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# Building Trust in Natural Resource Management Within Local Communities: A Case Study of the Midewin National Tallgrass Prairie

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**Abstract** Communities neighboring federally protected natural areas regularly weigh the costs and benefits of the administering agency's programs and policies. While most agencies integrate public opinion into decision making, efforts to standardize and formalize public involvement have left many local communities feeling marginalized, spurring acrimony and opposition. A significant body of research has examined barriers to effective public participation as well as strategies for relationship building in planning processes; many of which point to trust as a key factor. Trust is especially tenuous in local communities. This paper explores perceptions of trust, expectations for management, as well as constraints to building trust. In-depth interviews were conducted with 21 community members and USDA Forest Service personnel at the Midewin National Tallgrass Prairie in northeastern Illinois. The interviews revealed that trust is perceived as important to effective management. Distinct expectations for management outcomes and processes emerged, including the values, knowledge, and capacity demonstrated in management decisions and actions and opportunities provided for communication, collaboration, and cooperation within the agency-community relationship. The case study identified several constraints to building trust, including competing values, knowledge gaps, limited community engagement, and staff turnover.

**Keywords** Trust · Natural resource management · Public involvement · Collaboration

## Introduction

Since the 1960s, public disenchantment with and distrust in the traditional top-down, expert-driven style of decision making in the U.S. has spurred initiatives aimed at giving the public a voice in government. Two such initiatives are codified in the National Environmental Protection Act of 1969 and the National Forest Management Act of 1976, which mandate public involvement in natural resource planning and establish a timeline for public involvement procedures, such as scoping meetings and comment periods, in the decision-making process. Although these efforts to formalize and standardize public involvement were intended to make agencies more accountable and agency decisions more deliberate and transparent (Wondelleck and Yaffee 2000; Lachapelle and others 2003), they also have sparked controversy, especially in communities in proximity to federally protected areas (Carroll and Hendrix 1992; Krannich and Smith 1998; Shindler and Toman 2003).

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Furthermore, despite their mandates, managers are given very little direction in how to involve the public or what techniques are most effective. In some cases, public involvement processes and increased procedural requirements have left local residents feeling marginalized and disempowered, spurring acrimony, opposition (Frenz and others 2000), and distrust (Davenport 2003).

The concept of trust is not new to natural resources discourse. The notion of trust has emerged within the context of natural resources planning and the public's reliance on government agencies to protect natural areas and to provide public benefits. Researchers and practitioners in the field have characterized public trust as integral to effective natural resources decision making and implementation (Shindler and Cramer 1999; Wondelleck and Yaffee 2000; Pretty and Ward 2001). Perhaps trust is so coveted because the effects of distrust can be destructive. Distrust long has been recognized as one of the biggest obstacles to effective natural resource management (Hendee 1984), and as many researchers have observed, distrust continues to plague managers today (Carroll and Hendrix 1992; Hunt and Haider 2001; Lachapelle and others 2003; Nie 2003). Fear, skepticism, and opposition are among the most notable consequences of a lack of public trust in agencies (Wondelleck and Yaffee 2000). As Nie (2003) explains, distrust can be both a driver and a byproduct of natural resource conflict:

> ''[Distrust] often plays a primary and vicious role by undermining constructive debate and public inquiry. It is certainly a major obstacle in finding common ground or working compromises and in advancing innovative and experimental approaches to problem-solving'' (p. 332).

Despite the increasing attention it has received, the notion of trust, including how it is developed and maintained between natural resource management agencies and their constituents, continues to lack real clarity. Even less clear is the role trust plays in the unique relationships between local communities and agencies and agency personnel.

In this article, we provide an overview of the trust construct, present current applications of trust in natural resource management research, present a case study of community trust and constraints to trust in the Forest Service at the Midewin National Tallgrass Prairie (Midewin), discuss the study's theoretical and practical contributions, and provide recommendations to natural resource managers.

## Driving Theoretical Framework

The concept of trust has received much consideration and analysis across many disciplines. It has been associated with many positive benefits such as cooperative behavior, ''adaptive organizational forms,'' conflict reduction, decreased transaction costs, and ability to organize (Rousseau and others 1998). The driving theoretical framework for this study was drawn from social psychology and influenced by the applied fields of organizational management, risk analysis, political science, and natural resources management.

### The Social Psychology of Trust

According to Barber (1983), trust is essential to every social relationship or social system, because trust reduces disorder and facilitates goal attainment. At the same time, it has been argued that trust is never entirely realized (Barber 1983) and once granted, trust must be actively maintained (Kasperson and others 1992). In the context of natural resource management, Shannon (1990) likens the process of building trust to the creation of a ''social contract'' or a binding agreement that addresses the values and objectives of the administering agency and the public.

Although disciplines and even researchers within disciplines have taken different analytic approaches to trust, a basic agreement exists as to its definition. According to Rousseau and others (1998), trust is best defined as ''a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behaviors of another'' (p. 395). Similarly, Earle and Cvetkovich (1995) define social trust in the context of governance as a willingness to rely on institutions with formal roles in policy making and implementation. The two key underlying assumptions emphasized that trust (1) requires a certain degree of dependence and (2) accompanies a particular set of expectations, are central to understanding the construct in the context of natural resources management. Recent risk analysis literature has suggested that the trust concept should be distinguished from confidence and competence constructs. However, the definitions of trust employed by these researchers are more narrowly defined. For instance, Siegrist and colleagues (2003) defined trust as ''...willingness to make oneself vulnerable to another based on a judgment of similarity of intentions or values'' (p. 706). Confidence is defined as the belief that the trustee will behave as expected. Rousseau and others' (1998) widely accepted definition of trust encompasses both of these definitions.

## The Concept of Trust in Natural Resources Management

While national polls measuring public trust in federal agencies have had varying results (see Hammond 1994; Dunlap 2000), examples of a distrusting public, especially in communities adjacent to or encompassed by protected areas, have been documented in academic literature (Carroll and Hendrix 1992; Krannich and Smith 1998; Wondelleck and Yaffee 2000; Davenport 2003; Shindler and Toman 2003).

Trust has been operationalized in natural resources management research, by some, as shared values. According to Earle and Cvetkovich (1995), social trust is developed through a shared set of cultural values. In the context of natural resource management, this conceptualization implies that an individual will trust an agency to the extent to which he or she perceives the agency shares his or her own values. Empirical evidence of shared values as a basis for trust in natural resource management exists (Cvetkovich and Winter 2003; Winter and Cvetkovich 2003). For example, in a study of southern California residents' trust in the USDA Forest Service, Cvetkovich and Winter (2003) found a high correlation between perceptions of shared values and trust in the agency's management of threatened and endangered species. Applying this model of trust as shared values, researchers have linked trust to attitudes toward fees and willingness to pay fees (Winter and others 1999) and approval of wildland fire management (Winter and Cvetkovich 2003, Winter and others 2004).

While conceptualizing public trust in natural resource management agencies as the perception of shared values has been established, some criticism of using a one-dimensional measure has emerged. Liljebald (2005) wrote, ''One-dimensional portraits of trust, such as the SVS [Salient Value Similarity] model offered by Earle and Cvetkovich (1995), may be overly simplistic, and not able to effectively represent the complexity of trust as an attitude'' (p. 20). Studies have indicated that other factors may contribute to trust in addition to shared values. Winter and others' (2004) survey of California, Florida, and Michigan homeowners suggests that trust in the government's ability to manage fuels is tied to perceptions of risks, benefits, and agency competence more so than value orientations. While the authors point out that value orientations are not equivalent to perceptions of shared values, their findings do suggest that the agency's ability to act on decisions plays a role in the formation of trust. Also, knowledge, particularly hazard knowledge, has been shown to exist as a factor correlated with trust (Siegrist and Cvetkovich 2000).

A significant number of today's natural resource disputes are driven by a conflict in values (Wondelleck and Yaffee 2000; Hull et al. 2001). The question becomes, how do agencies build trust when values clash? As Nie (2003) argues, in many instances it is not *what* decisions are made that drives natural resources conflict so much as *how* decisions are made. A growing body of research supports the notion of procedural fairness as a basis for trust. The theory of procedural fairness posits that the perception of equity or fairness in the decision-making process increases the acceptability of decision outcomes, even in cases where values or interests conflict (Lind and Tyler 1988). Research in this area has identified strategies for promoting relationship building (Frenz et al. 2000; McCool et al. Guthrie 2001) and ensuring fairness (Tyler and Degoey 1995; Lawrence and others 1997; Hunt and Haider 2001; Smith and McDonough 2001; McCool and Gothrie 2001) in public involvement processes. For instance, Smith and McDonough (2001) conducted focus groups with participants in a collaborative decision-making process. Their analysis revealed five themes essential to perceptions of fairness, including representation, voice, consideration, logic, and desired outcomes. Researchers generally agree that collaborative processes that exemplify fairness and emphasize relationship building promote trust.

These collaborative processes and public involvement efforts may not address all aspects of agency trust. Sitkin and Roth (1993) contend that these processes address only the component of trust related to reliability and do not address the value similarity component of trust. As Rousseau and others (1998) pointed out, negative experiences in the process can exacerbate distrust. Hunt and Haider (2001) found evidence of the ''frustration effect,'' in which perceptions of bias and participation in decision-making processes lead to distrust. Similarly, Lawrence and others (1997) contend that in some cases, high levels of historical distrust can trump efforts to promote procedural justice.

A limitation of past research on trust as shared values is that it has generally targeted a specific controversial management topic, such as fees, wildland fires, and endangered species protection. It would seem possible that trust in an agency to manage a particular phenomenon such as these would be closely tied to a respondent's attitudes toward that phenomenon and the perception that the agency shares that attitude. Secondly, research on procedural fairness has been limited to collaborative planning processes and predominantly participants' attitudes toward these processes. This study takes a broader look at trust in natural resource management and is not limited to participants in a collaborative process.

### Trust and the Local Community

Perhaps one of the biggest challenges to federal natural resource management agencies is balancing national mandates with the expectations and needs of local communities. It can be argued that the national public, as a whole, generally has more symbolic interests in far-away protected places, based on allegiances to particular interest groups (e.g., National Audubon Society or BlueRibbon Coalition) or espousal to certain philosophical beliefs about the purpose of public lands (e.g., ecocentric or anthropocentric value orientations). In contrast, local community stakeholders, including landowners, business owners, and residents, generally have a far more complex dependence on, interest in, and, thus, vulnerability to management. Davenport and Anderson (2005) uncovered a "web of meanings" that local residents ascribe to a nearby national scenic river, including river as sustenance, tonic, nature, and identity. Similar research examining place-based meanings has shown that recreation use, place of residence, and length of residence contribute to people's psychological and social attachments to natural areas (Williams and others 1992; Cantrill 1998). The fact that many local communities rely on revenue from natural resources extraction or nature-based tourism adds another layer of complexity. Krannich and Smith (1998) assert, "Frequent references to places as 'ranching communities,' 'mining communities,' 'logging communities,' and so forth reveals a tendency for many communities in the region to exhibit development patterns, socioeconomic structures, and cultural traditions that in various ways reflect high levels of dependence on the availability and utilization of land-based natural resources" (p. 677).

At the same time, while community members may have a greater and more complex dependence on and thus vulnerability to management of nearby protected areas, their desire or ability to participate in decision-making processes may not correspond with their apparent need for having a voice in decisions. A criticism of local communities has been that residents don't participate in management until a crisis occurs (see Lachapelle and others 2003). Lachapelle et al. (2003) have labeled this "community apathy"; although it can be argued that other constraints besides lack of interest may influence community participation, including socioeconomic status, institutional constraints, and perceptions of power (or powerlessness). In sum, the significance of trust and the impacts of distrust may be amplified in the context of local communities. The inclusion of local community members and, especially, nonparticipants in collaborative processes in this study provides a more holistic understanding of the concept of trust in natural resources management.

## A Case Study at Midewin National Tallgrass Prairie

In 1997, the USDA Forest Service (Forest Service) gained management authority of a decommissioned U.S. Army arsenal largely through the grassroots efforts of local community members and political activists. The majority of the property (approximately 19,000 acres) located 40 miles south of Chicago became the Midewin National Tallgrass Prairie (Midewin), the agency's first National Tallgrass Prairie and one of its smallest management units. The remaining arsenal land was divided between a county landfill, two industrial parks, and a national cemetery. Midewin is located entirely within Will County, Illinois, which has a population of 613,849 (U.S. Census Bureau 2004). Several small communities, all with populations less than 6,000, are located within five miles of Midewin's border. Although Midewin provides opportunities for hunting, hiking, and guided tours, to date recreational access is limited because of safety concerns associated with remaining hazardous sites. Only a few small remnants of prairie exist, and native prairie habitat restoration is one of the primary management priorities at Midewin. Midewin provides a unique context for studying trust in that it was established through local efforts less than ten years ago. Starting with a relatively clean slate, Midewin managers are looking for ways to build trust within the local communities.

### Methodology

We chose a qualitative research design characterized by a purposive network sampling scheme, in-depth personal interviews, and grounded theory data analysis procedures (Strauss and Corbin 1990). Qualitative research methodologies are especially appropriate when exploring complex, dynamic phenomena such as trust (Marshall and Rossman 1998). The inductive research approach preserves the detail and richness of study participants' perspectives and allows for unanticipated responses. Twenty-one individuals participated in the study including seven Midewin personnel and 14 community members. These participants were contacted and interviewed in the summer of 2002 (Table 1).

A purposive network sampling scheme was used in which initial key informants were identified and asked to provide names of others they know in the commu-

**Table 1** Participant profile

| | Gender | | Age (mean) | Years in community (mean) | Involved in community orgs. (%) | Recreated onsite (%) | Years at MNTP (mean) | Years with USDAFS (mean) |
|---|---|---|---|---|---|---|---|---|
| | Female | Male | | | | | | |
| Community ($n = 14$) | 4 | 10 | 58 | 44 | 93 | 50 | — | — |
| Agency ($n = 7$) | 4 | 3 | 47 | 4 | 57 | 43 | 4 | 16 |

nity who have an expressed interest in management at Midewin. While the sample was not intended to be statistically representative, it does reflect a cross-section of interests and connections to Midewin. Community participants were from several local communities, primarily Wilmington, Manhattan, and Joliet. Two participants were from the Chicago area. Participants represented various interests as adjacent landowners, local residents, business owners, farmers, and city or county officials. Four participants belonged to the Midewin Tallgrass Prairie Alliance, an advocacy organization. Many participants were either members or staff of organizations such as the Will County Center for Economic Development, Wilmington Chamber of Commerce, Ducks Unlimited, and Open Lands Project.

One limitation of this sampling technique is that those who have not explicitly expressed an interest in management at Midewin are not represented. In an exploratory study such as this, it is common to focus on a particular subset of the population for which the driving research question will be particularly relevant or that has demonstrated an interest in the study topic (Berg 2004). Attempts were made to interview community members who were characterized as supporters as well as opponents of current management initiatives. Half of the community participants described themselves as being active in Midewin collaborative planning processes (i.e., members of Midewin Alliance or other advocacy groups). Three of the participants were involved to a limited extent in Midewin planning activities (i.e., informally talked to staff or had written letters) and the remaining four were not involved.

An interview guide was used to ensure that certain topics, such as trust and constraints to trust, were covered. However, the structure of the interviews remained flexible, allowing participants the freedom to share their own perspectives on those topics. In other words, since understanding perceptions of trust was a primary objective of this study, participants were asked broad questions such as ‘‘Do you trust the Forest Service to manage Midewin?’’ ‘‘What has prompted you to trust (or distrust) the Forest Service?’’ and ‘‘How important is it that you trust the Forest Service?’’ Participants’ responses to these questions were not directed. In some cases, participants were encouraged to clarify their responses or provide examples through probing questions such as ‘‘What do you mean when you say ‘I generally trust them’?’’

Interviews were tape recorded and transcribed verbatim. Interview transcripts were analyzed following Strauss and Corbin’s (1990) data organization and interpretation techniques. Ideas, phenomena, and descriptions embedded in the transcript text were delineated into discrete meaning units (e.g., phrases, sentences, and paragraphs), coded (i.e., labeled with single words or short phrases that reflect the unit’s meaning), and organized into categories, subcategories, and properties. The process of coding discrete meaning units enabled analysts to organize and interpret over two hundred pages of interview text. The coding system was grounded in participants’ own words and it continuously evolved as new meaning units were discovered. Similar meaning units were grouped together and organized into broad categories, more specific subcategories, and descriptive properties.

After the meaning units were coded and organized, analysts returned to the interview texts to validate the coding and organization processes and to ensure that further interpretation was grounded in the participants’ own perspectives. Common and contrasting themes associated with the broad concepts of trust were assessed and documented. Analysts used tables, concept maps, diagrams, and other tools to enhance theoretical sensitivity. An underlying theoretical framework of trust was developed representing thematic patterns and relationships that emerged through the analysis process. To ensure trustworthiness of study findings (Marshall and Rossman 1998), study participants were asked to review the original transcripts, a team of researchers corroborated transcript codes and themes, and the entire data collection and analysis process was documented in a research journal. Negative case analysis was used throughout to challenge emerging thematic structures and to ground theoretical interpretations in the participants’ own perspectives.

## Case Study Findings

The selected study findings below highlight key dimensions and themes related to community and agency participants' perceptions of trust. Interview excerpts are included to demonstrate these themes. First, community participants' descriptions of their own trust or distrust in the Forest Service are presented, including their perceptions of the importance of trust. Second, constraints to building trust within the broader community are presented with perspectives from community and agency participants. Third, agency perspectives on opportunities for building strong relations with the community are presented.

### Trust in the Forest Service

#### *Participants' trust in the Forest Service*

Community participants were asked if they trust the Forest Service to manage Midewin. Responses varied overall. Analysis of participants' explanations of their trust or distrust in the Forest Service revealed three distinct dimensions of trust: (1) institutional trust in management processes, (2) institutional trust in management outcomes, and (2) interpersonal trust in agency personnel. A few participants distinguished their personal trust in Midewin staff from their trust in the agency as a whole. Before responding to the question, two participants explicitly qualified their answers by differentiating trusting government from trusting the Forest Service or the "people" of the Forest Service:

> "I have no reason not to trust the Forest Service. Do I trust government? That's another question. I can't say that I mistrust the Forest Service, but I think I understand the process and I think I understand what the government does and doesn't do. And I certainly understand the kind of issues around funding."
> "I have no reason not to trust. Everyone that I have dealt with has been forthright. When you say do you trust the Forest Service, you are talking about some faceless entity. The people I deal with are the Forest Service to me and they have been very good. Yes, I trust the people I deal with."

#### *Institutional trust in management processes*

Institutional trust (or distrust) in management processes was demonstrated in participants' remarks about public input and cooperation with other agencies and organizations in decision making and implementation processes. When asked about her trust in the Forest Service, a participant described the transparency of the decision-making process and the use of public input. She explained, "Yup, I sure do [trust the Forest Service]. They have to have public input and it's our responsibility to give them input and if we don't and they're doing what we don't like, then whose fault is it? So yeah, they're not doing anything behind anyone's back. It's all in print." In contrast, another participant who stated he did not trust the Forest Service questioned the legitimacy of public involvement processes. He asserted, "I think they take input that goes along with their philosophy, but if they get input that does not go along with their philosophy on use or management then, 'thank you very much, you're out of here."

Another participant was reassured by the multiple agencies and advocacy organizations who advise the Forest Service:

> "I have no reason not to trust them. I think they've got some good capabilities. I think they're also being advised by a core of other agencies and organizations that aren't going to let them do the wrong thing, so I don't think there's too much risk there. I think the Fish and Wildlife Service is involved, you've got again this coalition of organizations and Prairie Parklands representing local communities and environmental groups that are pushing them as well. See, I'm pretty confident that things will happen."

The Forest Service's willingness to work with communities and other agencies and the resulting "creative thinking" was praised by one participant.

> "I have been impressed with...some of the creative thinking that is going along and the willingness to work with communities and work with other public agencies. ...There is a real sense of cooperation, taking part in partnerships, really trying to address the requests of the public the best they can."

Similarly, a local government official described the mutual benefits attained from working together:

> "I'd like to make sure we work together.... We'd like to cooperate with them in tourism so we may benefit from the tourism also. ...Just being able to work together on a variety of issues. In fact on policing, we are working on an intergovernmental agreement. We assist them, they assist us with our fire protection."

From a different perspective, a participant said that while she generally trusts the agency, she believes that the Forest Service may cooperate too much with other government bodies to the detriment of Midewin. She surmised,

> ‘‘In general, yes. I guess it is a little frustrating when controversial things come up, like the landfill or the coal fired plant. In general, it seems like they have to keep quiet about a lot of things that some of us feel very strongly about how it will affect Midewin. ...A lot of times one governmental body will cooperate with somebody else when you want them to stand up and say, ‘‘We are protecting this and we are not going to have any intrusions.’’ It's kind of like the red tape thing. They have to get something from higher up.’’

### *Institutional trust in management outcomes*

Institutional trust (or distrust) in management outcomes is tied to the participants' perceptions of the knowledge and values reflected in decisions and actions. When asked if he trusts the Forest Service to manage Midewin, a participant described his confidence in the expertise of the agency staff. He said,

> ‘‘Oh, yeah. They will manage it well; the way they think things should be done. They have a guy with a Ph.D. in horticulture.... And they have reasons to believe that's what should be done. It will be well done, whether it's what I want or not. And I certainly would trust them.’’

Two participants with differing value orientations were reluctant to trust the Forest Service based on its values. The first was concerned about the potential for shifting management philosophies with changes in leadership. The second called the agency's constituency a ‘‘microcosm,’’ overly focused on preservation.

> ‘‘I don't know all the people at the regional level. Some of the Forest Service people likely want to be planting and cutting trees. I think we've had some good managers and some good supervisors...but you can also have turn around with different philosophies and that's something we're always afraid of. ...There can become a need from the higher levels in the government that say ‘‘mine it, dig it, destroy it’’ because it's best for the economy of the nation. That's what scares me.’’
>
> ‘‘[Do I trust them to manage] for usage? No. For preservation? Probably. I think they were self-serving. I don't think they are community minded at all. I think their constituency is a microcosm.... It is very narrow and focused on preservation rather than usage. Otherwise, why would the fences still be up?’’

### *Interpersonal trust in agency personnel*

When asked if they trust the Forest Service to manage Midewin, several participants attributed their trust to the personnel with whom they have developed relationships. A local government official described his attempt to get to know the former prairie supervisor.

> ‘‘When I first was on the planning and zoning commission...there was some mistrust, almost hostility between the city and the Forest Service. But I made a point of going out and getting to know [the former supervisor] and talking to them. ... It's almost like anything, when you get to know somebody and understand them, it is difficult to dislike them.’’

Community participants credited the employees' responsiveness, honesty, and work ethic for contributing to their trust in the Forest Service.

Participants described employees as accessible, outgoing, and eager to help. A participant explained, ‘‘When we have picnics and parties, that is when you get to know people. And they come off being very friendly and eager to help and give you information on whatever you want to know.’’ Similarly, two other participants commended employees' responsiveness:

> ‘‘What I find is that if my group has questions, or myself as an individual, they're accessible. I can get to them, I can talk to them, I can e-mail them, and they e-mail me back with the information. There's a real dialogue there, which I think is really important. And I think as far as outreach and information, they're fantastic.’’
>
> ‘‘I've got relatives that work for them, so yeah, I do trust them. I think that they have a tough job and everybody that we have worked with has been very willing to come out and give us a program. We just had a program this past week where we used several people that help teachers identify what trees were, what flowers were. And they're very, very outgoing people.’’

Being honest and upfront were qualities that several participants acknowledged are important to trusting agency personnel. A participant explained, ‘‘Oh yeah

I do trust them. It is just that you have to deal with all the red tape and paperwork and that takes forever. ...I deal with them rather personally, involved with meetings and stuff. They seem to be very straightforward." A second participant described interactions with the Forest Service in the past that left her wondering if personnel were being sincere. She contrasted that skepticism with her trust in the new supervisor who has been "pretty candid." She added that knowing personnel over time has increased her trust in the Forest Service:

> "Previously, there was an apprehension about what everybody was up to. And if you finished a meeting with them, it was—did they tell you everything or did they not tell you something on purpose? So I think what's happened over a period of time is that you kind of learn people, where they are going and what they're objectives are. With the new supervisor there, to me it's kind of a fresh approach, because she's pretty candid and she comes out and says what she feels. So I think over time the trust factor comes into play. ...I think it's our trust in knowing what they are doing, and knowing what they expect and now knowing some of the players for longer periods of time, understanding their personalities."

Some participants recognized Midewin employees for their work ethic and dedication to their jobs:

> "We trust the Midewin personnel, near total trust. They believe in the project. Sometimes they have to put in extra hours to work with people like myself...and answer our questions. I couldn't ask for a better group of people."

One participant added that she may not agree with everything they do, but she respects their beliefs nonetheless:

> "One thing that impresses me is how dedicated they are. They're not just bureaucrats punching a time clock. They actually believe in what they are doing. I may not agree sometimes with some of the things, but I always respect their beliefs. It is not just a job to them."

### *Importance of trust*

To understand to what extent participants perceive trust matters in natural resource management, study participants were asked how important it is that the community trusts the Forest Service to manage Midewin. Generally, community and agency participants perceived trust to be important in the proper functioning of the agency at Midewin and to effective natural resource management. For example, the local community's trust was characterized as playing a pivotal role in volunteerism at Midewin and, in turn, the success of its prairie restoration projects. The following excerpts, first from an agency participant and then from a community participant, illustrate the belief that mutual trust is needed because of the agency and community's unique interdependence:

> "[Trust is] vital. We couldn't do half of what we're doing now without public involvement, because we depend so much on volunteers, more so than on most of the Forest Service units. I don't think we could function without them."
>
> "I think it is extremely important, because I think of us who have been involved for so long; have put in so much time and effort into all these different hearings and writing comments... I think we count on the expertise these people have to do a good job... and they depend on volunteers so much that they can't afford to lose the confidence and the trust that people have in them."

Another participant described the importance of mutual trust in promoting stewardship in the future. He said, "I think very, because once parts of Midewin are open to the public, it is such a huge area that they are going to need to depend on the public to kind of oversee what's happening there." One participant attributed his efforts to promote Midewin to other community members to his trust in the Forest Service. He explained, "I think it's very important because if I don't have trust in what they're doing, first of all, I won't be promoting their programs and activities. If I didn't trust them, I wouldn't be putting their information in our newsletter that goes out to our members." A city official admitted that while he isn't entirely enamored by some of the ongoing restoration projects, he trusts the agency and understands its mission:

> "In my dealings with them, with the city, it's very important to say I trust them. They go out and say these are native grasses that were there in the 12th century. ...I personally prefer trees to grass, so I don't care to see all the trees cut down, but I understand what they're doing."

On the other hand, an activist from the Chicago area was doubtful that trust is relevant in her relationship with the Forest Service. She added that she's been an active participant in government processes because she does not trust government to "always do the right thing." She explained,

> "Trust isn't the word I am going to use. I think that for the most part, the staff is going to try to do a good job. I may disagree, but it isn't a matter of whether I trust them to do what I want. I don't know how, I mean, do I ever trust government to always do the right thing? No. I mean that's why I've been interested in government all my life and an active participant. I trust them to do [the right thing] if they have public input, if they understand what their charge is."

## Constraints to Building Trust Within the Community

Since one goal of the study was to gain insight on how the Forest Service can build trust within the broader community, we asked community participants, many of whom are community leaders and representatives, to offer their perspective on this topic. Specifically, we asked participants if they believe the community trusts the Forest Service to manage Midewin, as well as to describe what has led them to this conclusion. Responses varied. Several participants noted that while some community members trust and others distrust, the majority of the community is not aware of the Forest Service and its management of Midewin. Participants were asked to describe the agency–community relationship and to provide suggestions on how the Forest Service could improve the relationship, if possible. Several constraints to building trust emerged. These constraints are directly related to the previously identified dimensions of trust and were organized accordingly.

### *Constraints to building institutional trust in management processes*

*Unclear communication* Unclear communication, in particular, agency vernacular, also has been a source of confusion and, in some cases, distrust in the past. A community participant called for better communication when the agency conducts environmental assessments.

> "When an environmental assessment is filed, there is very little definition of what they're really going to do. And I would think that before it is filed, they would take a broad group of people and insist that those people come down and show those people exactly what they were going to do. ...on the environmental assessment of tree removal, they said they would selectively remove trees. What in the world does selectively mean? When you cut 99 percent of the trees, is that selectively removing the trees? ...Nobody knows what's going on. You can't trust them or distrust them unless you know what's going on."

*Limited community engagement* The community's lack of engagement in programs and activities at Midewin was cited as a barrier to building trust. One participant believed that the broader community doesn't have an interest in issues such as biodiversity:

> "I think, considering the nature of some of these communities, because their learning curve in terms of being in tune with management issues and biodiversity and broader ecosystem concerns, they're not very far along themselves. I'm guessing they don't really either care, or think about it too much. It's not really their concern."

For some community members, participation in formal public involvement processes may be difficult because of the extensive time commitment that is required.

> "I don't think it could be any fairer. It's a very open process. The NEPA process, which I use that word loosely, allows for many layers of planning over a long period of time. However, the unfairness of it is in the fact that you have to be involved, not just in one meeting or two meetings, it takes many meetings to fully understand the process and what is being discussed."

A second community participant had a similar complaint and added that the time commitment required in the planning process may disproportionately affect local community members.

> "I think that they did a really good job when they did the whole planning process initially...the prairie plan. I thought they did a good job, but again, it turned out to be more the environmental people, the people who were interested in the environment. There's a whole segment of the population that does not even have time. We have one child. We can't be involved in a lot, let alone a family of three who's running kids left and right. So you've got a whole segment of the population

> who's so dang busy that they don't even know this place is right in their own backyard.''

*Limited community power* A few participants expressed skepticism about the validity of the process, suggesting that the agency is merely going through the motions when gathering public input.

> ''I testified when the original usage proposal was going in. ...And I thought that was an exercise in futility. I think that they just took testimony and had their plan already in place. I don't think they used any testimony from anyone. I think it was an exercise in, ''well, let's go out and have a public hearing, but we're going to do what we're going to do anyway, but we need to go through this.''

*Historical resentment* Evidence of a deep-seated distrust of government among some community members emerged. One participant recalled tensions between the agency and descendents of families who were forced to give up their land when the Army established the munitions plant in 1940. He said,

> ''When [the U.S. Army] bought this land, people only had 30 days to get out of there and it'd been in their family for three generations. One of them had just put a new house on the farm. They said, thirty days, just get out. We'll harvest your crops for you and pay you for them. And they all got market price—whatever it was worth to the world, not the people who lived there. There's still a feeling yet, by some of the descendents of those people that we should be able to buy it back.... So there's some negative there.''

*Constraints to building institutional trust in management outcomes*

*Conflicting values* Conflicting values, especially over prairie restoration, were viewed as a constraint to building trust, especially among particular interest groups like farmers, hunters, and some local landowners. According to a community participant, ''Most of them do [trust]. If you want me to put it in a percentage basis, I'd say 75 percent say that they do trust; 25 percent are maybe skeptical because of basically, they would rather have seen something else there.'' The Forest Service's restoration initiatives, such as removing field tiles and cutting trees, are unpopular to some community members and may have impacted their trust in the agency:

> ''When you say community as a whole, I would think you would almost have to divide that. I kind of get the funny feeling that the farming community don't trust them as much as the villages would. You know, especially when Midewin was talking about destroying some of the field tiles on their property to bring in wetlands and stuff. ...The farmer community feels that they are taking land out of production.''

Another participant suggested that the Forest Service could have been more flexible and worked with local landowners whose viewscapes were affected by tree removal.

> ''A lot of people do not understand why they are removing the trees. I know the reasoning behind it is that predators following along fencerows come into the fields...and so they are trying to decrease predation and increase habitat. ...I know it has upset a lot of people because it changes the view. It changed the view of [a local landowner], I think it was blocking out some unsightly view. And they took all the trees down because it was part of their plan. And I do think sometimes if common sense says that it is not going to make a huge difference if it is along the road anyway.... There probably are a few times when if they worked with an adjoining landowner, you know, that would have probably eased the situation. I can imagine if it were within my view that it would be kind of upsetting.''

*Slow progress* Several community participants acknowledged that the seemingly slow progress at Midewin with respect to restoration and public access has led to community skepticism. One participant described the slow planning process as ''inexcusable.''

> ''I don't think that in this day and age in areas like this the patience is there for a planning process that takes six years.... If you do a plan, you've got to bring enough resources to do it within a year or two and that's it. ...It was almost inexcusable that the planning process didn't go quicker.''

In many instances, participants criticized the agency for an inability to turn planning into action, especially within the context of public access.

> ''When you start to evaluate progress, you start to say, 'Well, it felt like things were moving, but guess what, it is still not open. Guess what, we only have a three mile trail outside the fence.' Is that progress? ...My sense is that the outside communities that aren't involved in Midewin think nothing has happened.''

Two participants questioned the Forest Service's capacity and commitment to Midewin. One participant explained, ''The legislation was passed in 1996 and the property still isn't open to the general public virtually at all. So this is seven years later, and it feels like the bureaucracy has really not put this at the top of their list.'' Another indicated that inefficiencies have affected the Forest Service's image in the community:

> ''[The Forest Service] bought an appreciable amount of high-priced farm equipment to put in some specialized seeds of grass, and it's sitting out there in the wind, rain, snow, all that. They finally got approval to build a huge machine shed and now these tools are out of sight. ...When [people] see these things out in the weather all the time, well, the Forest Service was looked at as not being too bright.''

### Constraints to building interpersonal trust

*Lack of community awareness of the Forest Service* Several community participants argued that the broader community has had few opportunities to interact with Midewin personnel. One noted that for some residents, Midewin employees are viewed simply as ''tree police'':

> ''Unless you are involved in some type of environmental activity, I don't think that you know much about them. I know them because I'm involved in this stuff. I know some of the kids, especially the kids who ride four-wheelers, can't stand the Forest Service, because they're always nailing them for riding.... So they look at them as the tree police, or police wannabes. ...But I think overall, the community doesn't know they exist.''

Some participants alleged that while the agency may have good relationships with a few organized groups, relationships with the broader local community are limited. Several acknowledged that only those who are actively involved in agency programs are informed. Another participant confirmed this perspective: ''The community in general really doesn't know too much about Midewin. Those who are in the circle are the only ones that communicate with Midewin.''

*Staff turnover* Staff turnover and its effects on the agency–community relationship was a common topic among community participants. According to one participant, losing agency personnel means losing a reserve of valuable information.

> ''When you lose that person, you lose part of your history and part of the information and communications and contacts. Then you have to start them all over again. That's why it's so important that we have input into getting somebody who's willing to get up to speed and do the job.''

A second participant noted that staff turnover takes its toll on those interpersonal relationships with the agency.

> ''We try to get to know them. That works very well until somebody moves on and you spend five years making a relationship and all of a sudden, there's another person there and you've got to start the relationship over.''

### Agency perspectives on opportunities for building strong community relations

Agency participants were asked to describe what steps they, personally, can take to improve their relationship with the local community and what the Forest Service can do to improve its relationship with the local community. Participants generally agreed that they would like to spend more time out in the community, both on and off the job, to get to know the local community members. Two participants who commute to work admitted that living in the local community would have helped their own relationships with residents:

> ''I guess just get out there and be a part of the community at several different levels, both professionally and personally, which is difficult here because I live in [town name] and I commute down here. ...To a certain degree my job would be a lot easier if I were living down here and I were seeing the same people on the street personally, that I was working with professionally and that

> the community that I was a part of personally and professionally were one and the same.”
> “I think if I lived in the city of Wilmington and participated in local community things, then that would certainly help me to get to know the city of Wilmington and this micro Midewin community better. ...If I lived here and participated in town meetings and went to a local church and was actively involved in that, yeah, that would help more in my relationship with the community.”

Participants encouraged the Forest Service to continue providing for community benefits whenever possible, including supporting community events, hiring locals, and contracting with local businesses.

> “I think the community has to see what we’re doing as a benefit. You know there are whole segments of the community that really don’t care if we restore 300 acres on the west side. But, they do care if we have an exhibit in their Catfish Days Parade or they do care if at Christmastime our employees take up a collection and bring it to the Christian Help Association. You know, if we can bring the local fire department out to teach our first aid course instead of contracting someone from Chicago, I think that’s a community benefit. Trying to hire locally, trying to contract locally, those kinds of things...”

Another participant urged the agency to provide more “on the ground public involvement opportunities.” She described one volunteer restoration project that inspired enthusiasm and pride within the community:

> “This little community group, Prairie Creek Preservation, based out of Manhattan, came out and I helped them as a volunteer to plant a bunch of different prairie species alongside [a streambank]. And then just a couple of weeks ago, they advertised, and they actually had a bunch of people who had nothing to do with Prairie Creek Preservation, just people who had read it in the newspaper, probably 40 or 50 people, come out to view that project. It was a little itty bitty project, but it took like three or four years and now flowers are blooming. It’s green. ...And people were very enthusiastic. The ones who worked on the project, you could see they felt a sense of satisfaction to be able to share it with other people. It meant a whole lot to them. We need to do more of that.”

## Discussion

The Midewin case study findings support the notion that no single perspective captures the complexities and subjectivity of trust in the context of natural resource management. Although the purpose of this study was not to quantitatively measure trust, the findings suggest that many community members, especially those who are actively involved with the agency and its programs, have a significant amount of trust in the Forest Service. At the same time, the findings indicate that the broader community may be less likely to trust the agency. What was most insightful, however, was community participants’ descriptions and explanations of what has led them to trust (or not trust) the Forest Service. Analysis of these discussions revealed three dimensions of trust relevant to the Forest Service’s management of Midewin: (1) institutional trust in management processes, (2) institutional trust in management outcomes, and (3) interpersonal trust in agency personnel.

These three dimensions of trust, as well as their key characteristics, are represented, respectively, in the following statements:

1. I trust (do not trust) the Forest Service because its management outcomes (do not) demonstrate certain values, knowledge, and resource capacity.
2. I trust (do not trust) the Forest Service because its management processes are (not) clearly communicated, fair, meaningful, and (do not) involve the local community.
3. I trust (do not trust) the Forest Service because I (do not) know its employees and believe them to be responsive, honest, and hardworking.

For many participants, interpersonal relationships played a central role in their trust of the Forest Service. According to community participants’ own accounts, positive interactions, both formal and informal, with agency personnel contributed to favorable images of the Forest Service and, ultimately, their trust in the agency. Responsiveness, honesty, and dedication were characteristics participants used to portray Midewin personnel. However, two community participants qualified their explanations of trust by distinguishing between trusting Midewin personnel and the government. None of the community participants cited current interpersonal relationships as a source of distrust, although, two participants recalled past relationships that had generated “skepticism” and “mistrust.”

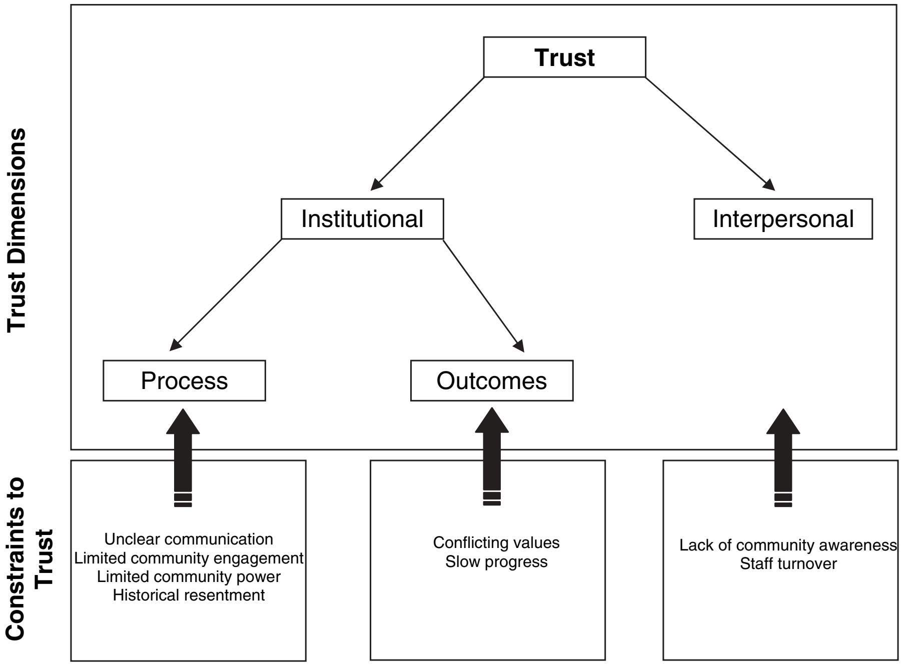

**Fig. 1** Trust in natural resources management at Midewin National Tallgrass Prairie

Participants' explanations also reflected institutional trust (or distrust) in management processes and outcomes. With respect to institutional trust, participants expected certain management outcomes and particular processes for influencing or monitoring those outcomes. Evidence of participants' distrust or concern emerged with respect to the values demonstrated in the agency's management decisions and actions that conflict with their own values. While some participants lauded the Forest Service's collaborative decision-making approach, others criticized the agency, one for relying too heavily on input from other governmental bodies and another for not incorporating input from local communities.

Additional insight was gained from inquiries about the broader local community and its trust in the agency. From the perspectives of these community leaders and representatives, several constraints to building trust within this population exist. These constraints validated the previously identified dimensions of trust and expanded on our understanding of how trust is formed, lost, and perhaps isn't considered among community members (Fig. 1). Conflicting values related to prairie restoration and the perceived slow progress at Midewin were indicative of a lack of institutional trust in management outcomes. Unclear communication, limited community engagement, lack of community power, and historical resentment were viewed as constraints to trust in the Forest Service, reflecting uncertainty in how the agency makes management decisions. Perhaps most revealing were the constraints to interpersonal trust, on which most study participants based their own trust in the Forest Service. Limited community awareness of the agency and staff turnover were common topics and perceived to be major constraints to building trust in the Forest Service.

By their comments on how to improve the agency–community relationship, agency participants largely were aware of the multiple dimensions of the relationship and trust. They suggested more interpersonal interactions, providing more community benefits and promoting alternative ways in which community members can get involved.

The study suggests that an important consideration when investigating trust or agency-community relationships in general is whether community members see the Forest Service as a ''nameless faceless entity,'' as one participant described, or if they see the Forest Service as people with whom they've interacted and gotten to know over time. The study findings support the notion that increased interaction between community members and agency personnel will increase trust in the Forest Service. Relational trust, a concept offered by Rousseau and others (1998), develops through repeated interactions and may evoke a deeper, emotional commitment and a sense of shared identity. In contrast, what Rousseau and others label calculative trust is driven by discrete exchanges and rational judgments about the costs and benefits of the engagement. In turn, the authors contend that relational trust is more durable and likely to persist in situations where outcome expectations are not met. Several participants described the broader community as indifferent or distrusting, because residents are unaware of Midewin or the Forest Service's role at Midewin.

The study also reveals that with respect to institutional trust, shared values plays a central role. Participants described decisions and actions that are inconsistent with their own values or community values as a constraint to trust. In particular, the uncertainty of the values of future Forest Service administrators or the U.S. administration influenced trust in the agency. These findings are supported by Cvetkovich and Winter (2003) and Winter and Cvetkovich (2003) whose research linked shared values with trust in the Forest Service's endangered species and wildland fire management.

Evidence of the role of procedural fairness (Lind and Tyler 1988) in institutional trust also existed, as some participants explained their trust in the agency as being grounded in decision-making processes. Parkins and Mitchell (2005) call this ''critical trust.'' A participant who described a public hearing as an ''exercise in futility'' clearly indicated that he did not trust the Forest Service. For those who participate in the agency's collaborative planning processes, perceived unfairness is certainly a barrier to trust. This form of trust was demonstrated clearly by one participant who said, ''that's why I've been interested in government all my life and an active participant. I trust them to do [the right thing] if they have public input, if they understand what their charge is.''

We believe that using an in-depth qualitative approach and including non-participants in collaborative processes in our sample enabled us to better understand local community members' trust in the Forest Service. Future research on local community members and their trust in natural resource management agencies should avoid the simplification of trust as shared values or procedural fairness, since interpersonal relationships emerged as such an important dimension of trust in this study. We would also encourage research on citizens' or community members' dependence on and vulnerability to management agencies as a component of trust. Stakeholders who are highly vulnerable to and dependent on natural resource management may have different needs and expectations for trust than stakeholders who are less vulnerable and dependent. Social psychology literature suggests that a sense of vulnerability, or dependence, plays a strong role in trust.

## Recommendations

In the case of building trust, knowing your audience is imperative. In federal land management, institutional trust in management outcomes is relevant to most citizens. The general public trusts (or does not trust) that an agency's management decisions and actions will demonstrate a certain set of values, mix of knowledge, and capacity to make things happen. One faction of the general public is not willing to trust institutions on management outcomes alone, and instead relies on opportunities for public involvement. For these citizens institutional trust in management processes—that they are fair and meaningful—is most relevant. For a second faction of the general public, local community members, interpersonal trust comes into play. Those citizens who have repeated positive interactions with agency personnel are more likely to either trust the agency or distinguish between trusting personnel and trusting the agency. In the case of the latter, they are more likely to be able to identify with personnel and potentially understand the institutional barriers they face.

Efforts to formalize and standardize public involvement in natural resource management haven't necessarily improved relationships between agencies and local community members or built trust, because they are aimed at increasing institutional trust in management processes, especially for the general public. For communities, many of whom rely on agencies as good neighbors, it is interpersonal trust that is critical. Furthermore, institutional trust in both processes and outcomes may mean something very different to local community members than it does to the general public as several agency participants astutely recognized.

To promote interpersonal trust, agencies should focus on informal relationship-building strategies that provide opportunities for repeated interactions. Agencies should offer incentives and rewards to employees for on-the-job and off-the-job participation in community life. Encouraging longer unit tenures and local community residency will strengthen relationships and build interpersonal trust. At the same time, Rousseau and others (1998) warn that this type of relational trust has a higher potential for intensifying negative beliefs about another's intentions or behaviors, if interactions are negative. Therefore, the agency also should provide necessary training in public relations or conflict management for staff. Similarly, cultural awareness training for new employees who aren't from the area or who aren't familiar with local traditions is recommended.

To build institutional trust in management outcomes, managers should seek opportunities to incorporate local community values and knowledge into management programs and policies within the guiding framework of the unit's mission. For example, hiring community members as employees, using local contractors, and patronizing local businesses all contribute to a community's economic goals. Identifying local experts and showcasing their skills and incorporating their knowledge into agency programs will strengthen agency-community relationships. Every community has its local experts. Whether they are highly knowledgeable or skilled in the community's historical or present-day culture, local experts represent an invaluable resource to natural resource agencies and can help increase an agency's capacity to get things done. Many agencies wisely have begun to employ the services of locals as interpreters and tour guides. The next step is to tap into the broader range of local expertise and become a hub for community learning. Managers should identify a variety of local experts—historians, craftspeople, storytellers, artists, photographers, writers, agriculturalists, and recreationists—to lead programs, showcasing local knowledge. Community experts can serve as agency advisers and liaisons between the agency and the community.

To promote institutional trust in management processes, managers must find creative ways to adapt the standardized public involvement process to the local context. As several participants recognized, the agency has experienced increasing internal demands and, in particular, heightened procedural requirements. The result—what has been labeled "process predicament"— is a slower, more deliberate, and complex process that in some cases has stymied agency personnel's ability to demonstrate capacity and to build relationships in the local community. Rousseau and others (1998) argue that institutional controls and mechanisms intended to foster trust, may actually work against trust. Standardizing the process makes personalizing it more difficult. Even collaborative planning processes intended to get locals involved may not be well received because of economic constraints or other issues tied to social justice. As one participant remarked, "there's a whole segment of the population that does not even have time. We have one child. We can't be involved in a lot, let alone a family of three..."

What types of strategies for promoting community involvement are needed? A constant theme in both agency and community participants' perspectives is that the community lacks an understanding and awareness of the agency, its management processes, and the constraints it faces in ensuring appropriate management outcomes. Based on the interviews, community members want consistent and honest communication, sincere and meaningful collaboration, and jointly implemented and mutually benefiting actions. The key to getting the community involved is to go out into the community and motivate community members to get involved in all phases of management processes. Avenues for involvement should be clearly communicated. Activities should be held at convenient times for community members and should be well advertised in local media. Decision-making processes including the role of collaborative planning, and specifically how community input is considered, should be interpreted to community members. Current volunteer networks and advocacy organizations in place at Midewin provide limitless possibilities in motivating community members of all ages to take part in restoration. Similarly, managers should identify their own needs and build programs and incentives for community-based partnerships in management, such as water quality monitoring, exotic plant removal, campsite clean-ups, and facilities maintenance.

Much of the onus for building institutional and interpersonal trust within local communities falls on agency administrators and policymakers to provide the needed human, physical, and financial resources managers and staff require. An agency participant asks how Midewin staff can sustain trust when resources have diminished:

> "I think one of the conflicts that always comes up...is the demands on the workforce. I do a fair amount of evening meetings, [other personnel] do evening meetings. As we look at intensifying the on the ground management, some of the things that fall off are some of those evening meetings that have bought us a lot in terms of public ownership and expectation. ...How do we not let some of those critical things that come down to the foundation of public trust fall through the cracks, because we have so many process requirements and a lot of internal things that we have to do?"

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## References

Barber B (1983) The logic and limits of trust. New Brunswick, NJ, Rutgers University Press

Berg BL (2004) Qualitative research methods. Boston, Pearson

Cantrill JG (1998) The environmental self and a sense of place: communication foundations for regional ecosystem management. Journal of Applied Communication Research 16:301–318

Carroll MS, Hendrix WG (1992) Federally protected rivers: The need for effective local involvement. Journal of the American Planning Association 58(3):346–352

Cvetkovich G, Winter PL (2003) Trust and social representations of threatened and endangered species. Environment and Behavior 35(2):286–307

Davenport MA (2003). Mixing metaphors: A community-based vision for the Niobrara National Scenic River. Forest Resources. St. Paul, University of Minnesota, 122 pp

Davenport MA, Anderson DH (2005) Getting from sense of place to place-based management: An interpretive investigation of place meanings and perceptions of landscape change. Society and Natural Resources 18(7):625–641

Dunlap RE (2000) The environmental movement at 30. The Polling Report 16(8):6–8

Earle TC, Cvetkovich GT (1995) Social Trust: Toward a More Cosmopolitan Society. Westport, CT, Praeger Publishers

Frenz IC, Voth DE, Burns S, Sperry CW (2000) Forest Service-community relationship building: Recommendations. Society and Natural Resources 13:549–566

Hull RB, Robertson DP, Kendra A (2001) Public understandings of nature: A case study of local knowledge about ‘‘natural’’ forest conditions. Society and Natural Resources 14:325–340

Hammond B (1994) Forest Service Values Poll questions: Results and analysis. Tampa, USDA Forest Service

Hendee JC (1984) Public opinion and what foresters should do about it. Journal of Forestry 82(6):340–344

Hunt L, Haider W (2001) Fair and effective decision making in forest management planning. Society and Natural Resources 14:873–887

Kasperson R, Golding D, Tuler S (1992) Social distrust as a factor in siting hazardous waste facilities and communicating risks. Journal of Social Issues 48(4):161–187

Krannich RS, Smith MD (1998) Local perceptions of public lands natural resource management in the rural West: Toward improved understanding of the ‘‘revolt in the West.’’ Society and Natural Resources 11:677–695

Lachapelle P, McCool SF, Patterson ME (2003) Barriers to effective natural resource planning in a ‘‘messy’’ world. Society and Natural Resources 16(6):473–490

Lawrence RL, Daniels SE, Stankey GH (1997) Procedural justice and public involvement in natural resource decision making. Society and Natural Resources 10:577–589

Lilijeblad A (2005) Towards a more comprehensive understanding of trust: Exploring the public’s trust in natural resources management. Unpublished masters thesis. University of Montana, Missoula, MT, 112 pp

Lind EA, Tyler TR (1988) The social psychology of procedural justice. New York, Plenum Press

Marshall C, Rossman GB (1998) Designing qualitative research. Newbury Park, CA, Sage Publications

McCool S, Guthrie K (2001) Mapping the dimensions of successful public participation in messy natural resources management situations. Society and Natural Resources 14:309–323

Nie M (2003) Drivers of natural resource-based political conflict. Policy Sciences 36:307–341

Parkins JR, Mitchell RE (2005) Public participation as public debate. A deliberative turn in national resource management. Society and Natural Resources 18(6):529–540

Pretty J, Ward H (2001) Social capital and the environment. World Development 29(2):209–227

Rousseau DM, Sitkin SB, Burt RS, Camerer C (1998) Not so different after all: A cross-discipline view of trust. The Academy of Management Review 23(3):393–404

Shannon MA (1990) Building trust: The formation of a social contract. Community and Forestry: Continuities in the Sociology of Natural Resources. Lee RG, Field DR and. Burch JWR (eds). Boulder, Co, Westview Press, pp 229–240

Shindler B, Cramer LA (1999) Shifting public values for forest management: Making sense of wicked problems. Western Journal of Applied Forestry 14(1):28–34

Shindler B, Toman E (2003) Fuel reduction strategies in forest communities: A longitudinal analysis of public support. Journal of Forestry 101(6):8–15

Siegrist M, Earle T, Gutscher H (2003) Test of a trust and confidence model in the applied context of electromagnetic field (EMF) risks. Risk Analysis 23(4):705–716

Siegrist M, Cvetkovich G (2000) Perception of hazard: The role of social trust and knowledge. Risk Analysis 20(5): 713–719

Sitkin S, Roth N (1993) Explaining the limited effectiveness of legalistic ‘‘remedies’’ for trust/distrust. Organization Science 4(3):367–392

Smith PD, McDonough MH (2001) Beyond public participation: Fairness in natural resource decision making. Society and Natural Resources 14:239–249

Strauss A, Corbin J (1990) Basics of qualitative research. Newbury Park, Sage Publications

Tyler TR, Degoey P (1995) Collective restraint in social dilemmas: Procedural justice and social identification effects on support for authorities. Journal of Personality and Social Psychology 69(3):482–497

U.S. Census Bureau (2004) www.census.gov [accessed: May 11, 2005]

Williams DR, Patterson ME, Roggenbuck JW, Watson AE (1992) Beyond the commodity metaphor. Leisure Sciences 14:29–46

Winter G, Vogt CA, McCaffrey (2004) Examining social trust in fuels management strategies. Journal of Forestry 102(6):8–15

Winter PL, Cvetkovich G (2003) A study of Southwesterners’ opinions on the management of wildland and wilderness fires: Fire Management Version. Riverside, CA, Pacific Southwest Research Station, USDA Forest Service

Winter PL, Palucki LJ, Burkhardt RL (1999) Anticipated responses to a fee program: The key is trust. Journal of Leisure Research 31(3):207–226

Wondelleck JM, Yaffee SL (2000) Making Collaboration Work: Lessons from innovation in natural resource management. Washington, DC, Island Press