly Bear Reintroduction Process, the Blackfoot River Recreation Management Plan, the Glacier National Park General Management Plan, and the Upper Clark Fork River Basin Management Plan. We selected these planning processes in part because they embody the range of planning issues often confronting planners and they reflect the type of wicked problems and messy situations for which synoptic planning models are ill-suited. We also selected these four planning processes because they represent a diversity of characteristics including focus of the planning effort, the spatial scale of the planning process, the body responsible for the initiation of the plan, and the nature of planning meetings (Table 1). Despite the simplistic nature of Table 1, these characteristics are important distinctions and provide additional insights to the barriers to natural resource planning.

While we recognize that planners have been traditionally defined as state or federal civil servants responsible for the negotiation and implementation of planning documents, our planners include a much broader array of individuals, in large part because of the extensive involvement by citizens in these planning processes. For this study, planners were defined as anyone involved in the deliberation, preparation, or related facets of the planning process and included agency staff (such as NEPA coordinators, wildlife biologists, etc.), representatives of non-governmental organizations, and ranchers or other landowners. These titles follow the excerpted interview text in the Results section. The purpose of this sampling was not to determine the extent to which perceptions of barriers were distributed across the population of natural resource planners, but rather to describe in rich detail the range of experiences and meanings associated with natural resource planning in the four study areas. We selected 28 individuals (5–9 planners per planning process). Given the small sample size, we used purposive rather than random sampling techniques to ensure that the sample included a diverse set of perspectives.

Data were collected through the use of in-depth, in-person interviews. We used a semistructured interview process. An interview guide was developed and used to ensure that the interviews were systematic and focused enough to cover relevant and comparable information. The questions were open-ended, focusing on barriers identified in our literature review. Follow-up probes were used to allow planners to elaborate on details, idiosyncrasies, and unique attributes that characterized a particular planning process. Interviews were tape-recorded and transcribed verbatim and form the empirical foundation of the project. Overall, the database consisted of more than 40 hours of taped interviews.

The data analysis was based on the development of an organizing system to identify predominant themes through which the interviews could be meaningfully organized, interpreted, and presented (Tesch 1990). This system is composed of an index system, meaning units, and thematic labels. The process of developing this organizing system is the analysis, while the final organizing system is the product of the analysis (Patterson et al. 1998). The index system consists of a numerical reference system associated with each sentence. These numbers serve as a means of locating and retrieving sentences for analysis. Next, meaning units, typically made up of groups of sentences that conveyed in some detail a concept or belief, were identified within the transcripts. For example, groups of sentences that describe a particular planning meeting and the adversarial atmosphere were assigned the meaning unit “Public Meeting—Contentious.” Later, thematic labels were developed which served to group the various meaning units under similar topics. These

**TABLE 1** General Characteristics of the Four Planning Processes Studied

Characteristic	Bitterroot Ecosystem Grizzly Bear Recovery Process	Blackfoot River Recreation Management Plan	Glacier National Park General Management Plan	Upper Clark Fork River Basin Management Plan
<i>Focus of plan</i>	Grizzly bear recovery	Recreation	General management plan for the park	Water rights and instream flows
<i>Spatial scale</i>	Multiple watersheds (~40,000 km <sup>2</sup> ) in W. Montana and E. Idaho	Single watershed (212 stream km), W. Montana	Multiple watersheds (~2,400 sq. km) in W. Montana	Single watershed (~260 stream km.) in W. Montana
<i>Duration</i>	1993 (first public scoping meeting) to present	1999 to present	1995 (first public scoping meeting) to 1999 (plan implemented)	1988 (first public-initiated meeting) to 1995 (plan implemented)
<i>Initiating agent</i>	Federal legislative decree	State legislative decree	Federal legislative decree	Local stakeholders
<i>Statement of purpose</i>	“To provide a program ... necessary to bring any endangered species or threatened species ... pursuant to this Act” (Endangered Species Act of 1973 (16 USC § 1531–1544, 1994 ed.)).	“To alleviate conflict, preserve the integrity of the resource ... for commercial and private recreational users” (House Bill 629, 1999 Montana Legislature)	“General management plans for the preservation and use of each unit of the National Park System” (U.S. National Parks and Recreation Act of 1978 (16 USC § 1a–7b, 1994 ed.)).	“Identify and make recommendations regarding the resolution of water-related issues in the Upper Clark Fork River basin” (Montana Code Annotated 85-2-335 to 338)
<i>Orientation of public meetings</i>	Restricted and intermittent	Unrestricted and frequent	Restricted and intermittent	Unrestricted and frequent

<i>Decision-making authority</i>	Secretary of the Interior (U.S. Department of the Interior)	Recreation Steering Committee (composed of local stakeholders)	Secretary of the Interior (U.S. Department of the Interior)	Upper Clark Fork River Basin Steering Committee (composed of local stakeholders)
<i>Possible outcome</i>	One of 4 possible "alternatives" (as identified in federal EIS process)	Undefined and flexible	Distinct "alternatives" (as identified in federal EIS process)	Undefined and flexible
<i>Political outcome</i>	Worsened relations between agency and public	Undetermined	Worsened relations between agency and public	Improved relations between agency and public

thematic labels correspond to the various barriers identified in this study, such as “Lack of Trust” and “Inflexibility.” The software package QSR Nud\*ist (version 4.0) was used to facilitate data analysis.

## Results

Analysis of the 28 interviews revealed 5 dominant barriers impeding one or more of the 4 planning processes. These barriers include:

1. Inadequate goal definition.
2. Lack of trust.
3. Procedural obligations.
4. Inflexibility.
5. Institutional design.

Each barrier is discussed in detail next.

### *Barrier 1. Inadequate Goal Definition*

A key barrier noted by planners in three of the planning processes was the inadequate definition of the goals that the planning effort was seeking to achieve. Comments from the sample of planners indicated that this barrier manifested itself in a variety of forms. In the Glacier National Park process, planners felt a major obstacle was the failure to identify clear goals as explained by Planner 1 (herein abbreviated as P):

The problem was a lack of a clear idea of what we wanted the plan to do ...communication with the public wasn't the problem, it was having everybody on the team clearly understanding what we were doing before we communicated. (P1 Glacier, Agency Staff)

This issue was also identified by a planner in the Blackfoot River process who noted that while there was agreement on goals defined in terms of broad ideals (e.g., to protect natural amenities or the “experience”), there was a failure to identify or agree upon specific, detailed goals at a level necessary to formulate management actions:

We kind of agreed on the fact that we wanted to protect the natural amenities of the river and the environs, the habitat, the experience ...[but] exactly how that was going to be done—there was a tremendous variation. ... Amazing that you could have outfitters have totally opposite opinions as to what the problems were. (P6 Blackfoot, Rancher)

In the case of the Grizzly process, the form in which the goal-related barrier emerged was that of a failure to find a mutually acceptable goal—a problem that extended beyond just disagreement among the general public to include branches of the government involved in the effort:

About half-way through the draft process, the political forces in the State of Idaho intervened and directed that the Fish and Game in Idaho not participate any more. So they haven't participated because they were politically removed from the process. (P12 Grizzly, Agency Staff)

A planner from Glacier also felt that this form of a goal-related barrier was problematic because of a diversity of issues and interests inherent in national parks:

I think what we found here in Glacier, or other big parks like Grand Canyon; it's just very difficult to get a comprehensive, overall vision of how a park should be when so many parts of the public look at it so differently. (P11 Glacier, Agency Staff)

In the Clark Fork process, the issue of goal identification was framed as a barrier successfully overcome. As P25 indicates, the ability of members to identify and agree upon "certain and definite goals" allowed critical details of the plan to be negotiated:

We had to build into the discussion explicit mechanisms to recognize that certain goals simply couldn't be overcome. . . . What we learned is you can maintain very certain and definite goals, and not make those open to negotiation, because there are plenty of other things to negotiate. (P25 Clark Fork, Representative of NGO)

### ***Barrier 2. Lack of Trust***

Planners in our study revealed deep concerns about trust, although this concern varied among the processes studied. For the Glacier and Grizzly processes, planners commented that trust was absent in dealing both with the public and among federal and state agency staff. A planner from Glacier explained that the release of a park-sanctioned newsletter generated substantial negative media attention, angered the public, and intensified a sense of mistrust:

We wasted, squandered a lot of goodwill with the public by presenting Newsletter 3 the way we did. . . . We should have been engaged in a productive discussion with the public. I think we missed that so much that we created a lot of distrust. . . . I don't think you get that back very easily. (P10 Glacier, Agency Staff)

Another planner with the Glacier process explained that the planning team acted like a "dysfunctional family" because of the history of competition for resources and the divergent and often antithetical interests and needs among divisions in the park:

I always had the feeling that the different staff members didn't trust each other. . . . This is true of all large parks, that they have been in competition with each other for so many years from division to division, and individual to individual in terms of trying to get manpower and management attention, they're like huge dysfunctional families. (P5 Glacier, Agency Staff)

One planner from the Grizzly process pointed out the consequences of mistrust at a personal level in which an employee was denied service at a store in a rural town because of their government affiliation:

When I was there, there was the story of one of our secretaries who went into town to buy a pair of shoes. [S]he went into a shoe store that had the sign in the window that this business is supported by timber dollars and they said, "we don't sell shoes to your kind, the Forest Service." . . . I felt very isolated in that community. (P26 Grizzly, Agency Staff)

Another Grizzly process planner described mistrust related to a situation in which agency staff were accused of staging a meeting:

Some people accused us of staging the meeting so we could manipulate public opinion...there's this xenophobia about anybody that's not from Salmon [ID] or not from Hamilton [MT], is not to be trusted. (P12 Grizzly, Agency Staff)

In contrast, several planners with the Clark Fork process explained that the forum they used encouraged dialogue and consequently promoted trust:

By having that face-to-face personal, frequent contact, the people at the table came to understand some things about each other's motivations and desires and mandates, and the dues they had to pay to their constituencies that they did not understand going into the project. With that understanding, we saw the breeding of trust...trust was integral to the project. (P25 Clark Fork, Representative of NGO)

The planning environment and ensuing trust that developed in the Clark Fork process also produced an important spin-off by allowing discussions about other related subjects:

You'd be surprised at how many times we got into discussions about elk and about other issues that the Department [Montana Department of Fish, Wildlife and Parks] was heavily involved in, in that upper basin. And we'd talk about them over coffee at the breaks. And I think by my being able to develop some level of trust with these people, that also then transfers into other dealings the Department has. (P24 Clark Fork, Agency Staff)

### ***Barrier 3. Procedural Obligations***

Nearly every planner interviewed explained that procedural obligations were constraining planning processes. Each of the processes mandated public involvement. However, the public involvement steps and subsequent dissemination of information applied in the Grizzly and the Glacier process followed a method more aligned to a synoptic model focusing on outcome (e.g., the document) rather than process (e.g., planning). The Grizzly process relied heavily on a series of formalized public hearings held in several communities to collect comments. One planner detailed the results of one of the public meetings that nearly turned violent:

All that the NEPA process guarantees is that you're going to find out the most polarized views from everybody. ... The whole idea of having public meetings is a disaster. ... You have people threatening each other. Somebody charges the stage and has to be tackled by the police. I mean, this isn't a functional way to do business in a civilized society. (P12 Grizzly, Agency Staff)

A planner with the Blackfoot River process described the "overwhelming" procedural obligations that certain federal agencies are required to perform:

[Agency staff] are trying so hard to follow the letter of the law, that they just get swamped and overwhelmed. . . . They almost get to the point of inactivity. It just gets gridlocked in this kind of endless loop of worrying. (P8 Blackfoot, Representative of NGO)

A planner in the Clark Fork process was critical of traditional public meetings because often “meaningful” dialogue is absent:

If you have huge audiences you never really get a dialogue. Basically what you get are opinions stated back and forth. . . . problems are invented just to confound the process. It’s playing a game to try to meet your end. . . . You meet the requirements of the law. . . . you incorporate the public in it, but you never do in a meaningful way where they’re actually part of the process. (P20 Clark Fork, Agency Staff)

#### ***Barrier 4. Inflexibility***

Our planners identified numerous barriers regarding flexibility that involved time, funding and a lack of personnel resources. According to one planner from the Glacier process, planning “by its very nature” must be flexible:

You have to allow for things not to work . . . planning is not an exact science. It doesn’t have a process that you follow without deviating. . . . Everybody wants a cookbook. Everybody wants something that can be done quickly and cheaply, and by its very nature, planning is neither quick nor inexpensive. (P9 Glacier, Agency Staff)

Flexibility is required, according to P25, for innovation and creativity to flourish:

Innovation implies that you really have some freedom to move, to experiment, and to think up initiatives without somebody saying, “well, we can’t do that because of—name your favorite US Code Annotated Statute.” Innovation requires flexibility. . . . It makes me optimistic that if people can be given some room, some latitude, . . . [they can] come up with solutions through some kind of generative struggle, a struggle that breeds creativity. (P25 Clark Fork, Representative of NGO)

P24 explains that under rigid time constraints, relationship building necessary to appreciate viewpoints and establish trust does not occur:

It really takes one-on-one contact, one-on-one discussions and deliberations to solve problems. It takes a lot of time, first of all, to just get to know the different players. It takes quite a while to develop trust . . . you can’t really solve these problems without first developing some sort of relationship with the people that you’re having to deal with. (P24 Clark Fork, Agency Staff)

#### ***Barrier 5. Institutional Design***

Nearly every planner described barriers that involve values, goals, and assumptions within the institutional framework of planning organizations and more broadly

within society. These institutional issues pertain to both the functioning of established institutional culture and processes and to individual and societal values. Planners described three main themes involving the power held by agencies or their staff, the influence of special interests, and public apathy.

One planner from the Glacier process discussed power and competing agency mandates, explaining that coordination between public land agencies or with private land owners is problematic:

The Forest Service will consult with us [National Park Service] on certain things, but there's no overall plan and they have a different mandate. They're managing for all these different things and, they don't have any more control over private land than we do. (P1 Glacier, Agency Staff)

Power was also an issue discussed in relation to the planner's perception of either being controlled or wanting to control the process. Implicit in both the Grizzly and the Glacier process was a top-down decision-making structure based on hierarchical authorization of objectives and designs at various government levels. P26 describes some managers in the Forest Service as "control freaks" and explains that dissenting employees are "pushed out":

From what I saw in the [National Forest name], it's a culture within the agency, and it is pretty much widespread and institutionalized—a bunch of folks that are control freaks and very happy to do the paramilitary thing and people that step out of line are chastised and not rewarded, and eventually pushed out of the system. (P26 Grizzly, Agency Staff)

Other elements relating to the institutional barrier of power included a perception that supervisors viewed collaborative decision making as threatening, fearing a loss of control:

The perception from the beginning on the part of many of the Park staff, was that their involvement didn't really matter ... because in the long run, [upper management] would just decide what they want to do and do it anyway. ... I think planning in general threatens managers because it represents a loss of control. (P5 Glacier, Agency Staff)

Several planners, including P6, described issues of public apathy, explaining the public is not interested until a problem becomes a "crisis":

The general public is usually not aware of or too interested in these things until there's a crisis of some sort. ... I think most people are very busy, are very preoccupied with their own personal problems. (P6 Blackfoot, Rancher)

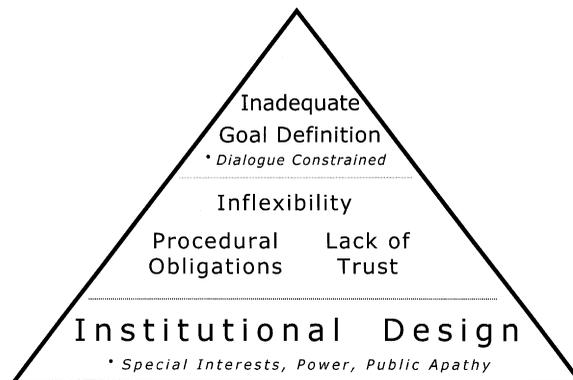
Other planners felt that planning processes are unduly influenced by special interests:

Washington is run by special interests. That's why Congressmen and Senators get lobbied by very narrowly defined special interests. ... The public has limited time. They're going to deal with sound bites. (P2 Glacier, Agency Staff)

## Discussion

These barriers, in our judgment, reflect underlying fundamental problems in the paradigm that planning has traditionally followed. As we noted in the introduction, the dominant paradigm of natural resource planning has been molded by a synoptic approach, a design that views planning as engineering, a conception that planners hold the technical expertise to solve socially problematic challenges, and an assumption that their actions represent the broad public interest. As we know, however, messy situations involve values as much as data, and therefore not only are different skills required of planners, but their very practice is constructed upon fundamentally different premises.

It is unlikely that the barriers identified in this study occur independently. In this regard, we posit a model that describes the relationship among barriers we observed in our study (Figure 1). Clearly, to meet the criteria of successful planning that we described earlier, a planning effort must be able to identify a clear, specific set of mutually acceptable goals. Assuming a singular public interest in a pluralistic society may be fatal to any natural resource planning process and results from implicit assumptions about goal agreement. In our study, those planning processes perceived as highly problematic by our sample of planners (Grizzly Bear Reintroduction, Glacier National Park, and Blackfoot River) all indicated that the difficulty or inability to define mutually acceptable goals was a significant problem. In the former two processes, goals were narrowly defined as one distinct "alternative" identified in a Final Environmental Impact Statement. In the fourth planning process (Clark Fork), the issue of goal identification was a barrier, but one that was seen as successfully overcome. In this case, participants in the process were given ample time and flexibility to identify problems and examine in detail their respective differences and similarities regarding goals and objectives. Bardwell (1991) explains that problem definition and the resultant goal identification is the most crucial factor affecting problem solving and ultimately drives the assumptions that undermine the problem, guides the strategies and actions taken to address the problem, and influences the quality of the solution. Hence, we view this as integral to problem solving and place this barrier at the top of our figure.



**FIGURE 1** A conception of how the barriers identified by planners in this study are linked, with the most visible and dependent at the top, and the most fundamental and structural forming the base. Attributes associated with the barriers are indicated with bullets.

Planners in this study claimed the failures they observed were often the consequence of constrained dialog (e.g., lack of open and effective communication among planning teams, upper management, and the public). We maintain that constrained dialog is primarily a consequence of the presence of and interaction among the next three barriers, since inflexibility, procedural obligations, and a lack of trust diminish the ability of a diverse group of stakeholders to share in learning, to build relationships, and to associate in other dimensions of successful planning.

Planners in this study discussed trust in detail. Trust is at the foundation of planning processes, involving both organizational and interpersonal trust (Moore 1995). Organizational trust involves fairness of the process used to develop a plan: people being treated fairly with the process containing rules to ensure this treatment. Interpersonal trust includes honesty, benevolence, and reciprocity. In the case of publicly managed natural resources, plans are a type of social contract between governments and those affected by government decisions. In an ideal sense, the contract (plan) outlines the actions that will be taken by stakeholders who have collaborated in the planning process. According to planners in this study, trust was regarded as an integral component of the planning process enabling relationships to be built and to prosper.

Planners in our study associated feelings of trust with the ability to be flexible. As Wildavsky (1973, 129) notes, "planned decisions often have unplanned consequences" and thus, in the face of considerable uncertainty, institutions need to exhibit flexibility (Dryzek 1987; Paehlke and Torgerson 1990). Since human values toward natural resources vary over time and space, planning institutions need to acknowledge this variation and apply flexible planning techniques. Flexibility also implies responsiveness to the learning engendered by adaptive approaches to planning and management. If planning is in fact a process for controlling the future in which setting goals and achieving them are part of the same series of actions, the ability to be flexible becomes essential.

Procedural obligations were also cited as a major barrier to successful planning. It is evident that many federal agencies involved in natural resource management have come to view procedural obligations as hurdles to overcome rather than strategic opportunities to improve public participation and relations. The fear of litigation has caused agencies to "bullet-proof" documents in order to prevent lengthy and expensive litigation and appeals. As Wik et al. (2000, 13) explain, "there has been a general agency preference for creating legally acceptable documents rather than . . . proactive resolution of concerns." Paradoxically, the agencies themselves instead of some external authority are often responsible for stringent procedural guidelines and bureaucratic requirements. The mechanization of an inherently dynamic and potentially creative process inevitably leads to formal meetings, one-way dissemination of information, and the disjointed execution of mandated planning phases to attain an end that is described more by the production of a plan than the creation of a new future.

Implicit in many of the statements regarding procedural obligations is that middle-ground positions are rarely presented as groups use public hearing formats not as a collaborative process designed to establish dialogue around issues and goals. Instead, the hearing becomes a forum for opportunities to claim negotiating positions. Part of this failure may be ascribed to a public involvement process in a highly charged public atmosphere that emphasizes one-way flows of communication and hearing officers only facilitating meetings (making sure that speakers stay within time limits, etc.), sitting at the table like the proverbial potted plants. Such a procedural focus may

overwhelm the need for public participation that informs agencies and publics, instead emphasizing the gathering of information, but not establishing communication.

While the presence and interaction of these three barriers may serve as the immediate cause of constrained dialog and inadequate goal definition, ultimately the basis for these barriers to planning are institutional in nature. Caldwell (1990) refers to these problems as operating at the “systemic level,” suggesting extensive restructuring and reform within the decision-making culture. At its most fundamental level, these systemic criticisms concern institutional design, mission, and performance (Dryzek 1987; Stankey et al. 1999; Wilkinson 1992).

Power associated with the institutional culture in which many of the planners function was a prominent theme throughout the study. While agencies retain the legal power to conduct planning processes, the political power over implementation has often been divorced from the process and is held by one or more sometimes-competing interests. Such power is not randomly distributed but is held in differing amounts by different interests (Forester 1989), both within and outside the planning agency. Struggles regarding control over the planning process often occur and decrease the potential for planners to work as a functional team of players willing to accept and give vital and varied forms of knowledge.

Public apathy toward natural resource planning as cited by several of the planners may be derived from a sense of cynicism, disenchantment, or lack of trust, leading to the belief that agencies don’t acknowledge, hear, or honor what the public has to say. Thus, the prevailing public view is often to bypass the agency and go straight to court.

The pervasive influence of what several planners cited as “special interests” is a direct result of pluralistic forms of governance in which building coalitions and establishing majority rule dictate the functioning of how citizens act and interact and how language is used and manipulated (Williams and Matheny 1995). Thus, the very forms of governance that pervade American culture are suspect and perhaps in need of intense introspection with a new emphasis on civic interactions and the promotion of more democratic and participatory forms of engagement and resolution that represent a commitment on the part of stakeholders working in cooperative ways. Practicing what Ostrom (1997, 294, citing Tocqueville 1835–1840 1945) terms the “science and art of association,” institutional changes would challenge the prevailing forms of governance and related methods of natural resource planning. Instead, planning would be guided by conditions of “common knowledge, shared communities of understanding, agreeable patterns of social accountability, and mutual trust” (Ostrom 1997, 301). The means of negotiating successful resolution of natural resource-related conflicts assumes an environment conducive to these elements rather than “a culture of command and control dominated by those engaged in the art of manipulation” (Ostrom 1997, 11) common to the maneuvering employed by special interests.

This proposed model has an important heuristic value. While isolated planning efforts may successfully overcome barriers by focusing primarily on establishing adequate goals through addressing the immediate barriers, in the long term, only changes in institutional design will address these reoccurring problems.

## **Conclusions**

Clearly, natural resource planners are confronted with a variety of troublesome and perplexing barriers in messy situations. Inadequate goal definition, lack of trust, procedural obligations, inflexibility, and broader issues relating to institutional design

emerged as dominant themes by planners involved in the four planning processes. While it is unlikely that planners will encounter all of the barriers that our planners identified in a single planning situation, our research shows that even one barrier may be enough to overwhelm those involved in planning processes. The stories our planners tell suggest a real world of challenge and disappointment, success and frustration, satisfaction and calamity, complexity and order in the face of messes. This world is acknowledged to be dynamic and uncertain, with rules apparently changing amid a cacophony of affected voices. To listen, and then hear, is an incredible challenge. To hear and then act is a strenuous exercise fraught with pitfalls endemic to the highly politicized settings characteristic of natural resource planning.

Our study examined planner perceptions of barriers. However, more extensive analysis of the myriad of characteristics in which planning is likely to succeed will only enhance an understanding of how to better execute planning in messy situations. Future research should investigate innovative planning techniques that explore the potential of experimental collaborative efforts, incorporate more dynamic variation in the spatial and temporal scales of analysis, and attempt to challenge fundamental assumptions of institutional design. Policy changes could advance these innovations by encouraging flexibility while reducing burdensome procedural obligations. If planning in messy situations acknowledges various barriers and recognizes the process to inherently be “politics with science advisors” (Burchfield 1998, 36), then an essential course of action would involve two distinct steps. The first would seek to encourage the potential for people to practice civic means of association, stressing dialogue and relationship building when addressing complex problems. The second step would entail the exploration of the role of science in messy situations and the relationship between politics and science in an increasingly technologically oriented society.

However, neither inculcating citizens nor providing cursory opportunities for innovative planning will alone ameliorate the barriers to planning. Until common perceptions of the barriers presented here as well as additional obstacles are identified and understood, structural change cannot occur. Yet we cannot help but believe that these barriers are linked and reflect a need for fundamental change—changes to the point where public involvement and planning processes in messy situations are inextricably intertwined.

## References

- Ackoff, R. L. 1974. *Redesigning the future: A systems approach to societal problems*. New York: John Wiley and Sons.
- Allen, G. M., and E. M. Gould, Jr. 1986. Complexity, wickedness and public forests. *J. For.* 84(4):20–24.
- Bardwell, L. 1991. Problem framing: A perspective on environmental problem-solving. *Environ. Manage.* 15(5):603–612.
- Bergman, H., and D. Kemmis. 2000. Introduction. In *Reclaiming NEPA's potential: Can collaborative process improve environmental decision making?*, 3–5. Report from a March 1999 Workshop on the National Environmental Policy Act, cosponsored by O'Connor Center for the Rocky Mountain West at the University of Montana and Institute for Environment and Natural Resources at the University of Wyoming.
- Bryan, H. 1996. The assessment of social impacts. In *Nature resource management: The human dimension*, ed. A. W. Ewert, 145–166. Boulder, CO: Westview Press.
- Burchfield, J. 1998. Abandoned by the roadside. *Chron. of Commun.* 3(1):31–36.

- Burchfield, J. 2001. Finding science's voice in the forest. In *Across the Great Divide: Explorations in collaborative conservation and the American West*, ed. P. Brick, D. Snow, and S. Van de Wetering, 236–243. Washington, DC: Island Press.
- Caldwell, L. K. 1990. *Between two worlds: Science, the environmental movement and policy choice*. New York: Cambridge University Press.
- Caldwell, L. 1998. *The National Environmental Policy Act: An agenda for the future*. Bloomington: Indiana University Press.
- Cesteros, B. 1999. *Beyond the hundredth meeting: A field guide to collaborative conservation on the West's public lands*. Tucson, AZ: Sonoran Institute.
- Cortner, H. J., and M. A. Moote. 1999. *The politics of ecosystem management*. Washington, DC: Island Press.
- Dryzek, J. S. 1987. *Rational ecology: Environment and political economy*. New York: Basil Blackwell.
- Fischer, F. 2000. *Citizens, experts, and the environment: The politics of local knowledge*. Durham, NC: Duke University Press.
- Forester, J. 1989. *Planning in the face of power*. Berkeley: University of California Press.
- Friedmann, J. 1973. *Retracking America*. Garden City, NY: Anchor Press/Doubleday.
- Friedmann, J. 1993. Toward a non-Euclidean theory of planning. *J. Am. Plan. Assoc.* 60(3):482–485.
- Hudson, B. M. 1979. Comparison of current planning theories: counterparts and contradictions. *J. Am. Plan. Assoc.* 45(4):387–398.
- Hunt, L., and W. Haider. 2001. Fair and effective decision making in forest management planning. *Society Nat. Resources* 14(10):873–887.
- Innes, J. 1990. *Knowledge and public policy*, 2nd ed. New Brunswick, NJ: Transactions Books.
- Johnson, K. N., J. Agee, R. Beschta, V. Dale, L. Hardesty, J. Long, L. Nielsen, B. Noon, R. Sedjo, M. Shannon, R. Trosper, C. Wilkinson, and J. Wondolleck. 1999. Sustaining the people's lands: recommendations for stewardship of the National Forests and Grasslands into the next century. *J. For.* 97(5):6–12.
- Klyza, C. M. 1996. *Who controls public lands? Mining, forestry and grazing policies, 1870–1990*. Chapel Hill: University of North Carolina Press.
- Lawrence, R. L., S. E. Daniels, and G. H. Stankey. 1997. Procedural justice and public involvement in natural resource decision making. *Society Nat. Resources* 10(6):577–589.
- Lee, K. N. 1993. *Compass and gyroscope: Integrating science and politics for the environment*. Washington, DC: Island Press.
- Ludwig, D. 2001. The era of management is over. *Ecosystems* 4:758–764.
- Machlis, G. E., J. E. Force, and S. E. Dalton. 1994. *Monitoring social indicators for ecosystem management*. Walla Walla, WA: Interior Columbia Basin Ecosystem Management Project, USDA Forest Service.
- McCool, S. F., and K. Guthrie. 2001. Mapping the dimensions of successful public participation in messy natural resources management situations. *Society Nat. Resources* 14(4):309–323.
- McGarity, T. O. 1990. Public participation in risk regulation. *RISK Health Safety Environ.* 1:103–130.
- Moore, S. A. 1995. The role of trust in social networks: Formation, function, and fragility. In *Nature conservation 4: The role of networks*, ed. D. A. Saunders, J. Craig, and E. M. Mattiske, 148–154. Surrey, New South Wales, Australia: Beatty and Sons.
- Moote, M. A., S. Burke, H. J. Cortner, and M. G. Wallace. 1994. *Principles of ecosystem management*. Tucson: Water Resources Research Center, University of Arizona.
- Norris-York, D. A. 1996. The Federal Advisory Committee Act: Barrier or boon to effective natural resource management? *Environ. Law* 26(1):419–446.
- Ostrom, V. 1997. *The meaning of democracy and the vulnerability of democracies: A response to Tocqueville's challenge*. Ann Arbor: University of Michigan Press.
- Paehlke, R., and D. Torgerson (Eds.). 1990. *Managing Leviathan: Environmental politics and the administrative state*. Peterborough, Ontario: Broadview Press.

- Patterson, M., A. Watson, D. Williams, and J. Roggenbuck. 1998. An hermeneutic approach to studying the nature of wilderness experiences. *J. Leisure Res.* 30(4):423–452.
- Poisner, J. 1996. A civic republican perspective on the National Environmental Policy Act's process for citizen participation. *Environ. Law* 26(1):53–94.
- Rittell, H. W. J., and M. M. Webber. 1973. Dilemmas in a general theory of planning. *Policy Sciences* 4:155–169.
- Schlager, D. B., and W. A. Freimund. 1997. Legal and institutional obstacles to implementing ecosystem management. In *Integrating social science and ecosystem management: A national challenge*, ed. and comp. H. K. Cordell, L. Caldwell, and S. Mou, 57–72. Gen. Tech. Rep. SRS-17. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station.
- Selin, S., and D. Chavez. 1995. Developing a collaborative model for environmental planning and management. *Environ. Manage.* 19(2):189–195.
- Shindler, B., and L. A. Cramer. 1999. Shifting public values for forest management. *West. J. Appl. For.* 14(1):28–34.
- Solomon, R. M., S. Yonts-Shepard, and W. T. Supulski II. 1997. Public involvement under NEPA: Trends and opportunities. In *Environmental policy and NEPA: Past, present and future*, ed. R. Clark and L. Canter, 261–276. Boca Raton, FL: St. Lucie Press.
- Smith, P. D., and M. H. McDonough. 2001. Beyond public participation: Fairness in natural resource decision making. *Society Nat. Resources* 14:239–249.
- Smith, P. D., M. H. McDonough, and M. T. Mang. 1999. Ecosystem management and public participation: Lessons from the field. *J. For.* 97(10):32–38.
- Stankey, G.H., S.F. McCool, R.N. Clark, and P.J. Brown. 1999. Institutional and organizational challenges to managing natural resources for recreation: A social learning model. In *Leisure studies at the millenium*, ed. T. Burton and E. Jackson, 435–450. State College, PA: Venture.
- Tesch, R. 1990. *Qualitative research: Analysis and types of software tools*. New York: Falmer Press.
- Tocqueville, A. d. 1945. *Democracy in America*. New York: Alfred A. Knopf. (Originally published 1835–1840)
- Webster, R. 1997. Increasing the efficiency and effectiveness of NEPA through the use of technology. In *Environmental policy and NEPA: Past, present and future*, ed. R. Clark and L. Canter, 215–228. Boca Raton, FL: St. Lucie Press.
- Wik, J., L. Caldwell, R. Clark, A. DuVarney, J. McElfish, A. Hogan, R. Solomon, and J. Sutton. 2000. NEPA review. In *Reclaiming NEPA's potential: Can collaborative processes improve environmental decision making?*, 7–21. Report from a March 1999 workshop on the National Environmental Policy Act, cosponsored by O'Connor Center for the Rocky Mountain West at the University of Montana and Institute for Environment and Natural Resources at the University of Wyoming.
- Wildavsky, A. 1973. If planning is everything, maybe its nothing. *Policy Sci.* 4(2):127–153.
- Wilkinson, C. F. 1992. *Crossing the next meridian: Land, water, and the future of the West*. Washington, DC: Island Press.
- Williams, B. A., and A. R. Matheny. 1995. *Democracy, dialogue and environmental disputes*. New Haven, CT: Yale University Press.
- Williams, D. R., and M. E. Patterson. 1999. Environmental psychology: mapping landscape meanings for ecosystem management. In *Integrating social sciences with ecosystem management: Human dimensions in assessment, policy, and management*, ed. H. K. Cordell and J. C. Bergstrom, 141–160. Champaign, IL: Sagamore.
- Wondolleck, J. M., and S. L. Yaffee. 2000. *Making collaboration work: Lessons from innovation in natural resource management*. Washington, DC: Island Press.